VOLUME 2 - APPENDICES

FINAL

ENVIRONMENTAL IMPACT STATEMENT

AIYA SOLAR PROJECT

On Behalf of:

THE MOAPA BAND OF PAIUTE INDIANS

BUREAU OF INDIAN AFFAIRS
BUREAU OF LAND MANAGEMENT
ENVIRONMENTAL PROTECTION AGENCY
US FISH AND WILDLIFE SERVICE

FEBRUARY 2016

FINAL

ENVIRONMENTAL IMPACT STATEMENT

(FEIS)

AIYA SOLAR PROJECT

On Behalf of:

THE MOAPA BAND OF PAIUTE INDIANS

BUREAU OF INDIAN AFFAIRS
BUREAU OF LAND MANAGEMENT
ENVIRONMENTAL PROTECTION AGENCY
US FISH AND WILDLIFE SERVICE

February 2016

APPENDICES

TABLE OF CONTENTS

Appendix A

Scoping Report

AIYA SOLAR PROJECT

ENVIRONMENTAL IMPACT STATEMENT

SCOPING 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

February 2015

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

The Bureau of Indian Affairs (BIA) is the lead Federal agency responsible for the National Environmental Policy Act (NEPA) process for the proposed Aiya Solar Project (Project). Additionally, BIA is the lead Federal agency coordinating and assuring compliance with the Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA). The Bureau of Land Management (BLM) is a key cooperating agency involved in the compliance process along with the Moapa Band of Paiute Indians (Tribe), the U.S. Environmental Protection Agency (EPA), and the U.S. Fish and Wildlife Service (USFWS). Collectively, these agencies intend to prepare an Environmental Impact Statement (EIS) for the proposed Aiya Solar Project located on the Moapa River Indian Reservation (Reservation) in Clark County, Nevada.

The NEPA scoping process is designed to encourage involvement by all interested parties and to help agencies make better-informed decisions. This report summarizes all comments received during the scoping period for the EIS. The BIA and cooperating agencies will fully analyze the issues raised by these scoping comments to help shape the environmental analysis and alternatives to be considered in the Draft EIS.

The purpose of this report is to summarize issues raised by individuals, organizations and agencies during the scoping comment period for this project. This report also describes methods used for soliciting input, as well as how comments received were categorized by resource topic. A copy of each individual comment received is contained in Appendix E of this report.

PROJECT DESCRIPTION

Aiya Solar Project, LLC (a subsidiary of First Solar) has entered into an agreement with the Moapa Band of Paiute Indians (Tribe) to lease land, up to 50 years, on the Moapa River Indian Reservation (Reservation) to construct and operate an up-to 100 megawatt (MW) alternating current solar photovoltaic (PV) electricity generation facility on up to 900 acres located entirely on the Reservation and specifically on lands held in trust by the Bureau of Indian Affairs (BIA) for the Tribe. The project is located at the intersection of Reservation Road and Highway 168, about 40 miles northeast of Las Vegas.

Project infrastructure would include a 230 kilovolt (kV) electric transmission line (gen-tie) that would interconnect the solar generation facility to the electrical grid at or near the existing Reid-Gardner Substation and a temporary above-ground water pipeline. The proposed gen-tie line would be located on Tribal lands, Federal lands administered and managed by the Bureau of Land Management (BLM), and possibly private lands. The water pipeline would be located entirely on Tribal lands. Together, the proposed solar energy facility, transmission line, water pipeline, and other associated facilities will make up the proposed solar project.

2.0 SCOPING PROCESS AND SOLICITATION OF COMMENTS

During the scoping period, the BIA informed the public, landowners, Government agencies, tribes and interested stakeholders about the proposed Aiya Solar Project and solicited their comments.

The BIA announced the project and scoping process, held public scoping meetings, and invited the public to comment and ask questions. The project and public scoping meetings were publicized in the Federal Register, on the project website, in letters mailed to interested stakeholders, and through public notices/news releases published in local newspapers. These outreach and notification activities are described in more detail in the following subsections.

FEDERAL REGISTER

The public scoping period officially began with the publication of the Notice of Intent (NOI) to prepare an EIS, which described the project, announced the public scoping meetings, and outlined the ways to provide comments for the Aiya Solar Project. The NOI was published in the Federal Register on November 21, 2014 and can be found in **Appendix A**. Notice of an extension of the public comment period to was published in the Federal Register on January 28, 2015 and is also included in **Appendix A**

PROJECT WEBSITE

A project website was established for access by anyone at any time during the EIS process. It provides project information and an opportunity to submit comments. The website will remain active for the duration of the EIS process and can be accessed at http://www.AiyaSolarProjectEIS.com .

SCOPING NOTIFICATION LETTER

Scoping notification letters were sent by the BIA to Government agencies, elected officials, property owners near the proposed project, various non-Governmental organizations, and other interested stakeholders. The scoping letter briefly explained the project, identified the Federal review process, announced the public scoping meetings, and described the various ways to provide comments. Included with the scoping notification letter were two maps displaying the project location and project area.

Over 77 scoping letters and maps were mailed on December 22, 2014. The scoping letter, maps and the project mailing list can be found in **Appendix B**.

NEWSPAPER ADVERTISEMENTS

A legal notice/public notice announcing the public scoping meetings was published in three local newspapers on December 24, 2014. This was followed by a notice of the extension of the public comment period on January 7, 2015 in the same publications. The publications included:

- Las Vegas Review Journal
- Las Vegas Sun
- Moapa Valley Progress

Copies of the published legal notices/public notices can be viewed in **Appendix B**.

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, 2600 North Central Avenue, 4th Floor Mailroom, Phoenix, AZ 85004 or Mr. Paul Schlafly, Natural Resource Specialist, BIA, Southern Paiute Agency, 180 North 200 East Suite 111, P.O. Box 720, St George, Utah, 84770.

Comments could be submitted on the "Getting involved" tab on the project website via the "Submit comment here" comment form at http://www.AiyaSolarProjectEIS.com .

Comments could be provided via email, telephone or fax to either Mr. Chip Lewis at chip.lewis@bia.gov; telephone: (602) 379-6782; fax (602) 379-3833 or Mr. Paul Schlafly, at paul.schlafly@bia.gov; telephone: (435) 674-9720; fax: (435) 674-9714.

Comments could be provided at the public scoping 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). A copy of the comment form is provided in **Appendix C**. See below for the details of the scoping meetings.

3.0 PUBLIC SCOPING MEETINGS

The BIA hosted two public information and scoping meetings – one on the Moapa River Indian Reservation and the other in Las Vegas at the BLM offices. These meetings provided a description of the NEPA process, information on the proposed project, and the opportunity to provide public comments. The two public scoping meetings were held at the times and locations listed below.

Meeting Date and Time	City/State/Zip Code	Address	Attendance
January 14, 2015, 5:30PM to 7:30PM	Moapa Town, NV 89025	Moapa River Indian Reservation Tribal Hall One Lincoln Street	26*
January 15, 2015, 5:30PM to 7:30PM	Las Vegas, NV 89130	BLM - Southern Nevada District Office 4701 North Torrey Pines Drive	14*
Total Attendance			**40**

**Note: These attendance numbers include individuals from BIA, BLM and First Solar.*

The public scoping meetings were conducted as a combination of open house and formal presentation. Attendees were greeted at the entrance and asked to sign in. Handouts were available and posters were on display that described the project and NEPA process. Attendees were able to ask questions to the agency and project representatives during the presentation and before/after while viewing posters.

HAND-OUTS

The following handouts were available at the public meetings:

- Two-page Aiya Solar Project fact sheet with project area and project location maps
- Comment form

Copies of the handouts available at the meetings can be found in **Appendix C**.

PRESENTATION

At approximately 5:30 pm, a formal presentation was provided followed by time for questions and answers and ending with an open house. Both scoping meetings followed the same agenda.

Each program opened with a welcome and introductions by Mr. Chip Lewis, acting Environmental Protection Officer for the Bureau of Indian Affairs, and project manager for the Aiya Solar Project EIS. Mr. Darren Daboda, Chairman of the Moapa Band of Paiute Indians, offered opening remarks providing a brief history of the Reservation, his vision the future of his people and the importance of the proposed project to the Moapa band of Paiute Indians. At the meeting on January 14, in Moapa, Chairman Daboda's remarks were followed with a blessing by tribal elder Eunice Ohte. On January 15, in Las Vegas, Chairman Daboda followed his remarks with an invocation.

Mr. Lewis then introduced Mr. Jim Williams, the Superintendent for the BIA Southern Paiute agency who welcomed attendees. Next, Mr. Lewis provided an overview of the NEPA process followed by Randy Schroeder of ENValue (the project EIS consultant team) who presented the proposed project with an overview of the technical aspects and a summary of the environmental issues identified to date. Finally, Ms. Melanie Falls, project developer with First Solar, provided more detail about the PV technology that would be used, and introduced several members of the First Solar /Aiya Solar Project team. Following the presentation, attendees were invited to provide verbal comments or ask questions about the proposed project.

A court reporter was present at both meetings to record the presentation and the public comments expressed. The scoping meeting presentation and transcripts are provided in **Appendix C**.

INFORMATION STATIONS

Both public meetings included the following posters/ stations arrange around the room:

- How to Participate
- Proposed Action
- NEPA Process/Schedule
- Involved Agencies
- Overall Project Description
- Photovoltaic Technology
- PV Solar Project Conceptual Site Layout
- Associated Project Facilities

Display boards presented at these stations are included in **Appendix C**.

4.0 COMMENT EVALUATION

COMMENTS RECEIVED

The scoping period began on November 21, 2014, the date the NOI was published in the Federal Register. In addition to comments received at the two scoping meetings and an interagency meeting, there were 8 comment letters/forms received through a variety of means (see "Methods for Submitting Comments" for more details). All comments were reviewed and categorized and are contained in **Appendix E**.

PROCESSING COMMENTS

Each comment letter was read to identify key issues and code them. Commenter contact information and coded comments were recorded. In some cases, a single comment document contained multiple comments that were identified using a coding system that corresponded to resource/issue categories. **Appendix D** contains the coding categories used.

SUMMARIZATION

This report summarizes issue areas identified from the scoping comments received. For the purposes of this summary, all comments were given equal weight, regardless of whether they were mentioned once or mentioned several times. This report does not prioritize issue areas or track the number of comments each issue category received. The identified issues and areas of concern will be used to guide the environmental analysis for the EIS.

5.0 COMMENT RESULTS BY RESOURCE TOPIC

The following sections organize the comments received by resource and issue categories. Each coded individual comment letter/form showing the individual comments is shown in **Appendix E**.

Water Resources

- Analyze all water sources available for the project.
- Prepare inventory of water resources including analysis of water rights, water rights ownership, and potential water availability.
- Avoid / minimize impacts to desert washes to the extent possible.
- Analyze all water sources available for the project. Verify owners of water rights. Disclose the amount of water to be used.
- Concern for intense flooding events; include planning for these events
- Concern with septic system built for O&M building does not impact water sources for existing homes.

Soils

- Identify and assess soils impacts associated with construction of the berm along Reservation Road.

Vegetation

- Consider transplanting cacti.

Cultural Resource

- Concern that cultural resource monitors be used.

Land/Resource Use

- Coordinate with the planned SSEA Eastern Nevada Transmission Project, located adjacent to project, to ensure each has appropriate space necessary
- In addition, the location and land ownership of new transmission lines, water lines and access roads must be clarified.

Socioeconomics

- Concern that project may be located in an area that could interfere with needed housing sites on the Reservation.
- Concern with the project's proximity to existing housing.
- Concern with Indian/Tribal preference employment and potential employment opportunities.

Wildlife

- Potential impacts to Desert tortoise and concern with potential gaps in tortoise fencing
- Potential impacts to Moapa dace.
- Concern regarding “lake effect” of panels and related avian issues
- Concern with possible effects to the State’s wildlife resources
- Evaluate impacts to birds from the project transmission line.

Air Quality

- A dust control permit must be obtained from Clark County Department of Air quality which requires a dust mitigation plan.
- Best Available Control Measures must be employed during construction activities at all times during construction.

Climate Change

- Evaluate potential effects of climate change to water, air, wildlife, and carbon sequestration.

Visual Resources

- Utilize appropriate lighting, building materials, colors and site placement that are compatible with the natural environment.
- Consider visual mitigation using vegetation along Reservation Road and SR 168.
- How tall are the towers for the PV?
- How tall are the transmission line poles?
- Will the transmission lines be located in existing transmission corridors?
- Determine whether Old Spanish Historic Trail is in the viewshed

Other

- Concern about whether power purchase agreement is in place determining where the power's going.
- Concern about incomplete scoping meeting notification.

Cumulative Impacts

- Consider the cumulative visual impacts from development activities, both temporary and permanent.

6.0 ISSUE SUMMARY

This section provides a summary of the key issues identified by the comments provided during scoping for the Aiya Solar Project. These issues will be addressed in the EIS analysis.

Water Resources	The evaluation of all water sources available for the project must include an inventory of water resources including analysis of water rights, water rights ownership, and potential water availability. Owners of water rights must be verified and amount of water to be used must be disclosed. Minimize impacts to desert washes to the extent possible. Evaluate and include planning for intense flooding events. Analyze possible effects of the septic system built for O&M building to determine whether it could impact water sources for existing homes.
Soils	The assessment of soils impacts should include those associated with construction of the berm along Reservation Road.
Vegetation	The evaluation of vegetation impacts must include the potential for transplanting cacti.
Cultural Resource	The potential impacts on cultural resources must include the consideration of using that cultural resource monitors during construction.
Land/Resource Use	The location and land ownership of new transmission lines, water lines and access roads must be clarified.
Socioeconomics	The potential socioeconomic effects of the project particularly on tribal members need to be evaluated. This must include a description of the employment available to the Moapa Band of Paiute Indians that would be provided by the project. Include a description of the project's proximity to existing and future housing sites on the Reservation including possible impacts from the project's septic system on existing homes.
Wildlife	Potential impacts to the desert tortoise overall and due to the potential for gaps in tortoise fencing must be evaluated. Potential effects on the Moapa dace must be evaluated. Discuss potential for "lake effect" of panels and related avian issues and whether mitigation is available. Avian impacts associated with transmission lines needs to be included. Analyses of possible effects to the State's wildlife resources must be included.

Air Quality	The potential impacts during construction must include the air quality permits needed from Clark County for dust control, including a dust mitigation plan and must describe the Best Available Control Measures to be undertaken during construction activities.
Climate Change	Potential effects of climate change to water, air, wildlife, and carbon sequestration need to be addressed.
Visual Resources	The analysis of visual impacts must include the use of appropriate lighting, building materials, colors and site placement that are compatible with the natural environment. Also evaluate the mitigation of visual impacts using vegetation along Reservation Road and SR 168 and whether the Old Spanish Historic Trail is within the viewshed.
Other	A statement regarding whether power purchase agreement is in place and determining where the power's going must be included. Include disclosure of the scoping meeting notification.
Cumulative Impacts	The cumulative visual impacts from development activities, both temporary and permanent must be analyzed.

7.0 NEXT STEPS

The BIA will develop the Draft EIS (DEIS) focusing on the identified issues including evaluating a range of reasonable alternatives, assessing potential impacts, and identifying possible mitigation measures.

Once complete, the BIA will publicly circulate the Draft EIS for review and comment. During this period, the BIA will notify the public of the DEIS availability via a Notice of Availability (NOA) published in the Federal Register and public notices in the local papers. There will also be another round of public meetings.

Any public or stakeholder comments received on the Draft EIS will be addressed in the Final EIS (FEIS). The availability of the FEIS will also be announced via an NOA published in the Federal Register and public notices in the local papers.

The BIA anticipates providing periodic status updates as needed and publishing all project documents on the project website at

http://www.AiyaSolarProjectEIS.com .

Appendix A

Notice of Intent

Directions for Submitting Public Comments

Please include your name, return address, and the caption ''Programmatic EIS, Colville Reservation IRMP'' on the first page of any written comments you submit. You may also submit comments at the public scoping meetings.

The public scoping meetings will be held to seek comments from the Tribal Business Council, resource managers, agency representatives, and community members concerning the planning and environmental issues surrounding the use of natural resources of the Colville Reservation. The meetings will be held at various Colville Reservation communities and notices will be published in Omak-Okanogan County Chronicle, the Statesman Examiner, the Star, and the Tribal Tribune. Additional information will also be posted at the Tribe's Web site: *www.colvilletribes.com.*

Public Availability of Comments

Comments, including names and addresses of respondents, will be available for public review at the BIA address shown in the **ADDRESSES** section of this notice, during regular business hours, Monday through Friday, except holidays. Before including your address, phone 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 sections 1503.1 of the Council on Environmental Quality Regulations (40 CFR parts 1500 through 1508) and Sec. 46.305 of the Department of the Interior Regulations (43 CFR Part 46), implementing the procedural requirements of NEPA, 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.

Dated: November 10, 2014.

Kevin Washburn,

Assistant Secretary—Indian Affairs.

[FR Doc. 2014–27682 Filed 11–20–14; 8:45 am]

BILLING CODE 4310–W7–P

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

[AAK6006201 145A2100DD AOR3030.999900]

Notice of Intent To Prepare an Environmental Impact Statement for Aiya Solar Project on the Moapa River Indian Reservation, Clark County, NV

AGENCY: Bureau of Indian Affairs, Interior.

ACTION: Notice.

SUMMARY: In order to comply with the National Environmental Policy Act (NEPA), the Bureau of Indian Affairs (BIA), as lead agency in cooperation with the Moapa Band of Paiute Indians (Moapa Band), the Bureau of Land Management (BLM), and other Federal agencies, intend to prepare an environmental impact statement (EIS) that will evaluate a photovoltaic solar energy generation project on the Moapa River Indian Reservation and a transmission line located on tribal lands, private lands and Federal lands administered and managed by BLM in Clark County, Nevada.

This notice announces the beginning of the scoping process to solicit public comments and identify potential issues related to the EIS. It also announces that two public scoping meetings will be held in Nevada to identify potential issues, alternatives, and mitigation to be considered in the EIS.

DATES: The dates and locations of the public scoping meetings will be published in the Las Vegas Sun, Las Vegas Review-Journal, and Moapa Valley Progress 15 days before the scoping meetings. Written comments on the scope of the EIS or implementation of the proposal must arrive by December 22, 2014.

ADDRESSES: You may mail, email, or hand carry written comments to either Mr. Paul Schlafly, Natural Resource Specialist, Bureau of Indian Affairs, Southern Paiute Agency, 180 North 200 East Suite 111, P.O. Box 720, St. George, Utah 84770; telephone: (435) 674–9720; email: *paul.schlafly@bia.gov,* or Mr. Chip Lewis, Acting Regional Environmental Compliance Officer, BIA Western Regional Office, 2600 North Central Avenue, 4th Floor Mailroom, Phoenix, Arizona 85004; telephone: (602) 379–6782; email: *chip.lewis@bia.gov.*

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 Moapa Band with a 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 Moapa River Indian Reservation and specifically on lands held in trust by BIA for the Moapa Band. The proposed 230 kilovolt (kV) generation-tie transmission line required for interconnection may be located on Tribal lands, private lands and/or Federal lands administered and managed by BLM. First Solar has accordingly requested that the 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 will make up the proposed Moapa River 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 First Solar's 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 either NV Energy's Reid-Gardner 230kV substation or the proposed Reid Gardner Collector Substation, which is under development by NV Energy.

Construction of the Project is expected to take approximately 12 to 15 months. First Solar 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 Moapa Tribe and First Solar. The Project is expected to be built in one phase of up to 100 MW, per the demand of potential off-takers or utilities. 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 the Project would be leased from the

Moapa Band and the EIS will consider the impacts of alternative sources and delivery methods.

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

The BIA will prepare the EIS in cooperation with the Moapa Band, BLM, and possibly the Army Corps of Engineers, Environmental Protection Agency, and National Park Service. In addition, the U.S. Fish and Wildlife Service (USFWS) will provide input on the analysis. The resulting EIS will aim to: (1) Provide agency decision makers, the Moapa Band, and the general public with a comprehensive understanding of the impacts of the proposed Project and alternatives on the Reservation; (2) describe the cumulative impacts of increased development on the Reservation; and (3) identify and propose mitigation measures that would minimize or prevent significant adverse impacts. Consistent with these objectives, the EIS will analyze the proposed Project and appurtenant features, viable alternatives including other interconnection options, modified footprint alternatives, alternate routing for Project ROWs, and the No Action alternative. Other alternatives may be identified in response to issues raised during the scoping process.

The EIS will provide a framework for BIA and BLM to make determinations and to decide whether to take the aforementioned Federal actions. In addition, BIA will use and coordinate the NEPA commenting process to satisfy its obligations under Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) as provided for in 36 CFR 800.2(d)(3). Tribal consultations will be conducted in accordance with policy, and tribal concerns will be given due consideration, including impacts on Indian trust assets. Other Federal agencies may rely on the EIS to make decisions under their authority and the Moapa Band may also use the EIS to make decisions under their Tribal Environmental Policy Ordinance. The USFWS will review the EIS for consistency with the Endangered Species Act, as amended, and other implementing acts, and may rely on the EIS to support its decisions and opinions regarding the Project.

Issues to be covered during the scoping process may include, but would not be limited to, Project impacts on: Air quality, geology and soils, surface and groundwater resources, biological resources, threatened and endangered species, cultural resources, socioeconomic conditions, land use, aesthetics, environmental justice, and Indian trust resources. In addition to those already identified above, Federal, State, and local agencies, along with other stakeholders that may be interested or affected by the BIA's decision on the proposed Project, are invited to participate in the scoping process.

Directions for Submitting Comments

Please include your name, return address, and the caption "EIS, First Solar Solar Project," on the first page of any written comments. You may also submit comments at the public scoping meetings.

The public scoping meetings will be held to further describe the Project and identify potential issues and alternatives to be considered in the EIS. The first public scoping meeting will be held on the Reservation and the other public scoping meeting will be held in Las Vegas, Nevada. The dates of the public scoping meetings will be included in notices to be posted in the Las Vegas Sun, Las Vegas Review-Journal, and Moapa Valley Progress 15 days before the meetings.

Public Comment Availability

Comments, including names and addresses of respondents, will be available for public review at the mailing address 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, phone 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.

Authority

This notice is published in accordance with 40 CFR 1501.7 of the Council of Environmental Quality regulations and 43 CFR 46.235 of the Department of the Interior Regulations implementing the procedural requirements of the NEPA (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: November 14, 2014.

Kevin K. Washburn,

Assistant Secretary—Indian Affairs.

[FR Doc. 2014–27642 Filed 11–20–14; 8:45 am]

BILLING CODE 4310–W7–P

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[LLNVS00560.L58530000.EU0000.241A.XXX; MO# 4500068492]

Notice of Realty Action: Non-Competitive Direct Sale of the Reversionary Interest in a Recreation and Public Purpose Act (R&PP) Patent, in Clark County, NV (N–90426)

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice.

SUMMARY: The reversionary interest held by the United States in a 5.22-acre parcel of public land is determined suitable for direct sale and release to the Paradise Bible Baptist Church, under the authority of the Federal Land Policy and Management Act, as amended. The purpose of the direct sale is to dispose of the reversionary interest clause in the patented lands, which represents certain restrictions and conditions that prevents the Paradise Bible Baptist Church from using the land for other purposes.

DATES: Interested parties may submit written comments regarding the direct sale and release of reversionary interest until January 5, 2015.

ADDRESSES: Send written comments to the Bureau of Land Management (BLM), Las Vegas Field Manager, 4701 N. Torrey Pines Drive, Las Vegas, Nevada 89130, or email: *ddickey@blm.gov.*

FOR FURTHER INFORMATION CONTACT: Dorothy Jean Dickey, 702–515–5119, or *ddickey@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: On February 5, 1998, a 5.22-acre parcel was patented (patent number 27–98–0017) to the Paradise Bible Baptist Church under the authority of the R&PP Act of June 14, 1926, as amended, 43 U.S.C. 869 *et seq.* The purpose for which the land can be used is restricted by a reversionary clause in the patent, which returns title to the United States if the tract is used for other purposes not provided for in

considered parts of wolves (scat is not considered a part of a wolf and can be collected without a permit); translocate; transport between approved Mexican wolf captive management facilities in the United States and Mexico; to approved release sites; and purposeful lethal take (lethal take is limited to Mexican wolves within the MWEPA in Arizona and New Mexico); hazing via less-than-lethal projectiles; injurious harassment; research; and any other USFWS-approved husbandry practice or management action for Mexican wolves.

Obtaining Documents for Review

Please note that all the documents we made available from the date of publication of our earlier notice (January 15, 2015) are correct. If you already obtained any documents for review, you do not need to request new copies.

National Environmental Policy Act (NEPA)

In compliance with the NEPA (42 U.S.C. 4321 *et seq.*), we have analyzed the proposed activities in permit TE091551 in the *Final Environmental Impact Statement for the Proposed Revision to the Regulations for the Nonessential Experimental Population of the Mexican Wolf (Canis lupus baileyi)* (November 2014).

Dated: January 23, 2015.

Joy E. Nicholopoulos,

Acting Regional Director, Southwest Region, U.S. Fish and Wildlife Service.

[FR Doc. 2015–01662 Filed 1–26–15; 4:15 pm]

BILLING CODE 4310–55–P

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

[AAK6006201 156A2100DD AOR3030.999900]

Extending Public Scoping Period for the Snow Mountain Solar Project on the Las Vegas Paiute Indian Reservation, Clark County, NV.

AGENCY: Bureau of Indian Affairs, Interior.

ACTION: Notice.

SUMMARY: The Bureau of Indian Affairs (BIA) is extending the public scoping period for the Snow Mountain Solar Project on the Las Vegas Paiute River Indian Reservation.

DATES: Scoping comments are due on January 30, 2015.

FOR FURTHER INFORMATION CONTACT: Mr. Chip Lewis at (602) 379–6782; email: *chip.lewis@bia.gov.*

SUPPLEMENTARY INFORMATION: The BIA published a Notice of Intent to Prepare an Environmental Impact Statement in the **Federal Register** on November 19, 2014 (79 FR 68909) and provided for a 30-day scoping comment period. The BIA is extending the comment period from December 19, 2014, to January 30, 2015 and will accept any comments received prior to January 30, 2015. Please refer to the November 19, 2014 (79 FR 68909) Notice of Intent for project details and commenting instructions.

Dated: January 14, 2015.

Kevin K. Washburn,

Assistant Secretary—Indian Affairs.

[FR Doc. 2015–01585 Filed 1–27–15; 8:45 am]

BILLING CODE 4337–2A–P

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

[AAK6006201 156A2100DD AOR3030.999900]

Extending Public Scoping Period for the Aiya Solar Project on the Moapa River Indian Reservation, Clark County, NV

AGENCY: Bureau of Indian Affairs, Interior.

ACTION: Notice.

SUMMARY: The Bureau of Indian Affairs (BIA) is extending the public scoping period for the Aiya Solar Project on the Moapa River Indian Reservation.

DATES: Scoping comments are due on January 30, 2015.

FOR FURTHER INFORMATION CONTACT: Mr. Chip Lewis at (602) 379–6782; email: *chip.lewis@bia.gov.*

SUPPLEMENTARY INFORMATION: The BIA published a Notice of Intent to Prepare an Environmental Impact Statement in the **Federal Register** on November 21, 2014 (79 FR 69522) and provided for a 30-day scoping comment period. The BIA is extending the comment period from December 22, 2014, to January 30, 2015. Please refer to the November 21, 2014 (79 FR 69522) Notice of Intent for project details and commenting instructions.

Dated: January 14, 2015.

Kevin K. Washburn,

Assistant Secretary—Indian Affairs.

[FR Doc. 2015–01583 Filed 1–27–15; 8:45 am]

BILLING CODE 4337–2A–P

DEPARTMENT OF THE INTERIOR

National Park Service

[NPS–WASO–CR–16980; PPWOCRADI0, PCU00RP14.R50000 (155)]

Proposed Information Collection; Nomination of Properties for Listing in the National Register of Historic Places

AGENCY: National Park Service, Interior.

ACTION: Notice; request for comments.

SUMMARY: We (National Park Service) will ask the Office of Management and Budget (OMB) to approve the information collection (IC) described below. To comply with the Paperwork Reduction Act of 1995 and as a part of our continuing efforts to reduce paperwork and respondent burden, we invite the general public and other Federal agencies to comment on this IC. This IC is scheduled to expire on September 30, 2015. We may not conduct or sponsor and a person is not required to respond to a collection unless it displays a currently valid OMB control number.

DATES: To ensure that we are able to consider your comments on this IC, we must receive them by March 30, 2015.

ADDRESSES: Send your comments on the IC to Madonna L. Baucum, Information Collection Clearance Officer, National Park Service, 1849 C Street NW. (Mail Stop 2601), Washington, DC 20240 (mail); or *madonna_baucum@nps.gov* (email). Please include ''1024–0018'' in the subject line of your comments.

FOR FURTHER INFORMATION CONTACT: To request additional information about this IC, contact Lisa Deline, NPS Historian, National Register of Historic Places, 1849 C Street NW. (Mail Stop 2280), Washington, DC 20240.

SUPPLEMENTARY INFORMATION:

I. Abstract

The National Register of Historic Places (National Register) is the official Federal list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture. National Register properties have significance to the history of communities, States, or the Nation. The National Historic Preservation Act of 1966 requires the Secretary of the Interior to maintain and expand the National Register, and to establish criteria and guidelines for including properties on the National Register. National Register properties must be considered in the planning for Federal or federally assisted projects, and listing in the National Register is required for

Appendix B

Scoping Notifications and Mailing List

APPENDIX B – SCOPING NOTIFICATIONS AND MAILING LIST

In addition to the NOI, the public was formed about the scoping period and public meetings by one or more of the following notifications:

- Public notification via U.S. Mail:
    - Mailing list
    - Scoping letter
    - Project overview maps

- Newspaper advertisements
    - Las Vegas Review Journal
    - Las Vegas Sun
    - Moapa Valley Progress

Scoping Letter

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 Intent to Prepare an Environmental Impact Statement 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 US Fish and Wildlife Service as cooperating agencies, intend to gather information necessary for preparing an Environmental Impact Statement (EIS) for the proposed Aiya Solar Project located on the Moapa River Indian Reservation, Clark County, Nevada. This notice also announces public scoping meetings-one at the Moapa River Indian Reservation and one at the BLM Southern Nevada District Office-to identify potential issues and content for inclusion in the EIS.

DATES: In order to be fully considered at this stage of the environmental review process, written comments on the scope and implementation of this proposal must be delivered to the address(es) provided below by January 30, 2015. The public scoping meeting on the Moapa River Indian Reservation will be held on January 14, 2015 and the public scoping meeting at the BLM Southern Nevada District Office will be held on January 15, 2015.

ADDRESSES: You may mail, e-mail, hand carry, telephone, 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 85004-3050; 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 "EIS Scoping Comments, Aiya Solar Project," on the first page of your written comments. Individual respondents may request confidentiality; however, anonymous comments will not be considered.

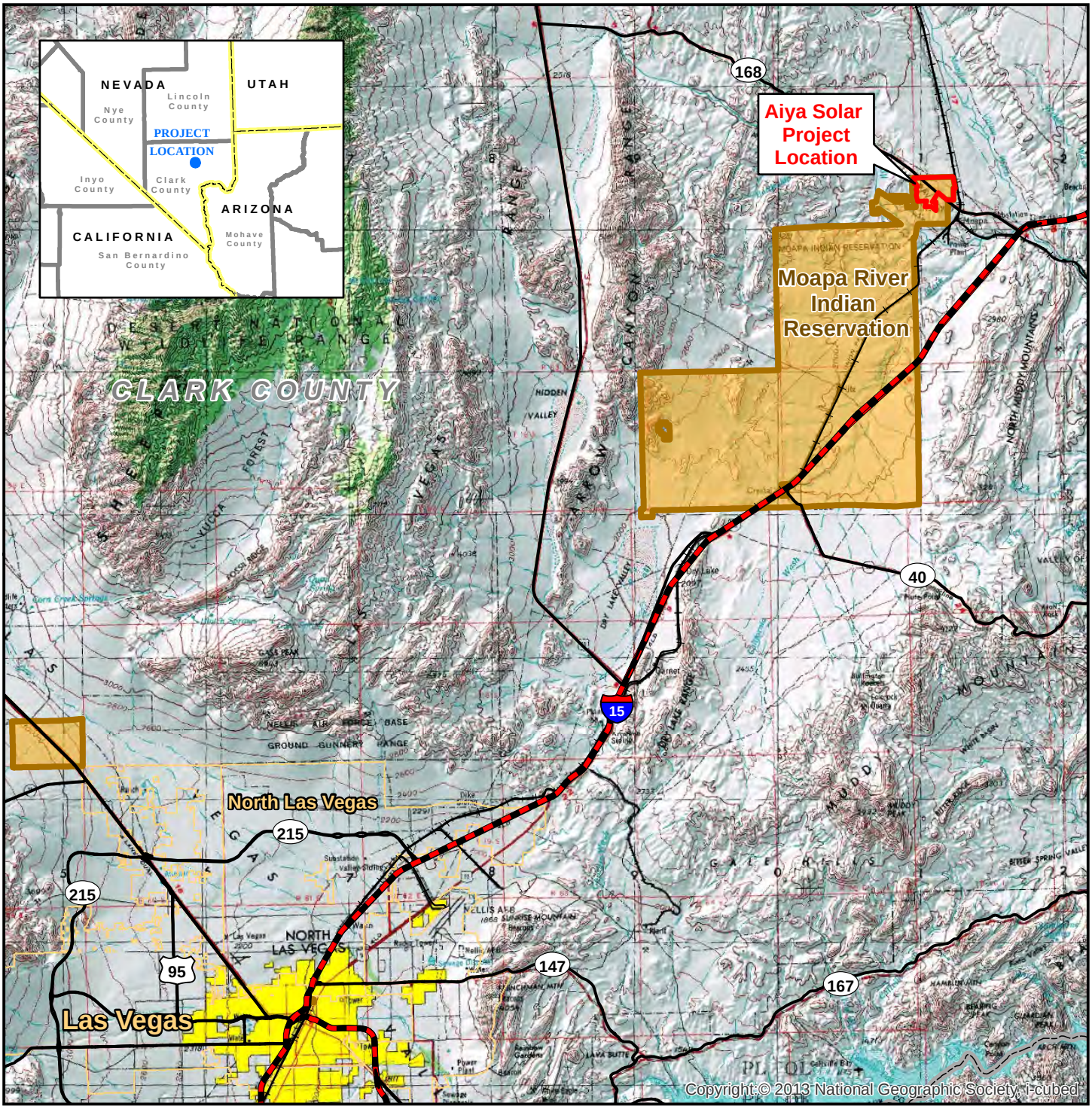
Both public meetings will be held from 5:30 to 7:30 pm. The January 14th public scoping meeting will be held in the Tribal Hall on the Moapa River Indian Reservation, 1 Lincoln Street, Moapa, NV 89025. The January 15th public scoping meeting will be held in the conference room of the BLM Southern Nevada 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 proposed Federal action, taken under 25 U.S.C. 415, is the BIA approval of a solar energy ground lease for approximately 1,000 acres and associated agreements entered into by the Moapa Band of Paiute Indians 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 Moapa tribal lands. 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 rights-of-way (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 Moapa Band may also use the EIS to make decisions under their Tribal Environmental Policy Ordinance. The U.S. Fish and Wildlife Service will review the document for consistency with the Endangered Species Act, as amended and other implementing acts.

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: 12/22/14

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



Legend

- Interstate
- US/ State Highway
- Railroad
- Solar Project Location
- Municipal Boundary
- Jurisdictional Land Ownership
- Indian Reservation

0 2 4 6 8 10

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

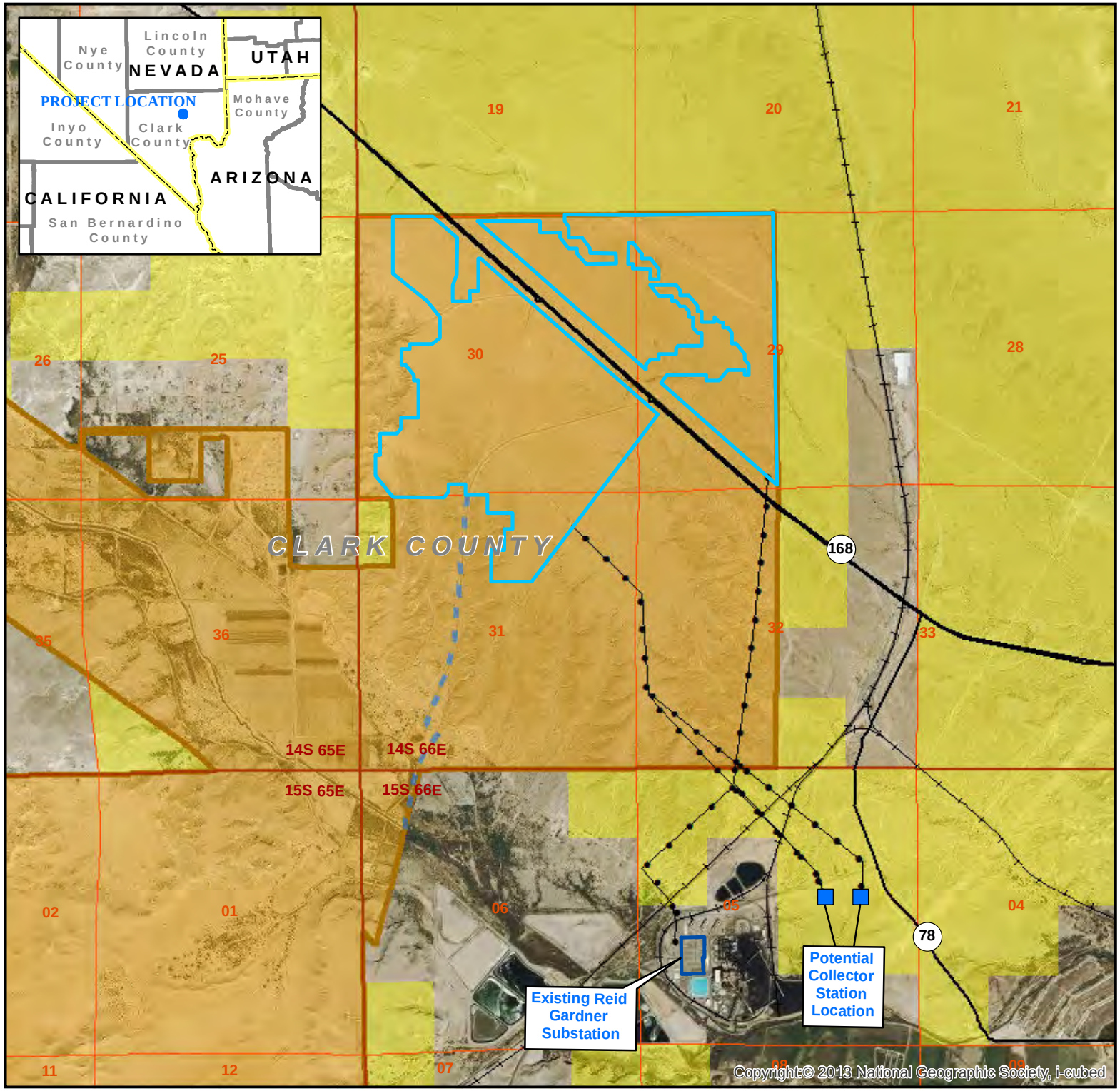
Aiya Solar Project

FIGURE 1
PROJECT LOCATION

Map Extent: Clark County, Nevada

Date: 09-29-14		Author: rnc

G:\Aiya Solar Project/MXD's/Project Location 8.5x11 092914.mxd



Legend

- Potential Collector Station Location
- Gen-Tie Routes
- Water Pipeline
- State Highway
- Railroad
- Project Area
- Existing Substation
- County Boundary
- Township / Range Boundary
- Section Boundary

Jurisdictional Land Ownership

- Bureau of Land Management Land
- Tribal Land

0 0.25 0.5 0.75 1

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Aiya Solar Project

Figure 2
Project Area

Map Extent: Clark County, Nevada

Date: 12-05-14		Author: rnc

I:\Solar Projectt/MXD's/Project Area

Mailing List

First	Last	Title	Organization/Affiliation	Address 1	Address 2	City	State	Zip
			Bright Source Energy Solar PTNR	1999 Harrison Street	Suite 500	Oakland	CA	94612
Chip	Lewis		Bureau of Indian Affairs	Western Regional Office Branch of Environmental Quality Services	2600 North Central Avenue, 4th Floor Mail Room	Phoenix	AZ	85004-3008
Christina M.	Varela		Bureau of Indian Affairs	Assistant Realty Specialist	P.O. Box 720	St. George	UT	84771
Paul	Schlafly		Bureau of Indian Affairs		P.O. Box 720	St. George	UT	84771
Greg	Helseth		Bureau of Land Management	Las Vegas Field Office	4701 North Torrey Pines Drive	Las Vegas	NV	89130
			Center for Biological Diversity	PO Box 710		Tucson	AZ	85702-0710
			Center for Energy Efficiency and Renewable Technologies	1100 11th Street, Suite 311		Sacramento	CA	95814
Tom	Perrigo	Acting Planning Director	City of Las Vegas Planning Department	333 N. Rancho Drive		Las Vegas	NV	89106
John	Willis		City of Mesquite	10 E. Mesquite Blvd.		Mesquite	NV	89027
Nancy A.	Amundsen	Director	Clark County Comprehensive Planning Department	P. O. Box 551744		Las Vegas	NV	89155-1744
			Clark County Department of Comprehensive Planning	Clark County Government Center	500 South Grand Central Parkway	Las Vegas	NV	89155
			Clark County Regional Flood Control District	600 South Grand Central Parkway	Suite 300	Las Vegas	NV	89106-4511
			Conservation District of Southern Nevada	5820 South Pecos Road A-400		Las Vegas	NV	89120
			Department of Air Quality and Environmental Management	Clark County Desert Conservation Program	500 South Grand Central Parkway	Las Vegas	NV	89155-5201
			Environment America	3435 Wilshire Blvd. #385		Los Angeles	CA	90010
			Environmental Defense Fund	1107 9th Street, Suite 540		Sacramento	CA	95814
Daniel	Shoemaker		Federal Aviation Administration	Air Traffic Airspace Branch, ASW-520	2601 Meacham Blvd.	Fort Worth	TX	76137-0520
Nancy	Hall	President	Friends of Gold Butte	PO Box 3664		Mesquite	NV	89024
			Friends of Nevada Wilderness	PO Box 33155		Las Vegas	NV	89133
			FTV Comm C/O Level 3	1025 Eldorado Way		Broomfield	CO	80023
			Great Basin Resource Watch	85 Keystone Avenue, Suite K		Reno	NV	89503
			Great Basin Transmission, LLC	400 Chesterfield Center	Suite 110	Chesterfield	MO	63017
			Holly Energy Partners	P.O. Box 1260		Artesia	NM	88211
			Intermountain Power Project	P.O. Box 111		Los Angeles	CA	90051
			Kern River Gas Transmission Company	P.O. Box 71400		Salt Lake City	UT	84171
		Attn: Real Estate Group	KRoad Moapa Solar, LLC	c/o First Solar Electric, LLC	135 Main St. 6th Floor	San Francisco	CA	94105
Ray	Nelson	President	Lahontan Audubon Society	Board of Trustees	P.O. Box 2304	Reno	NV	89505
Aletha	Tom	Chairwoman	Moapa Band of Paiutes	1 Lincoln Street	PO Box 340	Moapa	NV	89025
			Natural Resources Defense Council	1314 Second Street		Santa Monica	CA	90401
			Nellis Air Force Base	6020 Beale Ave	Suite 135	Nellis AFB	NV	89191
			Nevada Department of Air Quality and Environmental Management	Clark County Government Center	500 South Grand Central Parkway	Las Vegas	NV	89156
			Nevada Department of Conservation and Natural Resources	Las Vegas Office	2030 E Flamingo Rd, Ste 230	Las Vegas	NV	89119-0837
Steve	Cooke		Nevada Department of Transportation		1263 South Stewart Street	Carson City	NV	89712
			Nevada Department of Wildlife	Southern Region	4747 Vegas Drive	Las Vegas	NV	89108
			Nevada Division of Environmental Protection	901 South Stewart Street, Suite 4001		Carson City	NV	89701–5249
			Nevada Energy	Environmental Department	PO Box 98910	Las Vegas	NV	89151-0001
			Nevada Energy	Corporate Headquarters	6226 West Sahara Avenue	Las Vegas	NV	89146
			Nevada Environmental Coalition, Inc	10720 Button Willow Drive		Las Vegas	NV	89134
			Nevada Natural Heritage Program	901 South Stewart Street	Suite 5002	Carson City	NV	89701-5245
			Nevada Power Company		6226 West Sahara Avenue	Las Vegas	NV	89146
			Nevada State Historic Preservation Office	100 North Stewart Street		Carson City	NV	89701-4285
			Nevada Wildlife Federation	PO Box 71238		Reno	NV	89570
			NV Energy		P.O. Box 98910 MS # 9	Las Vegas	NV	89151
			PBS&J		901 N. Green Valley Parkway, Suite 100	Henderson	NV	89074
John	Hiatt	Conservation Committee Chair	Red Rock Audubon Society	PO Box 96691		Las Vegas	NV	89193
			Sierra Nevada Alliance	PO Box 7989		South Lake Tahoe	CA	96158
			Sierra Pacific Power Company		P.O. Box 10100	Reno	NV	89520
			Southern Nevada Water Authority	1001 S. Valley View Blvd		Las Vegas	NV	89153
			The Conservation Alliance	PO Box 1275		Bend	OR	97709
The Honorable Dian	Titus	Nevada District 1	U S HOUSE OF REPRESENTATIVES	550 East Charleston Blvd.	Suite B	Las Vegas	NV	89104
The Honorable Stev	Horsford	Nevada District 4	U S HOUSE OF REPRESENTATIVES	2250 Las Vegas Blvd. North	Suite 500	Las Vegas	NV	89030
The Honorable Joe	Heck	Nevada District 3	U S HOUSE OF REPRESENTATIVES	8872 S. Eastern Ave.	Suite 220	Las Vegas	NV	89123
The Honorable Mar	Amodei	Nevada District 2	U S HOUSE OF REPRESENTATIVES	5310 Kietzke Lane	Suite 103	Reno	NV	89511
The Honorable Dian	Titus	Nevada District 1	U S HOUSE OF REPRESENTATIVES	401 Cannon House Office Building		Washington	DC	20515
The Honorable Stev	Horsford	Nevada District 4	U S HOUSE OF REPRESENTATIVES	1330 Longworth House Office Building		Washington	DC	25015
The Honorable Joe	Heck	Nevada District 3	U S HOUSE OF REPRESENTATIVES	132 Cannon House Office Building		Washington	DC	20515
The Honorable Mar	Amodei	Nevada District 2	U S HOUSE OF REPRESENTATIVES	222 Cannon House Office Building		Washington	DC	20515
			Union Pacific Railroad Company	1400 Douglas Street		Omaha	NE	68179
The Honorable Harr	Reid	Senior Senator	UNITED STATES SENATE	333 Las Vegas Boulevard South, Suite 8016	Lloyd D. George Building	Las Vegas	NV	89101
The Honorable Dea	Heller	Junior Senator	UNITED STATES SENATE	8930 West Sunset Road	Suite 230	Las Vegas	NV	89148
The Honorable Harr	Reid	Senior Senator	UNITED STATES SENATE	522 Hart Senate Office Building		Washington	DC	20510
The Honorable Dea	Heller	Junior Senator	UNITED STATES SENATE	324 Hart Senate Office Building		Washington	DC	20510
Patricia	McQueary	Project Manager	US Army Corps of Engineers	St. George Regulatory Office	321 N Mall Drive, Suite L-101	St. George	UT	84790
Michael	Burroughs		US Fish and Wildlife Service	Southern Nevada Field Office	4701 North Torrey Pines Drive	Las Vegas	NV	89130
Karen	Vitulano		USEPA Region 9 – Communities and Ecosystems Division		75 Hawthorne Street, CED – 2	San Francisco	CA	94105
			Western Resource Advocates	204 North Minnesota Street	Suite A	Carson City	NV	89703

First	Last	Title	Organization/Affiliation	Address 1	Address 2	City	State	Zip
Richard M.	Berley		Ziontz, Chestnut, Varnell, Berley & Slonim	2101 Fourth Avenue	Suite 1230	Seattle	WA	98121
Mrs. Hermi	Hiatt			8180 Placid St.		Las Vegas	NV	89123
Don	Burnette	County Manager/CEO	Clark County, Las Vegas	500 S. Grand Central Parkway	6th Floor	Las Vegas	NV	89155
		Returned undeliverable Dec 2014.	Nevada Natural Resource Education Council	PO Box 4741		Carson City	NV	89702-4741
		Returned undeliverable Dec 2014.	Nevada Conservation League	7473 West Lake Mead Blvd	Suite 100	Las Vegas	NV	89128
		Returned undeliverable Dec 2014.	Nevada Wilderness Project	Southern Nevada Office	7465 West Lake Mead Blvd Suite #105	Las Vegas	NV	89128
Emily	Rhodenbaugh	Returned undeliverable Dec 2014.	Nevada Clean Energy Campaign	250 Bell Street		Reno	NV	89503
		Returned undeliverable Dec 2014.	The Nature Conservancy	1771 East Flamingo Road	Suite 104 A	Las Vegas	NV	89199
		Returned undeliverable Dec 2014.	Desert Tortoise Council	PO Box 3273		Beaumont	CA	92223
		Returned undeliverable Dec 2014.	Sierra Club	732 South 6th Street		Las Vegas	NV	89101-6948
		Returned undeliverable Dec 2014.	Natural Resource Conservation Service	5820 South Pecos Road	Building A, Suite 400	Las Vegas	NV	89120

Newspaper Notices

Affidavit of Publication

STATE OF NEVADA)
COUNTY OF CLARK) SS:

BOULDER MESA ENVIRONMENTAL
1155 ALBION ROAD
BOULDER CO 80305

Account # **29248**
Ad Number **0000397648**

Stacey M. Lewis, 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 12/24/2014 to 12/24/2014, on the following days:

12 / 24 / 14

PUBLIC MEETING
ANNOUNCEMENT

The U.S. Bureau of Indian Affairs (BIA) and the Moapa Band of Paiute Indians invite you to attend a scoping meeting to help identify the range and scope of issues related to the proposed

Aiya Solar Project.

The issues identified during the scoping process will be considered and addressed during preparation of the Environmental Impact Statement (EIS).

PLEASE PLAN TO ATTEND ONE OF THE FOLLOWING MEETINGS:

WEDNESDAY,
JANUARY 14, 2015
Moapa River Indian Reservation Tribal Hall,
One Lincoln Street,
Moapa, NV 89025-0340

THURSDAY,
JANUARY 15, 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 proposed Aiya Solar Project will have a capacity of 100 MW and will be located within the Moapa River Indian Reservation in Clark County, Nevada, west of Interstate 15 and approximately 40 miles northeast of Las Vegas. The project would also include a short electric transmission line that would cross BLM property to interconnect the project to the regional grid.

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

PUB: December 24, 2014
LV Review-Journal

BY Stacey M. Lewis
LEGAL ADVERTISEMENT REPRESENTATIVE

Subscribed and sworn to before me on this 24th day of December, 2014

Notary Mary A. Lee

MARY A. LEE
Notary Public State of Nevada
No. 09-0941-1
My Appt. Exp. Nov. 13, 2016

LAS VEGAS REVIEW-JOURNAL

Ad Number	Ad Type	Production Method	Production Notes
0000410527-01	LV-Legal	AdBooker	

External Ad Number	Ad Attributes	Ad Released	Pick Up
		No	

Ad Size	Color
3.02916666666667 X	

Ad Content

Extension of Public Comment Period

The U.S. Bureau of Indian Affairs (BIA) announces the extension of the scoping period to help identify the range and scope of issues related to the proposed

Aiya Solar Project.

Written comments on the scope and implementation of this proposal must now be received by January 30, 2015.

For more information on how to participate, go to the EIS website at http://www.aiyasolarprojecteis.com/ or contact Mr. Chip Lewis, Regional Environmental Protection Officer, at Chip.Lewis@bia.gov (602.379.6782) or Mr. Paul Schlafly, Natural Resource Officer, at paul.schlafly@bia.gov (435.674.9720).

PUB: January 7, 2015
LV Review-Journal

Product	Placement
LV-Review-Journal	Legal Ads
LV-Review-Journal Online	Legal Ads

LAS VEGAS REVIEW-JOURNAL

PUBLIC MEETING ANNOUNCEMENT

The U.S. Bureau of Indian Affairs (BIA) and the Moapa Band of Paiute Indians invite you to attend a scoping meeting to help identify the range and scope of issues related to the proposed

Aiya Solar Project.

The issues identified during the scoping process will be considered and addressed during preparation of the Environmental Impact Statement (EIS).

PLEASE PLAN TO ATTEND ONE OF THE FOLLOWING MEETINGS:

WEDNESDAY,
JANUARY 14, 2015
Moapa River Indian Reservation Tribal Hall,
One Lincoln Street,
Moapa, NV 89025-0340

THURSDAY,
JANUARY 15, 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 proposed Aiya Solar Project will have a capacity of 100 MW and will be located within the Moapa River Indian Reservation in Clark County, Nevada, west of Interstate 15 and approximately 40 miles northeast of Las Vegas. The project would also include a short electric transmission line that would cross BLM property to interconnect the project to the regional grid.

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

PUB: December 24, 2014
LV Review-Journal

Product	Placement
LV-Review-Journal	Legal Ads
LV-Review-Journal Online	Legal Ads

LAS VEGAS SUN

News

CES 2015 Day One: Realer than reality TVs, 3-D lasers and fighting drones

Jan 6, 2015 (5 p.m.)

BY ED KOMENDA | At the Las Vegas Convention Center Tuesday, thousands of attendees flocked to packed exhibit halls to see the latest gizmos and gadgets from technology powerhouses like ...

L.E. BASKOW / LAS VEGAS SUN

Participants wander about CES 2015 at the Las Vegas Convention Center on Tuesday, January 6, 2015.

Latest | More Top Stories

Woman plunging San Diego toilet pulls up 5 1/2-foot snake

MORE COMMUNITY NEWS

MOST POPULAR

Viewed | Discussed | Trending

1. After a busy 2014, what's in store for Las Vegas real estate?
2. Mariah Carey residency rumors intensify; Journey at the Joint; where's Calvin Harris?
3. Zappos outlet expected to move to Las Vegas this year
4. 2 suspects arrested in slaying, fire at Henderson home
5. Man struck while helping motorist on 215 Beltway

COMPLETE LISTING »

News

Young Rebels take down No. 3 Arizona in raucous Mack

Fans rush the court after UNLV bounces back to knock off Wildcats (12-1) for biggest win since North Carolina in 2011

Dec 23, 2014 (11:59 p.m.)

L.E. BASKOW / LAS VEGAS SUN

UNLV guard Rashad Vaughn celebrates atop the crowd after defeating Arizona 71-67 on Tuesday, Dec. 23, 2014, at the Thomas & Mack Center.

BY TAYLOR BERN | UNLV's game-defining moment contained no points scored, no rebounds and no steals. In fact, it started with a turnover and ended with a foul by ...

Latest | More Top Stories

Officer kills armed 18-year-old near Ferguson

Dec. 24, 2014

BY JIM SUHR AND JIM SALTER, ASSOCIATED PRESS | Violent protests broke out in suburban St. Louis after another black 18-year-old was fatally shot by a white police officer. St. Louis County Police Chief Jon Belmar said the officer was questioning the 18-year-old and another man about ...

Ex-President George H.W. Bush taken to hospital

Dec. 24, 2014

ASSOCIATED PRESS | Former President George H.W. Bush was admitted to a Houston hospital Tuesday evening after experiencing a shortness of breath, a family spokesman said. Bush, 90, was taken by ambulance to Houston Methodist Hospital as a "precaution," according to spokesman Jim McGrath. He "will be held for ...

Controversial playboy Dan Bilzerian is L.V. foster family's Christmas angel

Dec. 24, 2014

BY ROBIN LEACH | Trouble-making and poker-playing Las Vegas millionaire Dan Bilzerian has made notorious headlines in recent weeks: The 34-year-old trust-fund beneficiary has been linked to a nightclub brawl.

For star chef Ben Vaughn, it's all about the beets and Brussels sprouts

MORE COMMUNITY NEWS

- Las Vegas
- Henderson
- North Las Vegas
- Boulder City
- Summerlin

TODAY'S PAPER

Officer kills armed 18-year-old near Ferguson
Dec 24, 2014

Ex-President George H.W. Bush taken to hospital
Dec 24, 2014

Wild West: Drought drives bears into Reno-Tahoe area
Dec 24, 2014

New UNLV president readies for next month's start date
Dec 24, 2014

MORE TODAY'S PAPER STORIES »

EMAIL NEWSLETTERS

To view/update your newsletter subscriptions and interests, please visit our Preference Center.

PRESS RELEASES »

MOST POPULAR

Viewed | Discussed | Trending

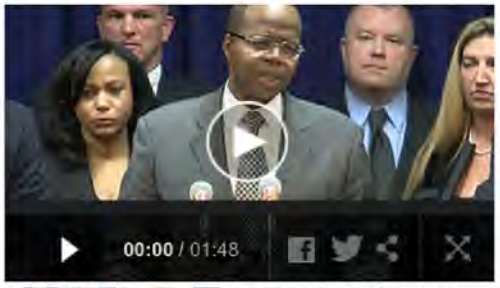
1. More than 13,000 expected in new poker Colossus event
2. Cirque performer injured in Beatles 'Love' show at Mirage
3. They have great wings! Hooters en route to the Palms?
4. BLM sells another parcel for expanding senior housing project
5. Sony re-gifts 'The Interview' in limited Christmas release

COMPLETE LISTING »

CONNECT WITH US

FACEBOOK | TWITTER | GOOGLE+ | TUMBLR | EMAIL EDITION | RSS

Prosecutor: Guns Smuggled Aboard US Airliners
AP



the GPS anklet at the corner...

Prosecutor: Guns Smuggled Aboard US Airliners

A New York prosecutor has

Extension of Public Comment Period

The U.S. Bureau of Indian Affairs (BIA) announces the extension of the scoping period to help identify the range and scope of issues related to the proposed Aiya Solar Project. Written comments on the scope and implementation of this proposal must now be received by January 30, 2015.

For more information on how to participate, go to the EIS website at http://www.aiyasolarprojecteis.com/ or contact *Mr. Chip Lewis, Regional Environmental Protection Officer, at Chip.Lewis@bia.gov (602.379.6782)* or *Mr. Paul Schlafly, Natural Resource Officer, at paul.schlafly@bia.gov (435.674.9720).*

Dancing In The New Year At The Senior Center

By CATHERINE ELLERTON

Moapa Valley Progress

CATHERINE ELLERTON/ Moapa Valley Progress

The Country Kickers line dancing group help to liven up the New Year's Eve Celebration at the Overton Sr. Center last week.

Dancing, the Country Kickers, refreshments and a raffle were all on the program at the Overton Senior Center New Year's Eve Celebration.

DJ Danny Mendoza kept the evening lively with music from the 50's, Country Western, waltzes and special Raffle Dances. Candle holders, an American Flag, cut glass sugar and creamer, hats, plates, frames, music box and books were available to lucky winners during the evening as raffle gifts.

As the evening's revelers visited with friends, old and new, and enjoyed the light refreshments, the Country Kickers dancers entertained. These line dancer's ranks keep growing. They welcome all who like to dance and have the added benefit of aerobic exercise at the same time.

The Overton Senior Center is offering a new Associate Member program beginning in 2015. For the nominal membership fee of $15.00 a year, residents younger than 55 years of age are able to join the Center and take advantage of the many programs they offer from line dancing to exercise programs to ceramics, quilting and for extra fun – a pool table. These Associate Members wouldn't be able to vote at the meetings.

The lunches remain open to members and non-members alike for a suggested donation of $3.00 (over 60) and $4.50 (under 60). They are served Monday through Friday at noon.

There are also the extra programs of Meals on Wheels and a medical transportation service available.

TRENT ROBISON / Moapa Valley Progress

Messiah

from page 29

conflict between light and darkness in his presentation of "For Behold, Darkness Shall Cover" and "The People That Walked in Darkness."

Laurie Flynn depicted pastoral peace and harmony in the soprano triad of "There Were Shepherds Abiding," "And the Angel Said Unto Them," and "And Suddenly There Was."

Kristine Leach joyfully sang "Rejoice Greatly" after the choir performed "Glory to God", emitting joy through the singing and orchestra directly to the audience.

Bruce Lund skillfully performed "Then Shall the Eyes of the Blind be Opened" followed by "He Shall Feed His Flock Like a Shepherd." Local vocalist Rachel Garcia took over this last selection halfway through.

Catherine Ellerton sang "If God Be For Us," portraying the confidence and hope evident in the text and music.

At various points amid these vocal solos, the choir sang some of the most well-known choral pieces from the work. Beginning with "And the Glory of the Lord," continuing with "For Unto Us a Child Is Born," "Glory to God," "Worthy Is the Lamb." Finally the audience arose for the "Hallelujah!" Chorus.

The orchestra itself performed the interlude-like "Pastoral Symphony" near the center of the concert.

Although the orchestra and choir were larger, it must have presented new challenges with younger students joining the group, trying to balance the overall sound, and maintaining peace, all while maintaining the same short rehearsal schedule and brief preparation time. Despite all this, Nelson still provided the same admirable quality of performance with the talented group of musicians.

Public Meeting Announcement

The U.S. Bureau of Indian Affairs (BIA) and the Moapa Band of Paiute Indians invite you to attend a scoping meeting to help identify the range and scope of issues related to the proposed Aiya Solar Project. The issues identified during the scoping process will be considered and addressed during preparation of the Environmental Impact Statement (EIS).

Please plan to attend one of the following meetings:

Wednesday, January 14, 2015
Moapa River Indian Reservation Tribal Hall,
One Lincoln Street, Moapa, NV 89025-0340

Thursday, January 15, 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 proposed Aiya Solar Project will have a capacity of 100 MW and will be located within the Moapa River Indian Reservation in Clark County, Nevada, west of Interstate 15 and approximately 40 miles northeast of Las Vegas. The project would also include a short electric transmission line that would cross BLM property to interconnect the project to the regional grid.

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

Moapa Valley Weather

Dec. 24-30, 2014

7 Day Forecast

TODAY:
Mostly Sunny
High: 60°
Low: 37°
Today we will see mostly sunny skies with W wind at 3 mph. Humidity 44%.
Record High: 68° (1985)
Record Low: 17° (1990)
Avg. High: 56°

THURS. Dec. 25:
Sunny
High: 57°
Low: 31°

FRI. Dec. 26:
Sunny
High: 55°
Low: 29°

SAT. Dec. 27:
Mostly Sunny
High: 54°
Low: 30°

SUN. Dec. 28:
Mostly Sunny
High: 56°
Low: 30°

MON. Dec. 29:
Partly Cloudy
High: 54°
Low: 29°

TUES. Dec. 30:
Sunny
High: 51°
Low: 28°

Weather in the Region...

Location	H	L	W
Alamo	56	38	MS
Brianhead	47	27	MS
Caliente	52	35	MS
Cedar City	51	32	MS
Echo Bay	60	37	MS
Grand Canyon	47	29	S
Las Vegas	59	42	MS

Location	H	L	W
Los Angeles	71	53	MS
Mesquite	60	39	MS
Phoenix	66	44	S
Reno	58	28	MC
Salt Lake City	46	37	MS
San Francisco	61	48	MC
Zion Natl Park	54	35	MS

Lake Mead
Water Temperature: 55°
Elevation: 1086.7 ft.

12/14 12/22 12/28 1/5

Last Week's Almanac

Date	Hi/Lo	Precip.	Skies
Mon. 12/15	57/35	0	Partly Cloudy
Tues. 12/16	55/35	0	Cloudy
Wed. 12/17	53/43	TR	Cloudy/Sprinkles
Thurs. 12/18	59/41	0	Cloudy
Fri. 12/19	58/36	.01	Cloudy/Sprinkles
Sat. 12/20	56/36	TR	Cloudy/Sprinkles
Sun. 12/21	58/36	.01	Cloudy/Sprinkles

Almanac Data is reported from Overton Power District

Moapa Valley Weather sponsored by: Moapa Valley PROGRESS

Appendix C

Meeting Materials

APPENDIX C – MEETING MATERIALS AND SIGN-IN SHEETS

Appendix C contains the materials available at the public scoping meetings including the transcripts:

- Fact sheets (two pages) plus two project maps (project area and project location)
- Comment forms
- Sign-in sheets from meetings:
    - Moapa River Indian Reservation, Nevada
    - Las Vegas, Nevada
- Display boards
- Presentation
- Transcripts

Project Fact Sheet

ENVIRONMENTAL IMPACT STATEMENT (EIS)
Fact Sheet
AIYA SOLAR PROJECT

PROJECT OVERVIEW

Aiya Solar Project, LLC (a subsidiary of First Solar) has entered into an agreement with the Moapa Band of Paiute Indians (Tribe) to lease land, up to 50 years, on the Moapa River Indian Reservation (Reservation) to construct and operate an up-to 100 megawatt (MW) alternating current solar photovoltaic (PV) electricity generation facility on up to 900 acres located entirely on the Reservation and specifically on lands held in trust by the Bureau of Indian Affairs (BIA) for the Tribe. Infrastructure would include a 230 kilovolt (kV) electric transmission line that would interconnect the solar generation facility to the electrical grid at or near the existing Reid-Gardner Substation (gen-tie line) and a water pipeline. The proposed gen-tie line would be located on Tribal lands, Federal lands administered and managed by the Bureau of Land Management (BLM), and possibly private lands. The water pipeline would be located entirely on Tribal lands. Together, the proposed solar energy facility, transmission line, water pipeline, and other associated facilities will make up the proposed solar project (Project). *Figures 1 and 2* show the location of the project and project components.

PURPOSE AND NEED

The primary needs for the Proposed Project are to create an economic development opportunity for the Tribe by providing lease income as a long-term economically viable revenue source, creating new jobs and employment opportunities for Tribal members, and developing sustainable renewable resources. Additionally, the Proposed Project would assist the Federal Government, the state of Nevada, and neighboring states meet their renewable energy goals by providing clean renewable electricity generation from the Tribe's solar resources that can be efficiently connected to the regional grid.

LEAD AND COOPERATING AGENCIES

The BIA is the lead federal agency coordinating and assuring compliance with the National Environmental Policy Act (NEPA) as well as the Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA). BLM is a key cooperating agency involved in the compliance process. Other federal agencies include the Environmental Protection Agency (EPA) and US Fish and Wildlife Service (USFWS), as well as the Moapa Band of Paiutes are cooperating agencies.

FEDERAL ACTIONS REQUIRED

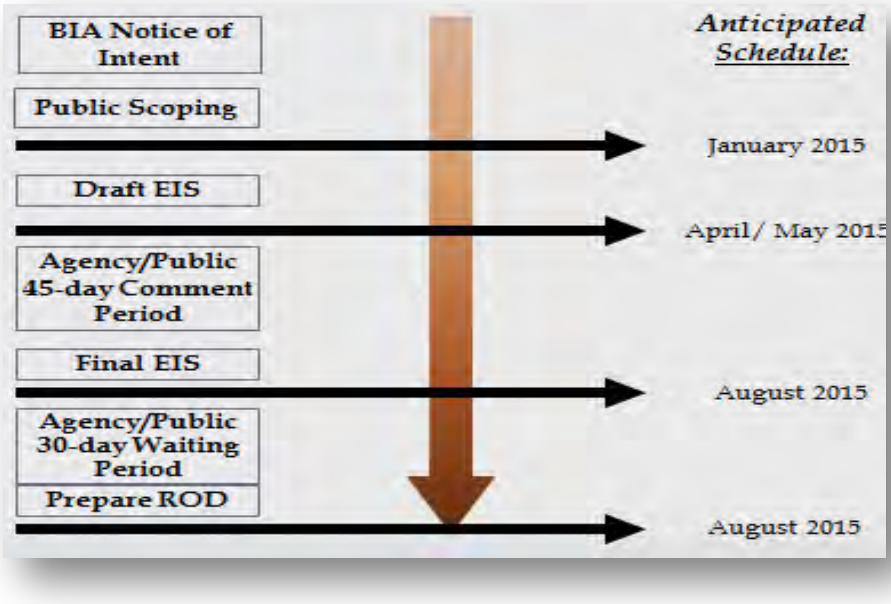
Below is a summary of the Federal actions required for the Project:

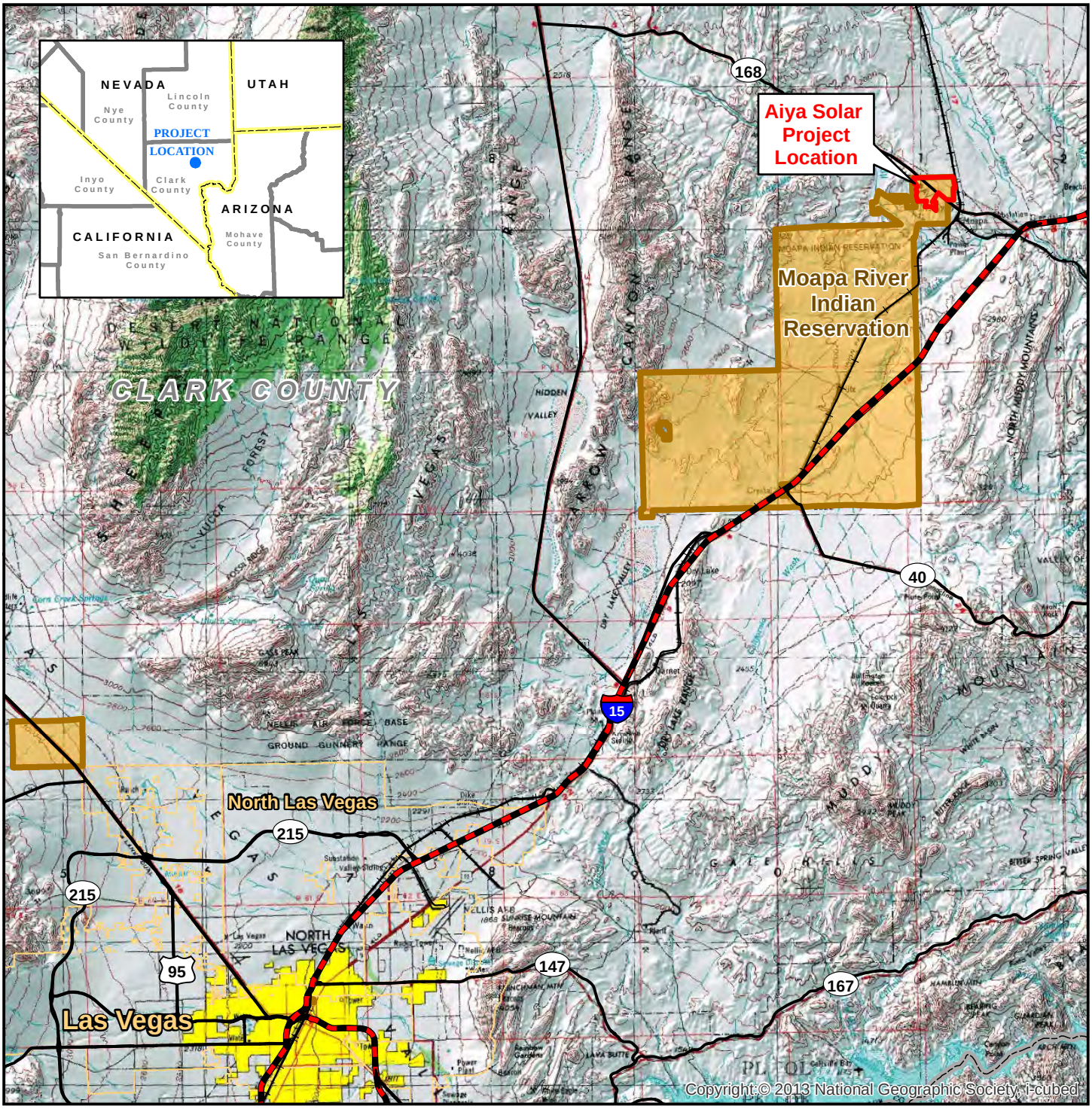
- The BIA's Federal action is the approval or denial of a solar energy ground lease and associated rights-of-way (ROW and other agreements entered into by the Moapa Band of Paiute Indians for the construction and operation of the portions of the Project that would be located on Moapa tribal lands).
- The BLM's Federal action is to approve or deny grants of ROW for the proposed transmission line.
- The U.S. Fish and Wildlife Service will issue a Biological Opinion (BO) regarding the Project's consistency with the Endangered Species Act, as amended and other implementing acts.
- The EPA may adopt the documentation to make decisions under their authority

PUBLIC AND STAKEHOLDER INPUT

There are multiple opportunities for the public and interested stakeholders to provide input as part of the EIS process. Early in the process, the BIA will hold public scoping meetings and request written comments to solicit information on project benefits and impacts, resources of concern, and alternatives that should be considered. The public meetings will be held on January 14th and 15th 2015 from 5:30 to 7:30 pm. The January 14th public scoping meeting will be held in the Tribal Hall on the Moapa River Indian Reservation, 1 Lincoln Street, Moapa, NV 89025. The January 15th public scoping meeting will be held in the conference room of the BLM Southern Nevada District Office at 4701 North Torrey Pines, Las Vegas, NV 89130. Written comments can be sent 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, AX 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. In addition, comments can be provided directly via the EIS website at www.aiyasolarprojecteis.com .

EIS PROCESS / SCHEDULE





Legend

- Interstate
- US/ State Highway
- Railroad
- Solar Project Location
- Municipal Boundary
- Jurisdictional Land Ownership
- Indian Reservation

0 2 4 6 8 10

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

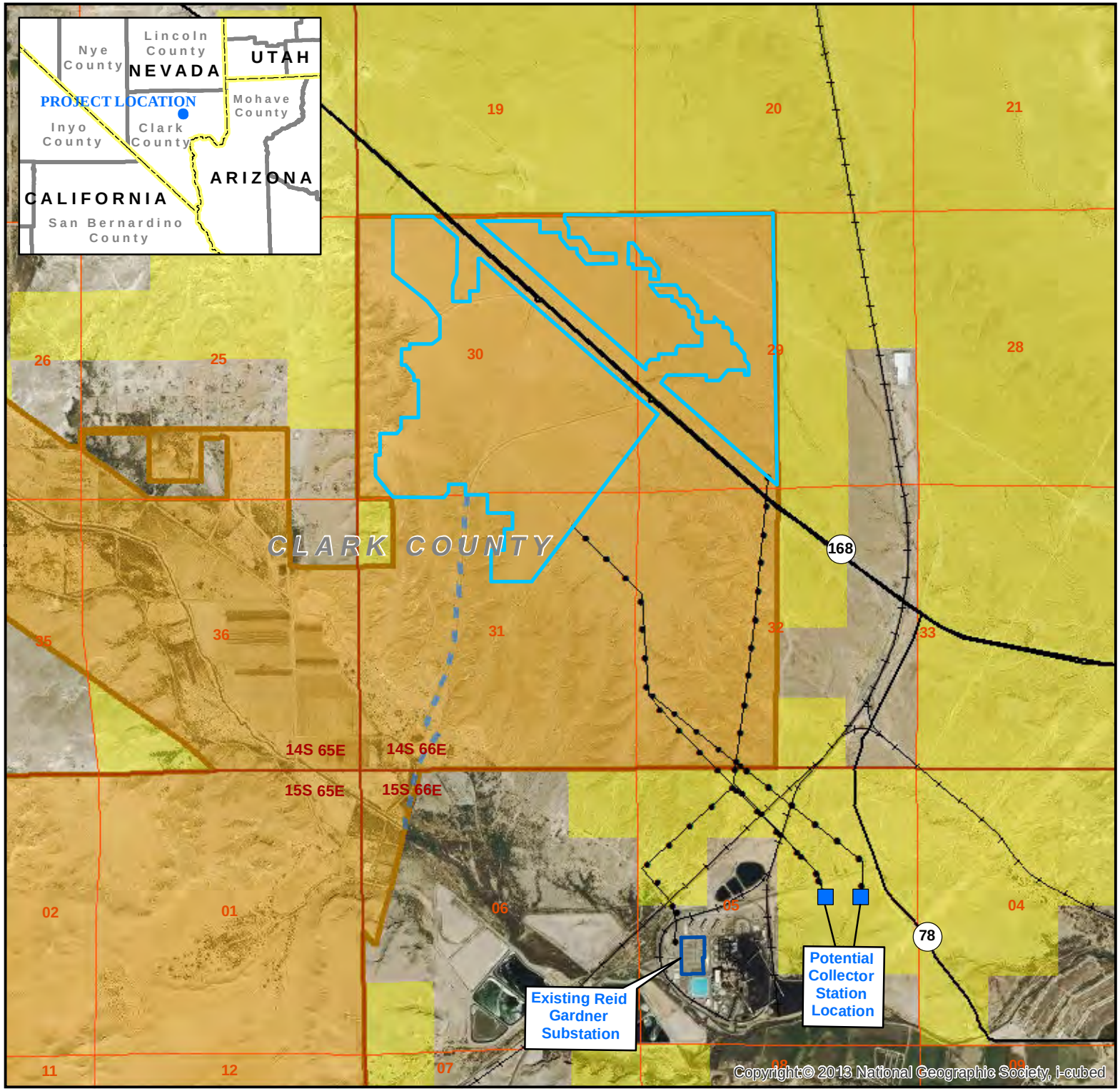
Aiya Solar Project

FIGURE 1
PROJECT LOCATION

Map Extent: Clark County, Nevada

Date: 09-29-14		Author: rnc

G:\Aiya Solar Project/MXD's/Project Location 8.5x11 092914.mxd



Legend

- Potential Collector Station Location
- Gen-Tie Routes
- Water Pipeline
- State Highway
- Railroad
- Project Area
- Existing Substation
- County Boundary
- Township / Range Boundary
- Section Boundary

Jurisdictional Land Ownership

- Bureau of Land Management Land
- Tribal Land

0 0.25 0.5 0.75 1

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Aiya Solar Project

Figure 2
Project Area

Map Extent: Clark County, Nevada

Date: 12-05-14		Author: rnc

I:\Solar Projectt/MXD's/Project Area

Meeting Presentation

Aiya Solar Project
Environmental Impact Statement (EIS)

Scoping Meetings
January 14 and 15, 2015

Welcome

- Chairman Darren Daboda
  Moapa Band of Paiute Indians

Invocation

Opening Remarks

- Jim Williams, Superintendent
  BIA Southern Paiute Agency
- Contact information:
  Southern Paiute Agency
  P.O. Box 720
  180 North 200 East – Suite 111
  St. George, UT 84771
  (435) 674-9720

Involved Agencies

- **Lead Federal Agency**
  - U.S. Department of the Interior, Bureau of Indian Affairs
- **Cooperating Agencies**
  - Moapa Band of Paiute Indians
  - Bureau of Land Management (BLM)
  - US Fish and Wildlife Service (USFWS)
  - Environmental Protection Agency (EPA)

Proposed Action

- **Who has proposed:**
  - Aiya Solar Project LLC and Moapa Band of Paiute Indians
- **What is proposed:**
  - Up to 50-year land lease on Reservation for operation of up to 100MW solar generation facility and ROWs on BLM land for transmission
- **Where:** Clark County, NV on Moapa River Indian Reservation and nearby BLM-administered lands
- **Why:** Provide economic development and other benefits such as jobs and a revenue source for the Moapa Band of Paiute Indians and help meet goals for renewable energy

The NEPA Process

- Chip Lewis
  - Regional Environmental Protection Officer, Acting
  - Bureau of Indian Affairs (Western Region)

- Contact Information:

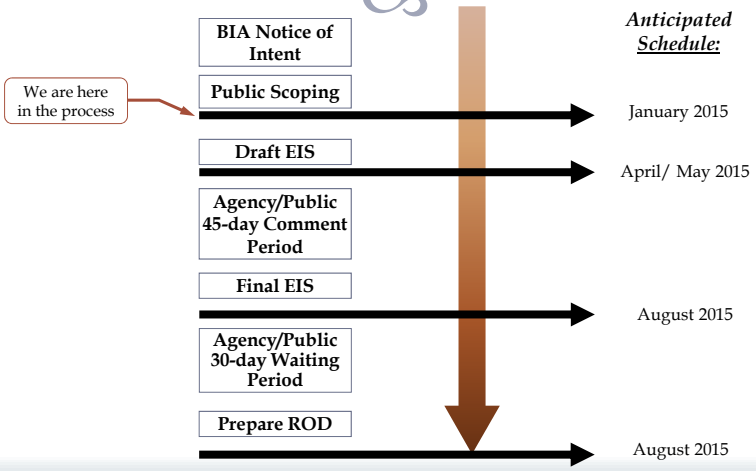
BIA
Western Region
Branch of Environmental Quality Services (EQS)
2600 North Central Avenue
4th Floor Mailroom
Phoenix, AZ 85004
(602) 379-6782
chip.lewis@bia.gov

Environmental Impact Statement

EIS Process

Public input and documentation of environmental impacts that would result from implementation of the Proposed Action (Aiya Solar Project) to meet the requirements of the National Environmental Policy Act (NEPA) – published in Code of Federal Regulations (CFR 1500-1508). In addition this analysis could be used to satisfy the requirements of other relevant environmental and cultural resource laws and requirements.

EIS Process/Schedule



How to Participate

- Submit comment verbally at the end of the presentation
- Submit comment via comment form (leave behind or mail)
- Submit comment directly to court reporter
- Submit comment via email to:
  - chip.lewis@bia.gov
  - paul.schlafly@bia.gov
- Submit comment via the Project Website at: www.AiyaSolarProjectEIS.com

Project Details

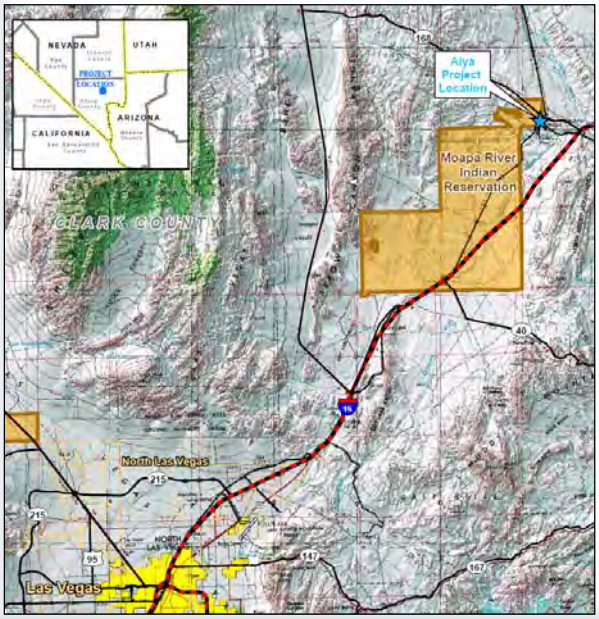
Randy Schroeder, ENValue
Project Manager for the Aiya Solar Project EIS

Project Purpose

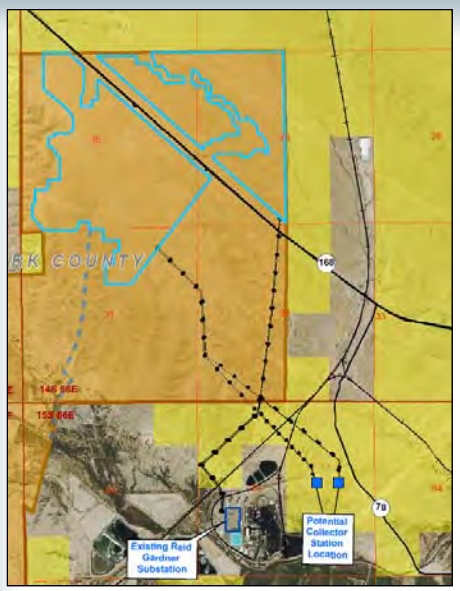
- Provide a long-term, diverse, and viable economic revenue base and job opportunities for the Moapa Band of Paiute Indians
- Assist Nevada and neighboring states in meeting their renewable energy needs
- Optimize use of the lease site while maximizing the potential economic benefit to the Tribe

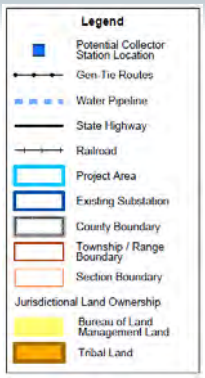
Location

- Clark County, Nevada, along Highway 168
- Approximately 40 miles northeast of Las Vegas (I-15)
- Solar field wholly within the Moapa River Indian Reservation
  - Transmission line (230kV totaling 1.9-2.1 miles on Reservation and BLM Lands)
  - Water pipeline on Reservation



Project Location





- Up to 900-acre solar site on Reservation
- 230kV Transmission on Reservation and BLM
- Water Pipeline
- Access from Highway 168

Proposed Project Area

Project Description

Melanie Falls, First Solar

Project Developer for the Aiya Solar Project

Aiya Solar Project
Description

- Up to 900 acres (on Reservation) plus additional acreage of Right-of-Way for a transmission line on Tribal and BLM lands and a water pipeline on Tribal lands
- Up to 100 Megawatts using Solar Photovoltaic (PV) Technology
  - Will use First Solar's modules
  - May use either Fixed-Tilt or Single-Axis Tracking mounting structures

First Solar Photovoltaic (PV) Panels

First Solar PV Solar Plant

- Approximately 1,150,000 panels
- Single-axis tracking system or Fixed-Tilt
- Inverters (converts DC to AC current)
- Electrical collection system
- Doesn't use water to generate electricity
- First Solar doesn't wash panels

Associated Facilities

- Transmission Line
  - On Reservation and BLM lands
  - 230kV line to existing Reid-Gardner Substation or planned nearby collector station
- Water Pipeline on Reservation
- Operation & Maintenance Building on site
- Fencing around the solar project perimeter

Potentially Impacted Resources

- Biological Resources
  - Desert Tortoise
  - Desert Vegetation including Cacti
  - Avian Species
- Cultural Resources
- Visual Resources
- Water Resources
- Socioeconomics

Schedule

Scoping Meetings	January 14-15, 2015
Draft EIS Public Notice	April/May 2015
DEIS Public Meetings	May 2015
Final EIS Notice	August 2015
Record of Decision (ROD)	August 2015

Comments / Questions

? ? ? ? ? ? ? ? ? ?

Project Website:: www.AiyaSolarProjectEIS.com

Public Comment Form

PUBLIC COMMENT FORM
Bureau of Indian Affairs

AIYA SOLAR PROJECT
www.aiyasolarprojecteis.com/
Scoping 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 Aiya Solar Project:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

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

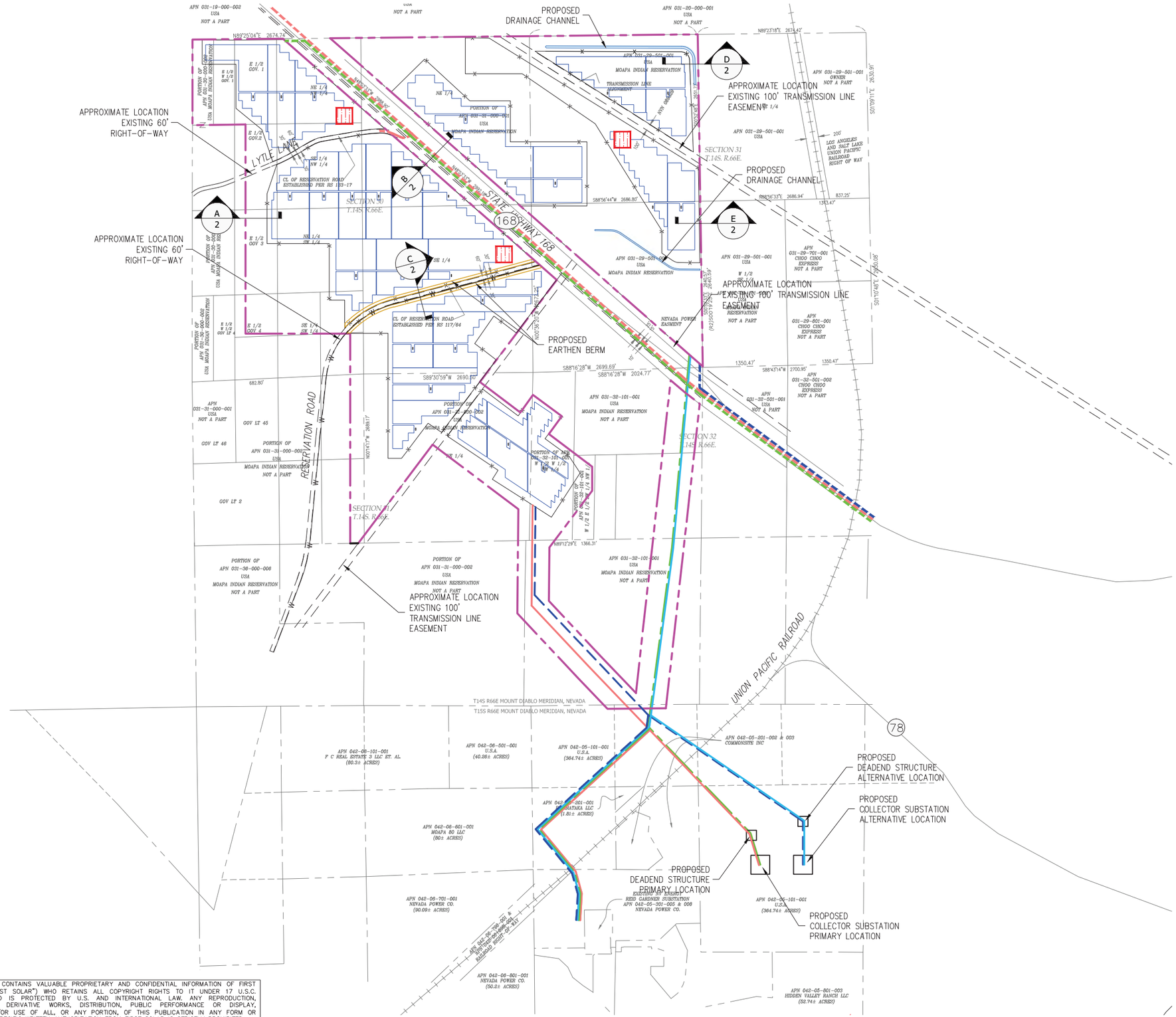
_____

_____

_____

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

Meeting Posters



LEGEND

- SITE BOUNDARY
- PROPOSED PERIMETER CHAIN LINK FENCE
- PROPOSED SITE ACCESS OPTION 1
- PROPOSED SITE ACCESS OPTION 2
- PROPOSED SITE ACCESS OPTION 3
- PROPOSED GEN-TIE ROUTE OPTION 1
- PROPOSED GEN-TIE ROUTE OPTION 2
- PROPOSED GEN-TIE ROUTE OPTION 3
- PROPOSED GEN-TIE ROUTE OPTION 4
- PROPOSED WATER LINE
- PARCEL LINE
- EASEMENT/RIGHT-OF-WAY

TYPICAL PV ARRAY

TEMPORARY WATER SUPPLY STORAGE POND

NOTES

THIS MAP IS FOR REFERENCE ONLY AND CONTAINS PARTIAL SURVEY.

OTHER REFERENCE FOR THIS MAP ARE CLARK COUNTY ASSESSOR'S PARCEL MAP AND BLM NEVADA MASTER TITLE PLATS.

SEE THE RECORDED DOCUMENTS FOR MORE DETAILED LEGAL INFORMATION.

NORTH

1600' 800' 0 1600'

THIS PRINT IS NOT TO BE USED FOR CONSTRUCTION UNLESS NOTED AND SIGNED OK FOR CONSTRUCTION ABOVE LAST REVISION.

First Solar

FIRST SOLAR, INC.
135 MAIN STREET, 6TH FLOOR
SAN FRANCISCO, CALIFORNIA 94105
PHONE: (415) 935-2500
WWW.FIRSTSOLAR.COM

AIYA
MOAPA
CLARK COUNTY
NEVADA

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP

FS JOB #:

PROJ. DEVT. ENGR: A. QUIG-HARTMAN

PROJ. MGR:

SCALE: 1"=1600' @ 11"x17" SHEET

COPYRIGHT BY: FIRST SOLAR, INC.

SHEET TITLE

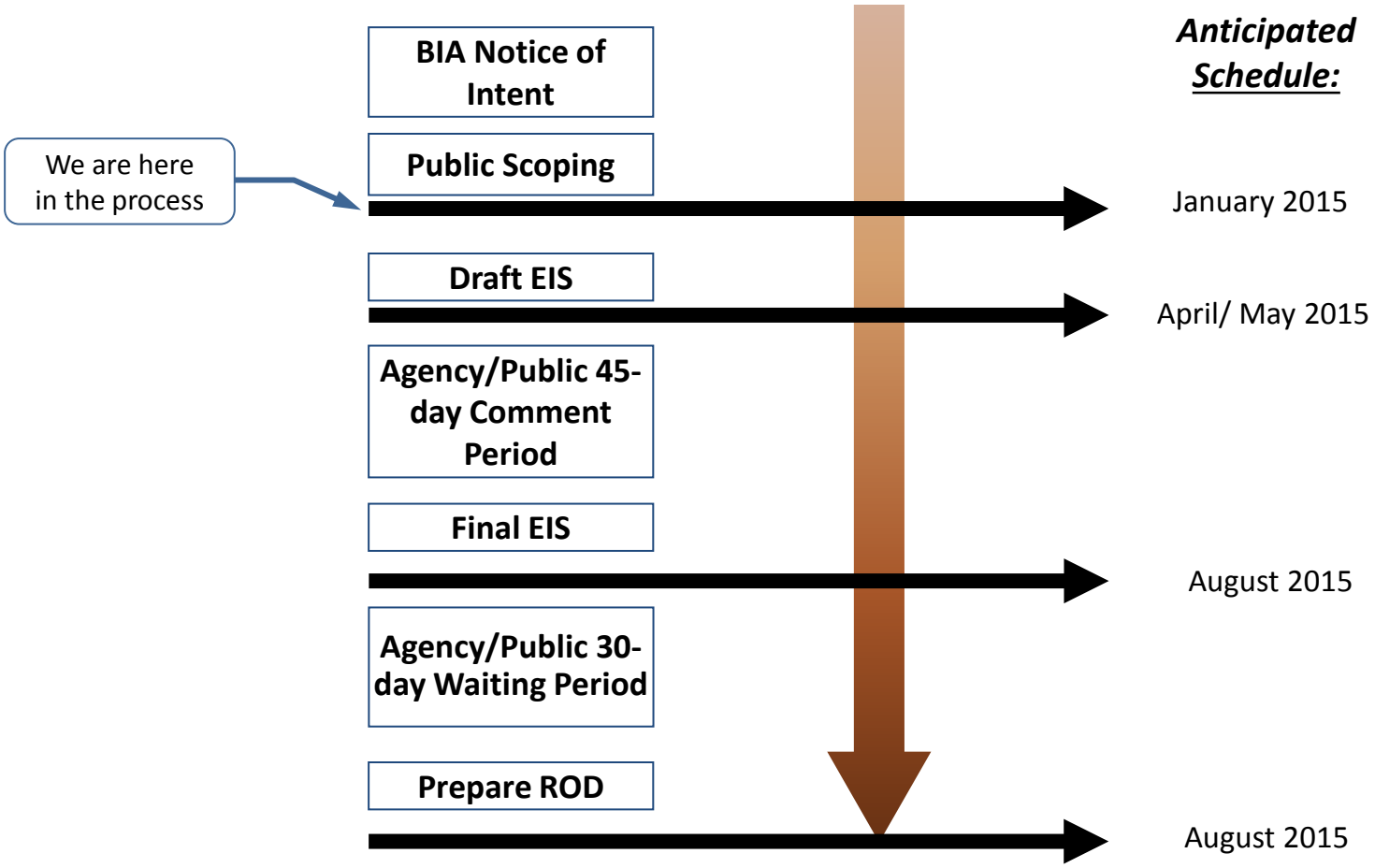
PRELIMINARY SITE PLAN (12/19/14)

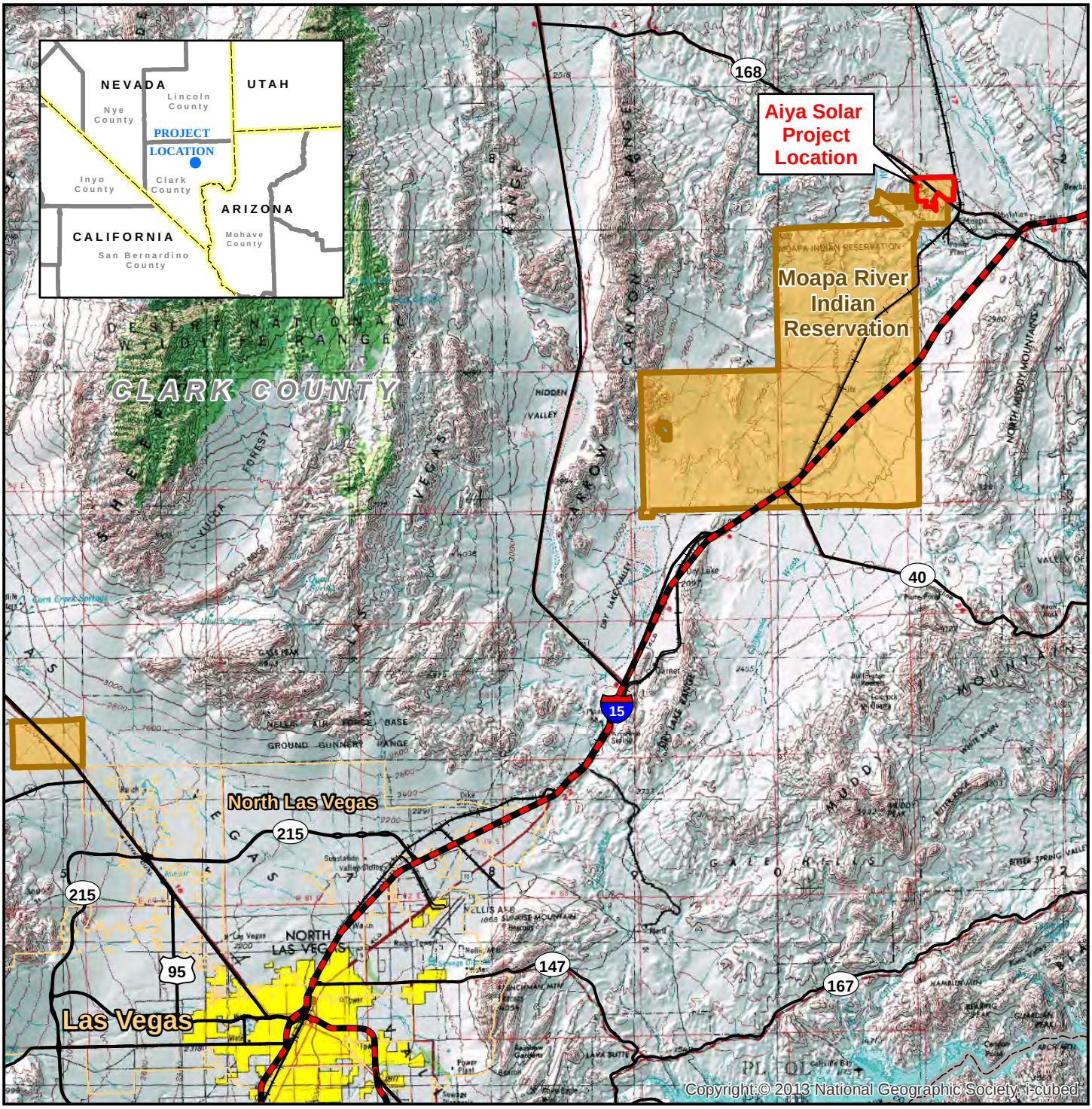
C:\Users\FS104849\Aiya\EIS Drawings\C-100-SP-AIYA.dwg FS104849 Dec 19, 2014 - 11:45am

Aiya Solar Project
Environmental Impact Statement (EIS)

Scoping Meeting

EIS Process/Schedule





Legend

- Interstate
- US/ State Highway
- Railroad
- Solar Project Location
- Municipal Boundary
- Jurisdictional Land Ownership
- Indian Reservation

0 2 4 6 8 10

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

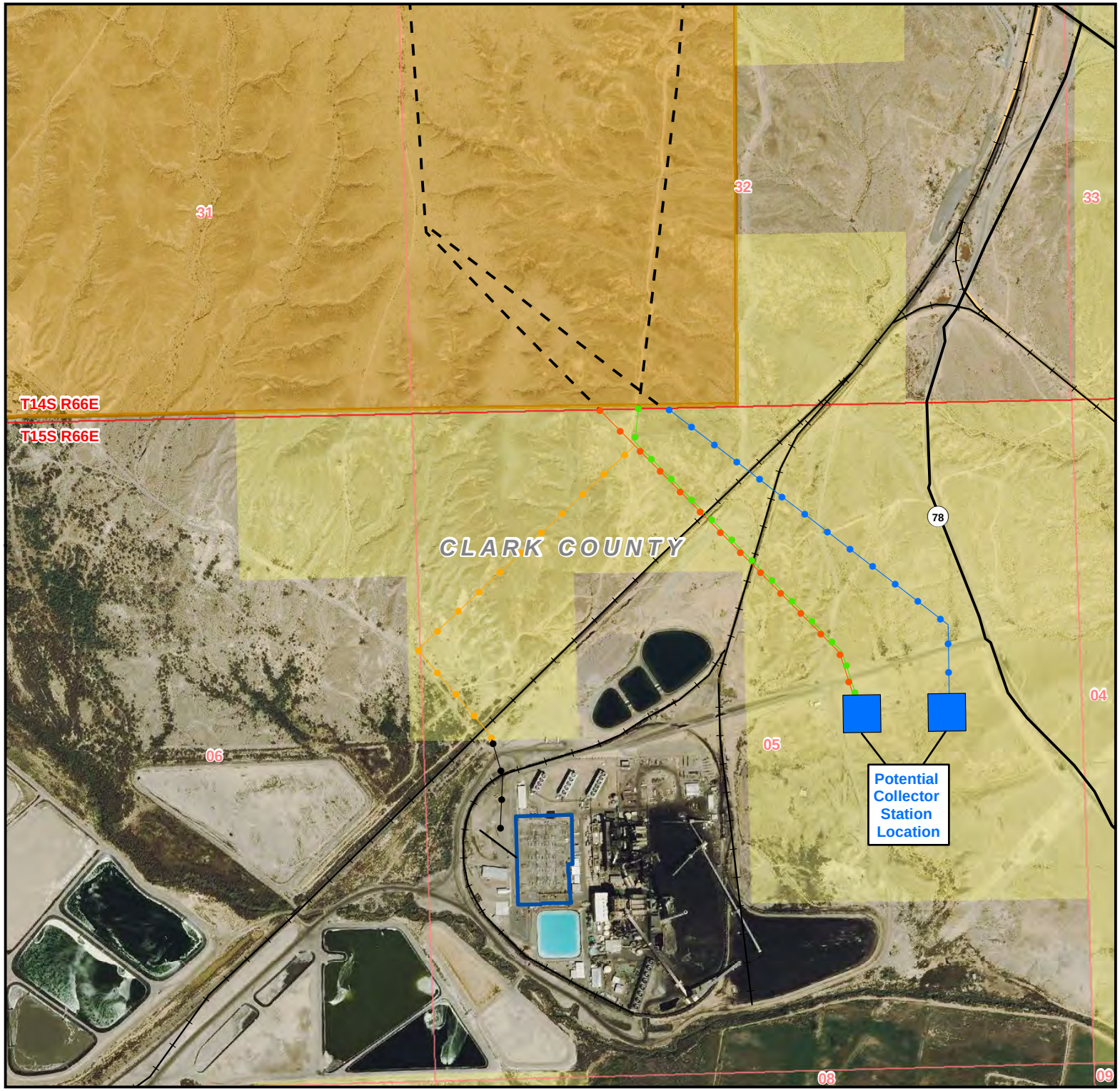
Aiya Solar Project

FIGURE 1
PROJECT LOCATION

Map Extent: Clark County, Nevada

Date: 09-29-14		Author: rnc

G:\Aiya Solar Project/MXD's/Project Location 8.5x11 092914.mxd



Legend

- Potential Collector Station Location
- BLM Route Option 1
- BLM Route Option 2
- BLM Route Option 3
- BLM Route Option 4
- Gen-Tie Routes on Private Land
- Gen-Tie Routes on Tribal Land
- State Highway
- Railroad
- Township/Range Boundary
- PLSS Section Line
- Existing Substation

Jurisdictional Land Ownership

- Bureau of Land Management Land
- Indian Land

0 500 1,000 1,500

Feet

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

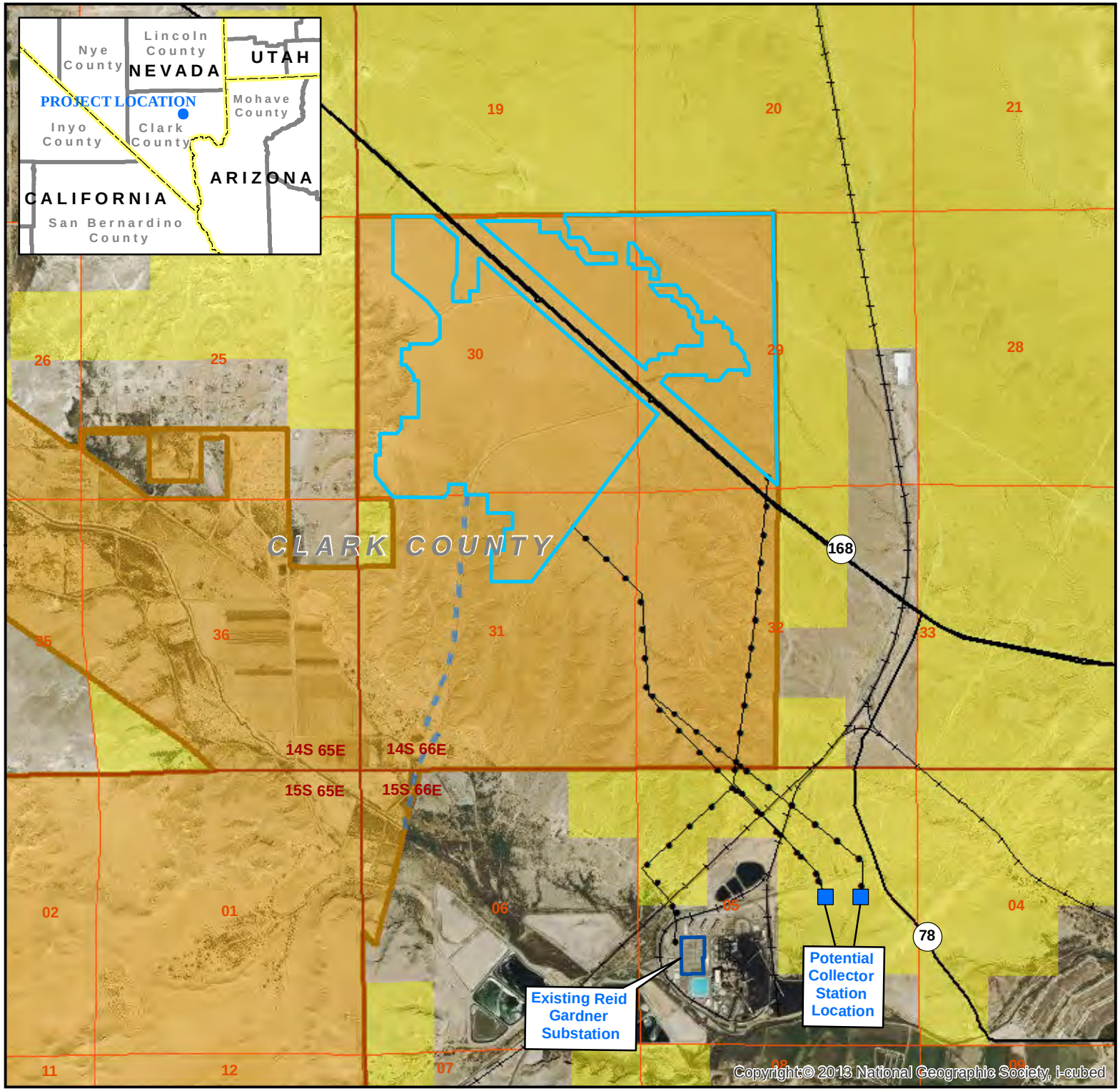
Aiya Gen-Tie Project

Figure 2
Gen-Tie Route Options on BLM Land

Map Extent: Clark County, Nevada

Date: 10-20-14		Author: rnc

I:\Aiya Gen-Tie Project/MXD's/Gen-Tie Route Locations



Legend

- Potential Collector Station Location
- Gen-Tie Routes
- Water Pipeline
- State Highway
- Railroad
- Project Area
- Existing Substation
- County Boundary
- Township / Range Boundary
- Section Boundary

Jurisdictional Land Ownership

- Bureau of Land Management Land
- Tribal Land

0 0.25 0.5 0.75 1

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Aiya Solar Project

Figure 2
Project Area

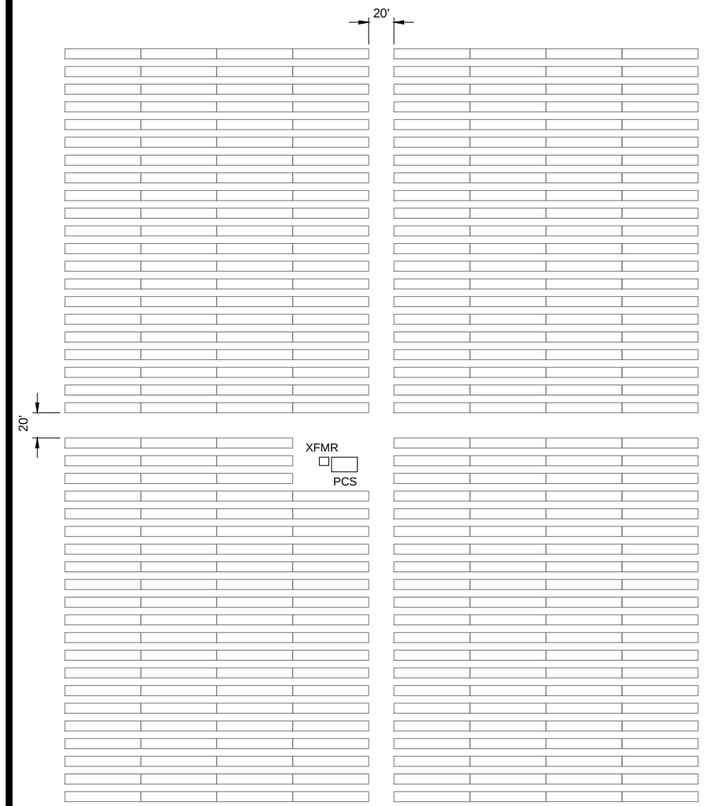
Map Extent: Clark County, Nevada

Date: 12-05-14		Author: rnc

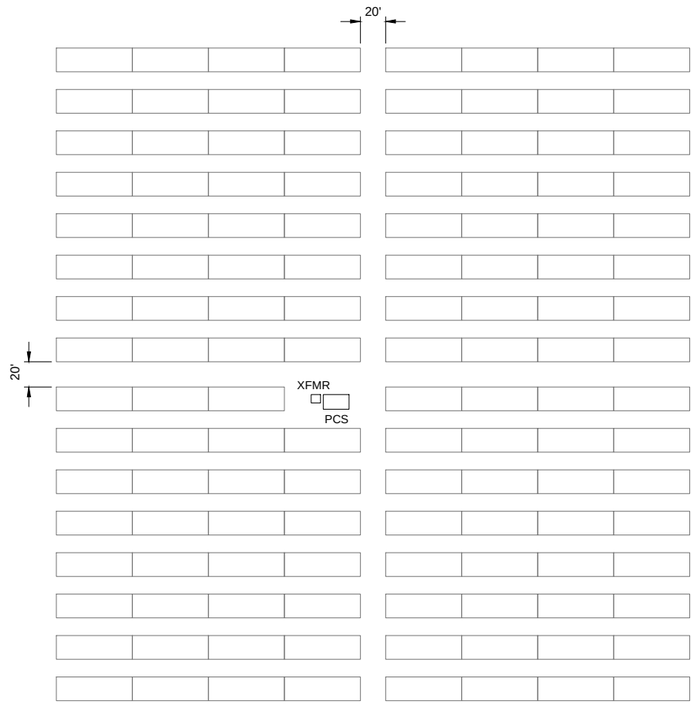
I:\Solar Projectt/MXD's/Project Area

Potentially Impacted Resources

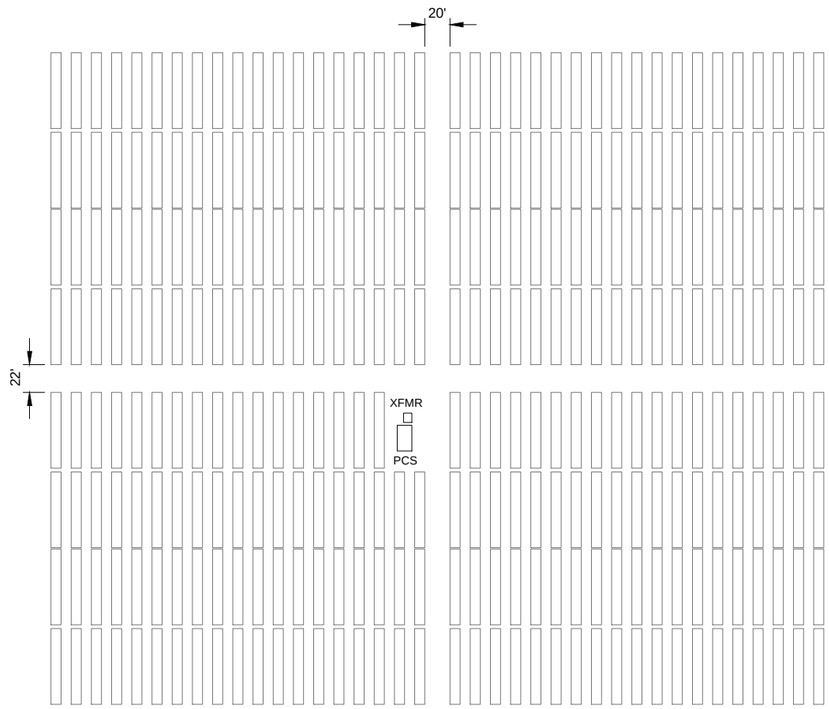
- Biological Resources
  - Desert Tortoise
  - Desert Vegetation including Cacti
  - Avian Species
- Cultural Resources
- Visual Resources
- Water Resources
- Socioeconomics



TYPICAL FIXED-TILT ARRAY
(4 HIGH MODULE)
NOT TO SCALE



TYPICAL FIXED-TILT ARRAY
(10 HIGH MODULE)
NOT TO SCALE



TYPICAL TRACKER ARRAY
NOT TO SCALE

NORTH

THIS PRINT IS NOT TO BE USED FOR CONSTRUCTION UNLESS NOTED AND SIGNED OK FOR CONSTRUCTION ABOVE LAST REVISION.

First Solar

FIRST SOLAR, INC.
135 MAIN STREET, 6TH FLOOR
SAN FRANCISCO, CALIFORNIA 94105
PHONE: (415) 935-2500
WWW.FIRSTSOLAR.COM

AIYA
MOAPA
CLARK COUNTY
NEVADA

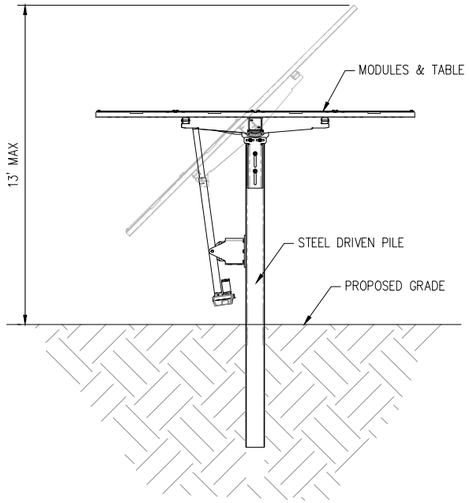
REV	DATE	REVISION DESCRIPTION	BY	CHK	APP

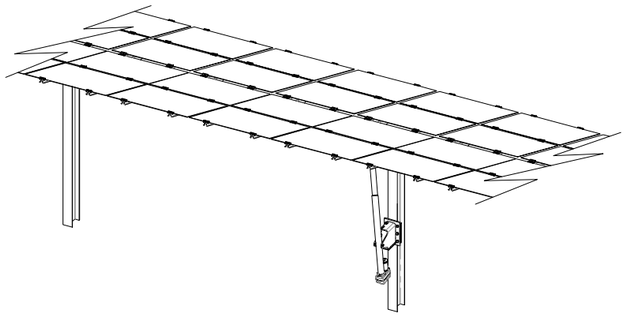
FS JOB #:
PROJ. DEVT. ENGR: A. QUIG-HARTMAN
PROJ. MGR:
SCALE: NONE
COPYRIGHT BY: FIRST SOLAR, INC.

SHEET TITLE
TYPICAL ARRAY CONFIGURATIONS

SHEET 1 OF 1

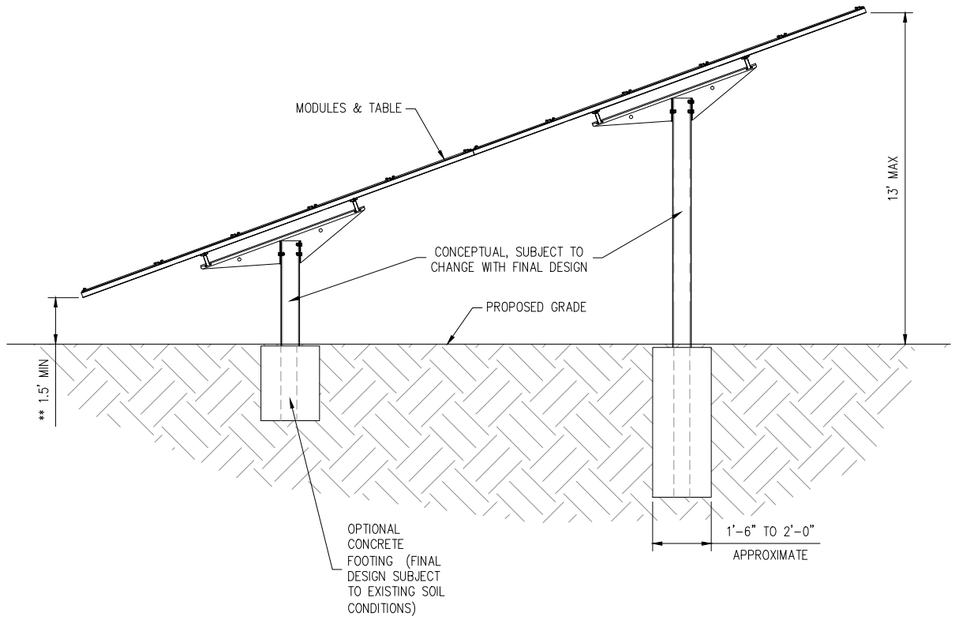
C:\Users\FS104849\Aiya\EIS Drawings\C-101-AC-AIYA.dwg FS104849 Dec 17, 2014 - 3:21pm



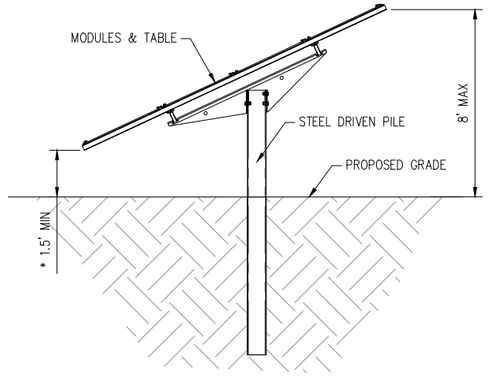


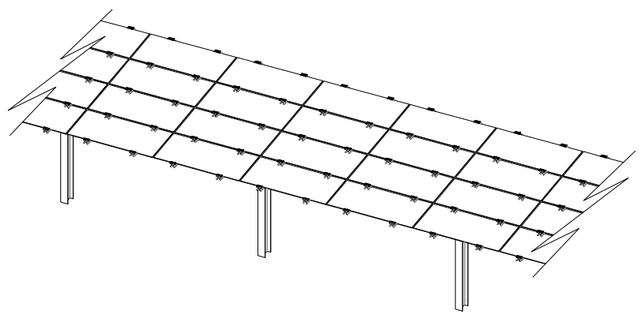
SINGLE AXIS TRACKER

NOT TO SCALE



** NOTE: MINIMUM HEIGHT MAY VARY DUE TO FLOOD CONDITIONS.



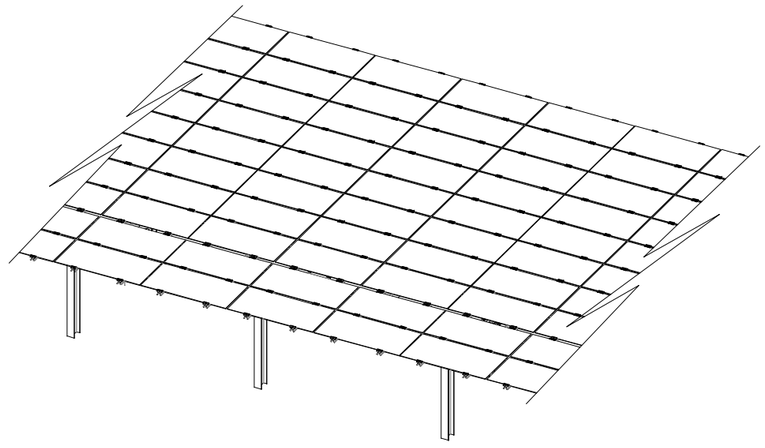


* NOTE: MINIMUM HEIGHT MAY VARY DUE TO FLOOD CONDITIONS.

FOUR HIGH SYSTEM
FIXED TILT

NOT TO SCALE

TABLE SYSTEM INFORMATION		
TYPE	ROW SPACING	ROW ORIENTATION
FIXED	14'-0" TO 16'-0"	EAST-WEST
TRACKER	16'-0" TO 22'-0"	NORTH-SOUTH
TEN HIGH	22'-0"	EAST-WEST



TEN HIGH SYSTEM
FIXED TILT

NOT TO SCALE

First Solar
FIRST SOLAR, INC.
135 MAIN STREET, 6TH FLOOR
SAN FRANCISCO, CALIFORNIA 94105
PHONE: (415) 935-2500
WWW.FIRSTSOLAR.COM

AIYA
MOAPA
CLARK COUNTY
NEVADA

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP

FS JOB #:
PROJ. DEVT. ENGR: A. QUIG-HARTMAN
PROJ. MGR:
SCALE: NONE
COPYRIGHT BY: FIRST SOLAR, INC.

SHEET TITLE

TYPICAL
MOUNTING SYSTEM

Public Scoping Meeting Sign-In Sheets

SIGN-IN SHEET: AIYA SOLAR PROJECT

Environmental Impact Statement Scoping Public Meeting – January 14, 2015

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

Tamera Dawes	20 e n. center Ave Phx AZ 85004	tamera.dawes@bia.gov
Christina Varela BIA	PO Box 720 St George 84771	Christina.Varela@bia.gov
Nancy Shelton Logan Simpson	51 W 3rd St #450 Tempe, AZ 85281	nshelton@logansimpson.com
JOHN FLEMING	8452 BOSECK DR. #163 LAS VEGAS, NV 89145	N/A
Iris Dabada	BOX 112 MOAPA, NV. 89025	—
Bean Goldstein	3740 E. Southern, Suite 218 Mesa, AZ 85206	bgoldstein@transcon.com
Eunice V. Ohte	PO BOX 237 Moapa, NV 89025	
Bill Marion	3455 Cliff Shadows Pkwy #190 LV, NV 89129	bill@purdvemarion.com

SIGN-IN SHEET: AIYA SOLAR PROJECT

Environmental Impact Statement Scoping Public Meeting – January 14, 2015

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

ROBERT TOM MBOP TRIBAL Sec. Council	PO Box 214 Moapa, NV 89025	robert tom 2013@yahoo.com
JILL YUNG Paul Hastings / First Solar	55 2nd St 24th Floor San Francisco, CA 94105	jillyung@paulhastings.com
VERNON LEE MOAPA BAND OF PAIUTES	P.O. BOX 773 MOAPA, NV. 89025	———
BILL Chilson First Solar	110 Roslyn Dr Concord CA 94518	bill@chilsonassoc.com
STEVEN FERRARO NEVADA BIOLOGICAL CONSULTING	5810 S. Hwy 95 SUITE 1 FORT MOHAVE, AZ 86426	STEVE@NEVBIO.COM
Jacqueline Sputa MOAPA PAIUTE TRIBE Admin ASST		jacqueline.sputa @mvdk.com
Randall Simmons	P.O. Box 93 Moapa, NV 89025	bigdaddy_r_simmons@yahoo.com
RICHARD VOELKER		

SIGN-IN SHEET: AIYA SOLAR PROJECT

Environmental Impact Statement Scoping Public Meeting – January 14, 2015

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

Darren Daboda MBOP	PO Box 112 Moapa, NV 89025	d-daboda@yahoo.com
Ural S. Begay MBOP/council		Uscott125@yahoo
Melanie Falls First Solar	PO Box 2308 El Granada, CA 94018	melanie.falls@firstsolar.com
Alellia Tom MBOP Tribal Council	PO Box 366 Moapa, NV 89025	aedcsaktom@hotmail.com
Chip Lewis	2600 N. Central Ave Phx, AZ 85004	chip.lewis@bia.gov ✓
Shane Tom + Brandy Tom	PO Box 547 Moapa NV 89025	stomb29@gmail.com
VICKIE SIMMONS	PO Box 340 Moapa NV 89025	Simmonsvickie@yahoo.com

SIGN-IN SHEET: AIYA SOLAR PROJECT

Environmental Impact Statement Scoping Public Meeting – January 14, 2015

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

Delaine Baw Moapa Band of Paiutes	PO Box 373 Moapa NV 89025	delainebaw@yahoo.com
Linda Bullen	Bullen Law	Linda@bullenlaw.com

SIGN-IN SHEET: AIYA SOLAR PROJECT

Environmental Impact Statement Public Scoping Meeting – January 15, 2015

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

Paul Smith UNEV Pipeline	P.O. Box 1260 Artesia, NM 88210	paul.smith@hollyenergy.com
Roger Christensen USAF	NTTR/XPN 3770 DUFFER DR NELLIS AFB NV 89191	roger.christensen@us.af.mil
Darren Dabada MBOP	PO Box 112 Moapa, NV 89025	d_dabada@yahoo.com
Nancy Christ BLM	4701 N. Torrey Pines Dr LV, NV 89130	n christ@blm.gov
Nancy Shelton Logan Simpson	51 W 3rd St #450 Temple, AZ 85281	nshelton@logansimpson.com
Chip Lewis - BIA	2600 N. Central Ave Phx AZ 85004	chip lewis@bia.gov
Michael Burroughs	4701 N. Torrey Pines Dr LV, NV 89130	michael_burroughs@fws.gov
Jeff Davis	14454 S. Sheeprock Dr. Herriman UT 84096	jdavis@transcan.com

SIGN-IN SHEET: AIYA SOLAR PROJECT

Environmental Impact Statement Public Scoping Meeting – January 15, 2015

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

Everett Bassett	PO Box 144 Forest Knolls, CA 94933	everetharch@aol.com
Linda Bullen	9101 W. Sahara, Ste. 105-L6 Las Vegas, NV 89117	linda@bullenlaw.com
PAUL SCHLAFLY BIA	PO BOX 720, S.G., UT 84771	paul.schlafly@bia.gov
Christina Varela BIA	PO Box 720 St George UT 84771	christina.varela@bia.gov
JILL YUNG PAUL HASTINGS / FIRST SOLAR	55 2ND St, 24th Floor San Francisco, CA 94105	jillyung@paulhastings.com
Sherryl Patterson Moapa Band of Paiutes	PO Box 340 Moapa, NV.	sherryl@mudsl.com

Appendix D

Coding Categories

APPENDIX D – CODING CATEGORIES DESCRIPTION

Appendix D contains a listing of the issue category topics and assigned codes corresponding to each as shown below.

WAT	**Water Resources**
AQ	**Air Quality**
CUL	**Cultural Resources**
BIO	**Biological Resources**
VEG	**Vegetation Resources**
SOC	**Socioeconomics**
LAN	**Land Use/Resource**
CUM	**Cumulative Effects**
OTH	**Other**

Appendix E

Scoping Comments Received

APPENDIX E – SCOPING COMMENTS RECEIVED

This Appendix contains all scoping comments received. Each comment is identified by a document number and comments have been coded according to the coding list contained in Appendix D.

Public Meeting Transcripts

Comment Reference
Document 1

Environmental Impact Statement Scoping Meeting

Aiya Solar Project

01/14/2015

OASIS
REPORTING SERVICES

400 South Seventh Street • Suite 400, Box 7 • Las Vegas, NV 89101
702-476-4500 | www.oasisreporting.com | info@oasisreporting.com

COURT REPORTING | NATIONAL SCHEDULING | VIDEOCONFERENCING | VIDEOGRAPHY

AIYA SOLAR PROJECT

ENVIRONMENTAL IMPACT STATEMENT (EIS)

SCOPING MEETING

JANUARY 14, 2015

MOAPA RIVER INDIAN RESERVATION TRIBAL HALL

ONE LINCOLN STREET

MOAPA, NEVADA

MODERATOR: CHIP LEWIS

ENVIRONMENTAL PROTECTION OFFICER FOR THE WESTERN REGIONAL OFFICE OF THE BUREAU OF INDIAN AFFAIRS

REPORTED BY: KEVIN WM. DANIEL, FAPR, RDR, CRR, CCR 711

Job No. 11573

P-R-O-C-E-E-D-I-N-G-S

CHIP LEWIS: Good evening, everyone.

My name is Chip Lewis. I'm with the Bureau of Indian Affairs, Western Regional Office in Phoenix, Arizona. I'm the acting Environmental Protection Officer for the Bureau of Indian Affairs, and as such, I am delegated as the project manager for this Aiya Solar Project, Environmental Impact Statement. So you're stuck with me as emcee here.

The reason we're here tonight is kind of the official kickoff, at least as far as the public participation process goes relating to the actual preparation of this Environmental Impact Statement document that we're required to do for projects on a large project such as this.

Very important. Scoping, soliciting input from agencies, governments, municipalities, tribes, and most important, the individual tribal members, members of the public, interested parties, because your input, your questions, your concerns, issues, opportunities is what drives the content of the document that we'll be preparing, both the path it takes and what's actually in there.

So, it's real important that you not be shy and speak up if you'd like to in this public forum. If

you do ask a question or have a statement, please speak up a little bit so our stenographer or court reporter can take down the information so we have a record of it officially and we can include it in the document, and also, please spell your last name.

We also can have you, if you're a little too shy, we have some comment sheets in the back. You can fill them out and give them to any of the BIA or Chairman and his staff, or First Solar, anybody around, and you can also comment online, some other opportunities. We'll talk about that in a little bit. So, at this time I'd like to turn it over to the Chairman.

CHAIRMAN DABODA: Good evening, everybody. I thank you for this first scoping meeting. This is a project that the tribe has been working on for the last six months. It's something that, as use for our land, I think it's a prime opportunity for us to continue looking at solar projects as renewable projects. It's not just good for our reservation, but it's good for providing for giving back. So this is a bunch of things that our Tribe has been working on as renewable projects.

I appreciate our tribal members are here, some of our Tribal Councilmembers. BIA is here. I

appreciate First Solar for being here, also people in the audience, I appreciate you guys coming out and listening and supporting this scoping meeting.

It's an important meeting for our community, because we've been working hard to do these kind of projects since 1980. In 1980, that's when our Tribe received back 70,000-plus acres back for economic development. It's taken us almost 25 years to get to this point in economic development. As a positive spin, this is a good thing for the community, because now our community can build some pride and ownership of who we are as Paiute people and looking to the future, letting our community know this is a positive spin for them, for taking care of the land. We're appreciating what we have, and it's not just about -- you know, it's good for job opportunities for construction, it's good for utilizing our resources, from our water to our land, but it's also for us as a community, I think it's a good thing that we're giving back to the land by looking at it as another resource of economic development striving for a green planet, you know. As our basic principles as Native Americans, it's in our DNA to look after the land. Again, we're stewards of the land, and we should take pride in ownership of the land. This is something, it's not for 25 years. It's

Page 5

something that's going to be impacting our community for the rest of our lives, because this is one of three potential solar projects that will help us strive to be better as a community, to strive to be better economically, to be better stewards of the land, to appreciate, so then we'll have more opportunities to educate our youth and to assist with our elders.

We've been a Paiute Tribe for a long time, and this is a positive spin for our community. You know, it's good for, I guess, our neighbors that we're going green.

And at this time, before we get any further, again I appreciate everyone coming here. I'm going to have one of our elders come up here to do a blessing, if you guys would please rise.

EUNICE OHTE: Grandfather, thank You for another day to walk upon granted ground. Thank You for Your many blessings.

Grandfather, thank You for this project that is going to be happening on the land. Grandfather, we ask Your blessings and respect as people, everyone else that will be involved in this program. We ask You to help them understand how important it is to respect and love the earth and take care of her and bless her and the animals and the plants and everything that's out

Page 6

there, Grandfather, that we've used before, our ancestors. In remembrance to Creator and to Mother Earth, to give back what when we take from Earth, to remember to do that as much.

Grandfather, thank you for another day. We ask your blessings on everyone here that they might go home with good thoughts and good feelings that we give them, too, that they might have a better understanding of what is going on, Grandfather. We ask to bless our people that we might become united in respect to each other and open up our ears, take cotton from our ears so we might understand and appreciate the things that we have.

CHAIRMAN DABODA: Chip, thank you guys again. I'll turn you over to Chip. Thank you guys again.

CHIP LEWIS: As I mentioned, I'm from the regional office in Phoenix, so we're proud to have actual local BIA representation here tonight. At this time I'd like to have Jim Williams come up, please.

JIM WILLIAMS: Good evening. My name is Jim Williams. I'm the Superintendent for the Southern Paiute agency, and also the Truxton Canyon Agency in Valentine, Arizona. This past year we started sharing the superintendent between the two agencies, as well as employees between the two agencies.

Page 7

So as a superintendent, I have the privilege of working with other experts from the Bureau of Indian Affairs on the scoping, on this whole process here.

All the questions, everything that's going on, I defer to them. They are my experts, and I'm so glad they work with us here.

So welcome. Thank you for showing up and, I probably will not top the speech that Paul gave last night, but I will leave it at that there. So thank you very much.

(Laughter)

CHIP LEWIS: So, I mentioned that we're preparing the Environmental Impact Statement. It's a document that's required by the National Environmental Policy Act. It kind of is the nation's charter for environmental stewardship when there's Federal involvement in a project.

Because the Tribe has come to the Bureau of Indian Affairs with a lease agreement that they have with First Solar, that triggers an action on BIA's part, which is real, kind of a realty action to do the lease approval. I will be making application for a lease to be approved by BIA, and that, because it's a large scale, municipal scale solar project, okay, it's kind of large on the project approval scale that takes

Page 8

folks in D.C. to sign off on, as opposed to, I'm sure you know, if we have -- if the Federal Government's involved in approving or funding or authorizing a project, we have to go through environmental process. If it's something small, building a stock tank out on the range or just repaving the road out front here, we can do a very brief little document. Sometimes there's intermediate documents that don't take too much effort.

But large projects that have a potential, or a perceived potential to have impact, or that is controversial, then we have to go through what's called this Environmental Impact Statement process, and I'm sure you're familiar how this is the third project that involved huge books most folks don't really want to read, I know, but we have to go through it, and we're mandated to produce that and declare what the impacts are or what mitigation has to be done and publicly disclose them to you all.

So, that's why we're here, and that's why the Bureau of Indian Affairs is the lead agency.

Other federal agencies that are involved, they can come on board as cooperators, and by agency, that also includes tribes. So the Moapa band is a cooperator, officially. Bureau of Land Management, because they have an action before them for the power

Page 9

lines that will go from the solar field to the substation, they have to approve rights-of-ways for the project. Fish and wild life service is involved because there are endangered species associated with the project, and they have to provide some clearances and permitting actions. And then also, the Environmental Protection Agency out of San Francisco. They're always involved because they have mandatory duties to provide some review of the documents and some other kind of official administrative actions, so they're usually always a cooperator.

The proposed action, as I mentioned, is the solar project, but the actual action before BIA will be ultimately approval of the lease, and I'll have the First Solar folks, they can talk about the whole project and what's going on here in a little bit.

Again, as a project manager, I'm responsible for making sure we do our due diligence in producing the best document we can, so you're free to contact me if you have any comments or concerns or want to be involved or air out any issues you have, so feel free.

The Impact Statement process itself is very scripted. Lots of regulations have been developed to guide how we go through the process, and it's predicated on full disclosure and public involvement,

Page 10

so this process we're in, we're at the very beginning. What we did, officially notice the government, the United States, the people of the United States that we were going to undertake this process by officially publishing our intent to do so in the Federal Register.

And so now, as Randy Schroeder and his folks get ready to actually write that big fat book, we have to determine what the contents of that is and the path that the actual writing will take. And so we're at what's called the public scoping segment of the process, and that's where we have public meetings such as this one to solicit your input.

We want to know, say, you know, they're going to talk about what we're actually doing, and so we want to know if any person or a group or a concerned citizen, tribal member, has some issue or a problem or a concern over what might be done, and then we'll forward those in the document, and that can cause alternatives to be developed. There can be mitigation.

Yes, sir?

RANDALL SIMMONS: When you're identifying some of these folks, could you tell us who they are? Like Randy Schroeder, and/or -- I know that you quoted someone else, but I don't know who Randy Schroeder is.

THE COURT REPORTER: Excuse me just a minute.

Page 11

Your name, please?

RANDALL SIMMONS: Who's asking?

THE COURT REPORTER: I'm asking, the court reporter.

RANDALL SIMMONS: Randall Simmons.

CHIP LEWIS: Randy Schroeder is with ENValue. He's with the company that is partnered with First Solar who's actually writing, composing the Environmental Impact Statement document on behalf of the Bureau of Indian Affairs.

RANDALL SIMMONS: So he's employed by First Solar?

CHIP LEWIS: He is a contractor of First Solar.

So what we'd like to do then at this time is ask you all to be part of this process by voicing your concerns, and like I mentioned, you can speak up, ask questions, air your concerns, or I think I talked about how you can do that in a minute.

Once we get all the concerns and develop and talk amongst ourselves, the other agencies, internal, external, we'll determine what we think the content of this document should be and the way it should be written, and we'll produce a draft document, and we'll put that out for public review and comment, and then

Page 12

we'll convene another set of public meetings.

So now that the specifics are known, what exactly we're going to do or is being proposed, and what we perceive those impacts to be, and you can comment on it and make corrections or agree or disagree and let us know how we might have to improve that document.

Then, once the corrections or changes are made, we'll produce a final document, and that ultimately gets sent back to the signatory officials in D.C., and they will be signing what is called a Record of Decision. That's the "Prepare the ROD" right there, and that's the official document that authorizes the ultimate signing of the lease document, and then the project can move forward, and then some administrative, tribal administrative actions that go on internally.

So, if you'd like to participate, like I mentioned, speak up. When we're done, this is just a short little presentation. We are here until 7:30 tonight. Feel free to visit with any of the folks here with BIA, First Solar, ENValue, the Council. Look at the poster boards. Talk privately. Anything you want to do. You can fill out the comment sheet if you like. You can go to the website and post comments there, or you can e-mail myself or Mr. Paul Schlafly. He's the

Page 13

natural resource officer for the Southern Paiute agency. He is acting as the local representative helping with this process, the scoping process.

And so now we'll go ahead and turn it over and actually talk about the project itself.

RANDY SCHROEDER: Thanks, Chip.

I'm just going to give a very brief overview of the project, where it's located, some of the components, and then Melanie Falls from First Solar will get into more of the details of the project here.

So, Chip mentioned a little bit about the project's purpose. One of the primary purposes of the project is to provide economic development opportunity for the Tribe. But in doing so, because this is a renewable project, it will also help not only Nevada, but all the surrounding states. They have renewable energy standards, and it will help meet those standards. And then also, as Darren mentioned, it will maximize the use of the site for the economic benefit of the Tribe.

The project is located right up, the Reservation Road at the intersection of Reservation Road and Highway 168. The solar project itself is 100 percent within the boundary of the reservation.

The transmission line that will interconnect

Page 14

the project, basically to the area down around the Reid-Gardner Power Plant, there's a substation there. That actually will cross potentially some BLM lands and that's why they're involved, and then there's a water pipeline that will be temporary and used during the construction period, and that's also 100 percent on the reservation.

And this, obviously, just shows the location of where we're at here today and where the project's located in the northeast corner of the reservation. And this shows a more closeup view of where the project is actually located.

Reservation Road basically goes there, and the project is located on both sides of Highway 168 and both sides of this portion of Reservation Road, basically at the top of the hill from where we are right now.

The temporary water pipeline would follow Reservation Road. There would be an intake here on the Muddy River, and then it would be a temporary, as I said, above-ground pipeline that would parallel the road, and then these lines here are the potential options for the transmission line.

Yes, sir?

RANDALL SIMMONS: Could you identify if it's

Page 15

surface water or ground water.

RANDY SCHROEDER: It will be surface water taken out of the Muddy River.

These lines here show the potential corridors for the transmission line that will interconnect. This is where the Reid-Gardner Power Plant is located. This is the existing Reid-Gardner Substation.

One of the options would take the power from the project, from a substation site, a project substation site that would either be located north of Highway 168, or another that would be located south of 168. And then the power would be transmitted either to this location at the existing Reid-Gardner Substation, or one of these two potential collector substations that Nevada Energy or NV Energy is looking at developing.

So this yellow shaded land here is the BLM land, and so these gen-tie lines, or transmission lines, would be on the reservation until this point here, and then it would cross BLM land to one of those interconnection points which will be defined by NV Energy.

And then with that I'll turn it over to Melanie who can provide a bit more detail about the project.

Page 16

MELANIE FALLS: Good evening. I just want to say thank you for coming here tonight.

First Solar is really excited to partner with the Tribe on bringing the reservation yet another solar project. We're also very excited to be developing another project to deliver clean renewable energy to Nevadans.

I would like to introduce you all to the First Solar team that's here tonight, so that if you have any questions after the presentation, you can approach them.

Tonight we have Austin Quig-Hartman who's over here. He's our project development engineer and our resident specialist in all technical and other engineering questions.

We also have Dave Sterner. There's Dave. He's our permitting manager for this project and our First Solar expert on environmental issues.

And we also have Bill Chilson who's also working with Dave on the environmental issues.

Again I'm Melanie Falls. I'm the project developer with First Solar, and feel free to ask me any questions you may have as well.

So a little bit about the project. We are proposing an up to 100-megawatt facility located on

Page 17

approximately 900 acres on the reservation. Our project, it will be using First Solar's proprietary cadmium telluride photovoltaic technology. Photovoltaic technology are the panels that you see on top of rooftops in homes. They are not the mirror type technology that you may have seen near Primm, Ivanpah project with the towers. It's not that type of technology. It's also not the type of mirror technology that you see in the El Dorado Valley. Those are called solar parabolic troughs, also using mirrors.

We're simply proposing rows of panels that would produce electricity. These rows of panels may be mounted on either fixed-tilt or single-axis tracking mounting structures. The EIS will analyze both types of mounting structures. Fix-tilt can be anywhere between 8 and 10 feet high, and single-axis tracking can be between 10 and 13 feet high.

Here's some photographs of our technology. First Solar manufactures its own panels. It manufactures them in Ohio, here in the United States, and also in Malaysia.

It's pretty basic technology. It's basically a semi-conductor material made of cadmium telluride, which are both byproducts of mining, between two pieces of glass. The semi-conductor material takes light and

Page 18

converts it into energy, which is collected on a collector system and delivered to the transmission grid.

It's very simple. It's sort of like the way a plant takes energy -- takes sunlight and converts it into energy.

We've done some studies on our panels, and we found that they do not generate any heat, and they also do not generate any radiation. In addition to that, we have an anti-reflective coating on top of our panels so that they don't produce glare for any planes that are flying over or any other types of aviation. In fact, photovoltaic facilities are commonly found next to large commercial airports such as the Denver airport, so we haven't seen any major issues with flyovers.

So First Solar specializes in building power plants. In addition to project development services, which is what the team here does tonight, and in addition to manufacturing modules, First Solar also provides construction services and operations and maintenance services. So we have a lot of information about how we construct our facilities and how they operate in the long-term.

This particular project is going to use about 1.15 million panels to produce up to 100 megawatts.

Page 19

Our projects are very simple. They're basically blocks repeated over and over again of panels connected by collector lines that go into inverters. And it's one block, one after the other.

Sir?

RANDALL SIMMONS: When you said they have the single-axis tracking system, will these might look like the ones out at Tribal Plaza?

MELANIE FALLS: No.

RANDALL SIMMONS: So they're not going to look like that at all?

MELANIE FALLS: No.

RANDALL SIMMONS: Lower to the ground, then?

MELANIE FALLS: Much lower. At the highest point they'll be 13 feet high.

RANDALL SIMMONS: Thank you.

MELANIE FALLS: I believe the ones at the Tribal Plaza are dual-access tracking, meaning they swivel. Ours only go east and west, if that's helpful.

RANDALL SIMMONS: Dual-axis goes around.

MELANIE FALLS: So, in addition to the fact that they're very simple, one of the key benefits that I think our power plants provide are minimal impacts on the land. Because the technology is simple, installing it is relatively simple.

Page 20

First Solar prides itself on something called, we call light touch approach to site preparation. Basically, we need to prepare the land in as much that it provides a safe working condition.

So first of all we look at mowing, simply just mowing down the vegetation so that our workers can walk safely on site and install the facilities. If that's not adequate for safe enough working environment, we look at till and roll, which is similar to what farmers use and that maintains the natural contours of the land.

Finally, if that's not safe enough, then we consider conventional grading. However, in our most recent project that we've constructed, conventional grading is only used in very specific areas where the terrain is particularly challenging.

In addition to that benefit, our projects also generate electricity without using water. The only water used during operations is in sinks and toilets for operations and maintenance employees.

Other than that we do not wash our panels. We've not found that there's an economic benefit to washing our panels, so we have very, very long-term low water use.

However, we will be using water for

Page 21

construction, which is what the temporary pipeline that Randy mentioned will be used for. But that's only temporary in nature and will be removed once construction is completed.

So, in addition to the power plant facilities, we need to construct several additional facilities in order to facilitate the construction and the operation of the facility.

So Randy went over a little bit about our transmission lines. We need to build a transmission line from the project site down to either point of interconnection that NV Energy will determine. It will be a 230-kilovolt line on structures that basically span approximately two miles to either location.

In addition to that, as Randy also mentioned, we'll be constructing a temporary water pipeline providing construction water. The intake will be at the Muddy River. The temporary pipeline will go off Reservation Road up to the project site. As I said before, the facilities will be removed once construction is complete.

The site will also include a small 2000-square-foot operation and maintenance building.

CHAIRMAN DABODA: I have a quick question. On the water pipeline, for pre-construction, how many acre

Page 22

feet are you looking at?

MELANIE FALLS: For production, 300 acres.

CHAIRMAN DABODA: 300 acre feet?

MELANIE FALLS: The construction period will last anywhere between 12 and 18 months, relatively short, given this project has projected 30 years life.

So the operations and maintenance building will include offices and toilets for our full-time operations and maintenance employees, and that's it.

And then lastly, we will have fencing around the perimeter of the site. This is for security. We typically use chain-link fencing with wrapped barbed wire around the top.

RANDALL SIMMONS: When you're saying you're going to bring an operation and maintenance building on site, are you going to bring water to that site and power to that site?

MELANIE FALLS: So typically we will --

RANDALL SIMMONS: Sewage and such?

MELANIE FALLS: It's normally a septic system, so there will be sewage, but we will have an arrangement with the Tribe to provide operations and maintenance water for the sinks and toilets.

So what I want to leave you here with today is, you know, I believe our technology is minimal

Page 23

impact to the land, and I hope that this presentation was helpful.

And now I'm going to turn it over to Randy to go over the effects and environmental impacts that will be reviewed.

RANDY SCHROEDER: As Darren mentioned, we've been working with the Tribe, First Solar has been working with the Tribe, and not only the Tribe, but with a number of the other agencies to try to determine what issues need to be addressed in this document.

So, preliminarily these are the ones that have been identified to date, but again, to the purpose of this meeting, we want to hear what other issues need to be included or added to this list or refinement to some of these issues as well, that we want to make sure everything is addressed in the document.

The biological resources, there are Desert Tortoise in the area. That's something that will be identified and evaluated, the vegetation and how that will be handled, and then avian species. That's something, how they will be impacted potentially by the project.

Cultural resources: Those will be evaluated on the site and also considered in the EIS.

Visual resources, we talked about a little

Page 24

bit. How the project will be visible from the roads and from other locations identified by agencies, tribal members, the Council, that we will evaluate in the EIS.

Water resources: As Melanie just said, water use on the project is, for the most part, temporary during construction, and during construction primarily for dust control. And then after that, operationally it's a very, very small use, but that will be evaluated in the document.

And then socioeconomics, what benefits to the Tribe and to individuals will occur and what potential impacts might occur. And again, anything else that's identified by anyone who's here tonight or anyone else who comments, those will all be addressed in the document.

Schedule: Just to go over that again, it was on one of the previous slides a little bit. We're at scoping right now, and there's a meeting here tonight. There's another meeting tomorrow in Las Vegas at the BLM office in Las Vegas. The scoping period actually closes not until the end of the month, and so we'll be receiving, until that time, comments via all the different mechanisms that Chip mentioned earlier, either by comment forms, verbal comments, via the website. You can log in, and actually there's a

Page 25

comment form on the website as well.
And then we've already started pulling together some of the project information, and now also some of the environmental information into a draft Environmental Impact Statement, a draft EIS which will be published around the time the end of April, the beginning of May, so a draft EIS will be published and available for public review.
And at that time we'll have another round of meetings like this, so that people will have an opportunity to look at what's in those documents or in that document and comment on what needs to be included, what needs to be modified and those types of things. And so that's roughly going to occur in May, is the expected time frame for that.
And then after we gather all those comments on the draft, we address those comments in another version of the document, the final EIS, and that's scheduled to be published roughly at the early part of August, and then the Record of Decision is actually the agency's decision on the alternatives and the mitigations that will be applied, and that's scheduled right now to be in the last part of August.
So with that, I guess we'll just open it up to any comments or issues that people might have.

Page 26

Yes, sir?
RANDALL SIMMONS: As far as getting out proper notice of the public meetings, what efforts has First Solar, has the Tribe provided us with notice of this meeting?
MELANIE FALLS: So for this particular meeting, this is the BIA's meeting, and I believe they sent out letters to interested folks.
However, prior to this meeting, First Solar actually has a tribal membership meeting to inform the tribal membership about the project and subsequently had a number of meetings with Tribal Council to discuss project details, and we're working at setting up a presentation at the next general Council meeting to inform tribal members about the status of the project, and we're also working with the Council to come up with some more creative ways to make sure tribal members should be further involved and informed of what we're doing.
RANDALL SIMMONS: From a federal perspective, you guys can't answer that question, but notifying the tribal members, can you answer that question? Who -- what information did you share with us, because everybody heard about this meeting last night. And we didn't -- and there was a notice given today. We

Page 27

don't -- we didn't know anything about it. We couldn't prepare any questions. We couldn't actually get ready for the meeting. I'm just wondering what efforts have you given with the Tribe itself insofar as the meeting for tonight? Where's this information going? Where's this black hole on the reservation?
CHIP LEWIS: The federal perspective on this --
RANDALL SIMMONS: I'm not asking you. I'm asking them.
CHIP LEWIS: Oh.
RANDY SCHROEDER: There was a notice published in the local paper.
RANDALL SIMMONS: So you're saying that that's our notice, the local paper down there?
RANDY SCHROEDER: The local paper down where?
RANDALL SIMMONS: This is -- that's, that's the publication that really is anti-, well, I just see a lot of nonsupportive positions against the Tribe. A lot of people don't read that. So I'm asking what efforts have you guys done to do notice? Where did you give the information they were supposed to have a meeting tonight? Who did you work with?
MELANIE FALLS: We did work with Council to notify them of this particular meeting. However,

Page 28

this --
RANDALL SIMMONS: Where are the e-mails going?
MELANIE FALLS: There was no e-mail notification sent out.
RANDALL SIMMONS: No e-mail? So that we -- I just want to identify why we're not getting the information here. In fact, everyone wants to know what this project's about. We didn't even know what the name was.
And it looks like that scale of that right there doesn't match up to this. There's all kinds of questions, and we didn't even know about it. So I'm just wondering, where's this information going? Can you identify who you're working with?
MELANIE FALLS: So far, First Solar has been working with a number of members of the Council, with Harry Boll on a lot of the project details and Council staff.
RANDALL SIMMONS: Thank you. I'm going to have -- you can answer, I'm sorry.
CHIP LEWIS: On how we advertised the meeting? That's what you'd like to know?
RANDALL SIMMONS: Yes. Well, I figured you guys helped publish it in the paper locally.
CHIP LEWIS: Yes.

1-OTH 1

Page 29

RANDALL SIMMONS: Right. We just didn't have any notice on the reservation.

CHAIRMAN DABODA: I think on that, Randy, they notified when we had our Christmas party, it was presented that there is a meeting coming up, and person at the time said there's an upcoming scoping meeting in January. So on that part we had a lot of community members there. That was presented at that meeting, or at that event.

RANDALL SIMMONS: I'm just, date and time, was that mentioned? Like the 15th at this hour? Because we didn't know. In fact, you weren't there, and I showed up five minutes late.

MELANIE FALLS: I was at the holiday party, and Laura Abram, who isn't here tonight, she made that announcement I believe on the date of the scoping meeting at the holiday party.

RANDALL SIMMONS: That's fine, but that's really not notice. Written notice would give us an idea of what the scope of this meeting was about. No one actually knew. In fact, they couldn't really define last night the meeting.

So just like to know, actually written notice, that's proper notice. We know we can evaluate what's on the document. I'm just asking you guys to be --

Page 30

where that information is and we can deal with tribal. Thank you.

CHIP LEWIS: And so, once the document's prepared, we're going to have another round of public meetings, and we'll have a quite lengthy 45-day comment period on the draft document, so if communication with individual tribal members is an issue, then perhaps you can meet with us and let us know ways that you would like to have us improve that communication with tribal members.

Yes, sir?

RANDALL SIMMONS: Insofar as, around May 15th or a week after, can First Solar ask us what protocols are utilized, biological protocols are utilized when they walk the hill where this project potentially was? Can First Solar answer that question of what type of biological protocol was used and available at the time?

Actually, it was the activity that happened around I think around May 17th, that week after, right around the mid-May area. You guys were on top of the hill doing something. Could you explain what that was?

MELANIE FALLS: So we just surveyed in September for this particular project, so I'm not quite

Page 31

sure what you're referring to. Are you referring to this project, or more the Moapa Southern Paiutes?

RANDALL SIMMONS: On top of the hill. What happened was, there was no contract signed at the time. There was no lease. There was no license granted, but there was -- the tribal employees, including our current Chairman, were on top of the hill walking the hill, doing something for the project.

MELANIE FALLS: We may have been looking at the site to evaluate it, to see if it was suitable for solar at the time. I don't recall that particular weekend.

RANDALL SIMMONS: So you're saying it didn't happen?

MELANIE FALLS: No, I'm not saying it didn't happen. I'm saying I don't remember the exact dates.

RANDALL SIMMONS: Okay. But what protocols were utilized? Can you tell us that?

MELANIE FALLS: Those weren't surveys, sir. Those were, we were just simply invited by the Tribe to take a look at the property. So I guess maybe I don't understand your question.

RANDALL SIMMONS: I don't understand the scope of what you were doing on the hill, how it might have impacted our Desert Tortoise, how your parking of the

Page 32

cars might have damaged the desert, how it might have impacted our biology, how you guys may not have actually helped us, or you may have just asked us to violate our own tribal laws, our code and constitution to get jobs for tribal members. There's all kinds of things. I don't know what protocols were used or even what it was. Could you define it? What were you doing on top of the hill?

MELANIE FALLS: Like I said, we were just looking at the property to see if it was suitable for a solar project.

RANDALL SIMMONS: So you're not saying it was a biological review at all?

MELANIE FALLS: To the best of my knowledge, in May we did not do --

RANDALL SIMMONS: Do you have the information, or can you point us to someone that might have this information of what happened?

MELANIE FALLS: The team here would have that information, and --

RANDALL SIMMONS: Does anyone in the team, can they explain what that activity was on top of the hill?

MELANIE FALLS: I imagine I was there, and the Chairman was there, so --

RANDALL SIMMONS: He wasn't the Chairman at

Page 33

the time. He was our environmental director. So I'd like to get an explanation of what type of protocols were used at the time so that we didn't damage the land and actually took care to respect our cultural resources up there.

CHAIRMAN DABODA: If I might say, on that issue, Melanie, there was a biological. That happened at that time. There was a contractor that was working on the biological. I think that's what Randy was referring to. There was biological clearance, original footprint, and that happened.

I'm not sure about the agreement, because I wasn't involved at the time, so I was not on Council. I was just informed if I can go up there and assist with the biological.

RANDALL SIMMONS: So I'm saying, do you have -- it's biological. What kind of biological standards did you utilize when you went on top of the hill and --

DAVID STERNER: I can address that a little bit. So that there's really a well-defined protocol that was in consultation with the service, because we're looking -- usually what happens is, there's some basic research that is done on the property before anybody goes out to the site, and the research is what

Page 34

sort of species are out there. What is the potential they have to exist, and these are what are called special status species, ones that may be listed as endangered or threatened or have special issues, in terms of whether or not they might be threatened or endangered, et cetera. So there are specific, you know -- depending on the species, for example, the Desert Tortoise, there's a protocol that is a defined by the Fish and Wildlife Service where they are ground surveys. People do walk transects. The idea is no ground disturbance is to occur. It's just strictly observation. Any type of access of course is --

RANDALL SIMMONS: Where did they park the trucks? Because after they -- when -- I don't recall it's called Pier Hill. Right on top of the corner where there's an open space. After that, there was a bunch of dust. I'm wondering what type of protocols were used, because to me it sounds like what they did is tore up the land right there. So I'm trying to ask you what type of protocols were utilized? And was it in writing? Or did you just do it haphazardly without a contract?

CHAIRMAN DABODA: On that issue, that was not the biologists that were out there, that was people that were coming from my ranch, coming to the

Page 35

reservation. Because I stayed on hard roads, and where they parked on the shoulder on 168, and the back roads -- no. Majority of the time they parked on 168. Only one time they came up --

RANDALL SIMMONS: Greg was driving up and down that road. He was off the road.

CHAIRMAN DABODA: I don't think that was --

RANDALL SIMMONS: No, he was sitting up there most of the time. So I'm wondering, what type of protocols were used so that we will not have these damages, First Solar, dealing with the Tribe.

DAVID STERNER: I can speak personally to every time that I've contacted the Tribe --

RANDALL SIMMONS: Who did you contact?

DAVID STERNER: Terry Bohl.

THE COURT REPORTER: Gentlemen, excuse me. I'm not able to hear your conversation. I'm going to move closer to you. If you'll wait just a minute please.

DAVID STERNER: My instruction was that we were to stay completely on any road, on defined roads and park on the shoulder and --

RANDALL SIMMONS: Did you try to comply with the Tribe's laws and rules insofar as -- so you were instructed just to talk to Terry Bohl?

Page 36

ALETHA TOM: By the Council, yes. Council gave him --

RANDALL SIMMONS: But here's the thing. The Council also has to work with -- so you were not instructed to work with the business manager at all?

DAVID STERNER: I'm not sure what your question is. I was -- I came on site and had my initial contact with the tribal members, Darren and Terry.

RANDALL SIMMONS: Okay, I'm going to read this to you. Well, I didn't bring it. There's a project manager for all projects, it was approved by the Council, but that didn't say First Solar. It just said projects. So you had -- and the Tribe already had a business manager. You decided not to contact him because you were instructed to by the Council? I'm just asking you a question, who you've been working with?

ALETHA TOM: Terry Bohl.

RANDALL SIMMONS: See, I'm just saying, you don't have that right. The Tribal Council has that right. And I'm just trying to get that clarified. Thank you. Appreciate it.

So what -- can I just do a follow-up? What protocols were used? What did you do? Where did you

Page 37

park? Where did you allow the people to walk? How many people were allowed to walk per square -- per yard? What was the protocols that were used insofar as your survey?

DAVID STERNER: Well --

CHIP LEWIS: Dave, hang on. The purpose of this meeting is to scope and to ask from the members of the public for comments on the project.

RANDALL SIMMONS: Yeah.

CHIP LEWIS: And not something that might have happened with the Tribe. So what I'd like to do is to not take away from what this meeting's for. We can meet separately afterwards and try to explain to you --

RANDALL SIMMONS: You're saying our questions, insofar as our government, doesn't have anything to do with our culture?

CHIP LEWIS: No. No.

RANDALL SIMMONS: Because that's part of the scoping meeting, how it's going to impact us culturally. Part of our culture is our government, and if this business is not working with our government in following our laws, then I think that this is relevant, insofar as culturalable [sic], because government is part of the culture. You're saying it has nothing to do with it?

Page 38

CHIP LEWIS: No, sir.

RANDALL SIMMONS: So these questions are relevant to government, how they work with the government and what their protocols are, and if they're just walking up there haphazardly, right now, is that what the Tribe is to expect insofar as how they're going to impact us through our culture?

CHIP LEWIS: What we'll do is note that, and then if we want to talk about something that happened in the past, we can do that afterwards.

RANDALL SIMMONS: Thank you.

CHAIRMAN DABODA: I have a quick comment. Regarding the fencing, are we looking at making the tortoise fencing the same time they're erecting the cyclone fence around the facility, when you talked about the fence around the compound?

MELANIE FALLS: There will be tortoise fencing along the permanent fence. Is that what you're asking?

CHAIRMAN DABODA: Is it going to be connected?

RANDY SCHROEDER: Yes, generally it will be connected at the bottom of the fence. There will first be a temporary fence put up, a temporary tortoise fence, and then there would be clearance surveys, and any tortoises within that temporarily fenced area would be removed, and then the permanent fence would be put

Page 39

up with no tortoises within it, and then a permanent -- on the lower couple of feet of the permanent fence it will be tortoise fencing on the lower portion. So there will be a temporary tortoise fence and then a permanent tortoise fence attached to the permanent.

CHAIRMAN DABODA: That's what I was wondering, because on the current project we have a gap where the tortoise fencing and the cyclone fencing. We don't want that gap. We want it to be both connected. Thanks, Randy.

1-BIO 1

RANDY SCHROEDER: You bet. The Fish and Wildlife Service actually has some specs identified on the way they like to see it, the same way you're talking about.

RANDALL SIMMONS: Insofar as getting the EIS, is that going to be approved by the Council first before it goes on and moves out to the BIA?

CHIP LEWIS: Well, it won't necessarily be approved by the Council, but as a cooperating agency in the preparation of the document, the Council will be contributing and, you know, validating what's the content, along with the other agencies.

RANDALL SIMMONS: Yeah. No, I'm not asking about federal approval. I'm asking about Tribal Council approval. Will that be approved? Are

Page 40

you going to take that back to the Council?

RANDY SCHROEDER: Whoever the Tribe appoints as their designee for reviewing the sections of the document, that the Tribe will be reviewing those.

CHIP LEWIS: Yes, sir?

VERNON LEE: Has a determination been made on how far from the center of the roads, 168 and Reservation Road, will the fence be? 50 feet from the center of the highway, 75 feet?

AUSTIN QUIG-HARTMAN: I believe it's a hundred feet from that road, from the center.

RANDY SCHROEDER: Any other questions or comments?

RANDALL SIMMONS: Just for clarification for the tribal members, because we don't know what the project's been about, is that scale there, I pointed out earlier, looks different than this scale. That looks a lot further down into the reservation where we might have, be able to put homes. Could you -- is there some way that we can designate and identify how close it is to the existing homes on the reservation, because that -- and just it did not look like this was actually comparable to this. Because our, one of the big problems here on the reservation is that we don't have any, we don't have any homes, and I think more

1-SOC 1

Page 41

than half of our population lives off reservation. There is no existing place to put a home.

This project has, is getting very close to the reservation where there is potential to put homes for tribal members.

Now, so, the relationship of that project to the homes on reservation is very important. People are asking for that last night at the Council meeting saying, well, what is it, where is it? If we can identify how close it is to the -- and everybody knows I'm on top of the hill here, I -- how close those homes are to where we can potentially build other homes. How closely are on scale? Because that looks a lot -- I think that looks different than this, because it shows the corner, the corner of Reservation Road coming down a lot lower to the reservation where our homes are.

Could that -- could there be a map so that we can clearly identify where the project is, and in addition -- because this looks to me like you just kind of colored it in and it was estimated. If we can get a clearly accurate scale so we can identify, hey, is this going to impact our homes? Is that going to impact our potential to put homes?

And I've always wanted a chopper to go up there and do it, but I'm just saying, it's close,

Page 42

it's -- we were saying that that might be, that might be right where you're building, might right be where we could potentially put homes, and so I'm just -- if we can get a clear demonstration from your project as to the scale, so that we can identify how close it is so that we can find out, we can build out homes on the reservation.

Can you identify that or can you do that -- or can you -- can I ask you if those were built to scale, the ones in orange, and this one over here?

RANDY SCHROEDER: Are you talking about this?

RANDALL SIMMONS: Yeah. If you look at the curve of Reservation Road, the curve of Reservation Road looks like it's -- it actually takes the whole curve, and then it goes straight down, and how far down -- it looks like it might be getting closer to the homes on reservation, and I'm not sure, it didn't look like that was comparable to these other ones. So I'm just trying to identify.

Could we -- could we get like an identification right now of how far those, that line, that fence you're going to make is, how close it's going to be to that hill right there where we can potentially build homes?

RANDY SCHROEDER: And I don't know. I think

Page 43

we can say that the site boundary will be confined to the flatter area at the top of the hill. That won't come down the hill. There will be nothing built on that slope.

RANDALL SIMMONS: Well, the way that line works right there, it's coming down the hill.

RANDY SCHROEDER: Yes. If this line is actually coming down the hill --

RANDALL SIMMONS: That's following Reservation Road. It's coming downhill.

RANDY SCHROEDER: It's not going to go down that slope. It's going to stay up on top of the flat area. That's where the site's going to be. Because you can't --

RANDALL SIMMONS: Well, that map -- once you had that -- once you hit that corner you're going downhill. So it's going downhill.

MELANIE FALLS: We'll double-check the map and correct it if --

RANDALL SIMMONS: Can we identify how close it is to the existing homes now?

CHAIRMAN DABODA: This is not going to impact potentially homes, how we talked about earlier. This is going to be only looking at probably, on the community aspect on the reservation, we're looking

Page 44

right down here, where the community will be. This will be that dirt road going in through Nevada Energy. So our community is right here, our existing community.

The housing tract we talked about is roughly in this area. So we have this area is developed. That wouldn't be developed because there's a wash in this area. So this area would be potentially good area for housing development, housing tracts.

So on this map, even though it shows it's coming down, like I said you look at the other map, it shows it this way.

AUSTIN QUIG-HARTMAN: The inner line, that's --

CHAIRMAN DABODA: Correct. And that's what Randy was telling me. Concern about as far as coming around that loop right here that we have on the map over there.

RANDY SCHROEDER: Okay. Yeah, it is easier to see on the aerial map, you know, how it actually -- how the boundary relates to other features on the reservation.

RANDALL SIMMONS: And just, because I've looked at this map, and it's actually, it's kind of colored our res, where people live. I think that that's -- well, it's kind of offensive.

1-SOC 2

Page 45

I think we need to figure out -- no, we need to know how close it is to the res, to where everybody lives. You've kind of -- you've actually -- with that map, we really can't even tell. It looks like what's really highlighted is Nevada Power.

We need to know how this thing, how close it's going to be to our community and how it's going to impact our future development and how it could take care of our people, and I just think that right now it's a misrepresentation, without having a clarification of how close it is to our community, because that, to me, actually, is offensive.

RANDY SCHROEDER: Actually, that map is only colored the way it's colored to show the different land jurisdictions. The orange color there is --

RANDALL SIMMONS: It's not to scale. That's what I'm saying. It's not to scale, plus diminishes the reservation and where we live and where we can potentially build.

RANDY SCHROEDER: Well, like I said, it's only meant to show land jurisdiction in those colors.

RANDALL SIMMONS: Could there be something that you can share with -- this is maybe off topic, but just for the community that we can identify where this project's going to be? Can this be shared with the

Page 46

tribal members?

RANDY SCHROEDER: Sure.

RANDALL SIMMONS: Can we leave this here for the next meeting so we can -- the tribal members will know where the heck the project is?

CHAIRMAN DABODA: There's a scoping meeting tomorrow after --

RANDY SCHROEDER: Oh, no, absolutely.

RANDALL SIMMONS: If you've been sharing information with Terry Bohl and he hasn't given it to us and we don't even know when the meeting is, so I guess we know where all that information's been going and not getting to the tribal community.

RANDY SCHROEDER: Well, these are actually some of the first maps that have been produced for the project and everything. And as I said, on those maps that you're talking about with the coloring, the only indication that is meant to be portrayed there is the jurisdictional differences between BLM, which is yellow, the orange-ish color, which is reservation, and then the non-colored, which is private land. And so that's all that is meant to represent. It's just jurisdictional designations.

JOHN FLEMING: Can I get a drawing, an overhead view of a lot of homes and everything, track

Page 47

the whole area and he can see what's happening? About a five-mile, you know, square mile area and they can see where all the homes are, where your project will be, where you can go. That map just shows only so much.

RANDY SCHROEDER: We can even do that a little later in the meeting. I can maybe pull up a satellite image to show you.

JOHN FLEMING: Right. You can see where every home is, every little thing, go from there.

VERNON LEE: I was going to add to the conversation, it's been contemplated, we have three homes up here on the hill to go further up the hill for home sites, because all the utilities are there, and Mr. Simmons' concern is that this is coming down in that direction. The other homes are here. We want to build up and to identify how far this comes down so it doesn't interfere with potential home sites.

1-WAT 1

RANDY SCHROEDER: Right.

RANDALL SIMMONS: And plus if you're going to build a septic out there, you've got to make sure that doesn't have any environmental impact on our potential homes that might go in that area. And in fact, right now, there are septics above the reservation, and we can ask our past environmental director, current

Page 48

Chairman. Above the reservation, they only have septics. And what's going on is that we cannot utilize that water during the summer because that's when we have our chloro -- what's that called? So we know what septic systems can do. We have our own system here, that collects it. It's not that -- as a point source.

But if we're going to have you guys doing a septic -- because that's why I'm wondering, if you brought water out there, you would actually help, could actually help facilitate additional homes for the reservation, but if you're going for the least cost-effective method just to do a slap-up, slap a septic in there, with all the problems that come along with it, that would not kind of be acceptable.

If you brought water out there, you can actually bring water down to -- there can be water brought right down to where we can have additional homes for people on the reservation, but not just think about your cost-effective measures of just dumping all your stuff up there. Thank you.

RANDY SCHROEDER: Any other comments or questions?

CHAIRMAN DABODA: Jobs. How many jobs are you going to have for construction?

MELANIE FALLS: Construction is about 300, and

Page 49

permanent employees up to five.
JOHN FLEMING: Most of the construction workers are coming from Las Vegas, or are they coming from California?
MELANIE FALLS: So we are actually mandated to make at least 75 percent of local, meaning within Clark County. First Solar has an internal commitment to hiring locally, and at the very top of the priority list is to hire tribal members, and actually at the Moapa Southern Paiute Solar Project, if you'll correct me if I'm wrong, I think it's 52 Native Americans and 49 -- 56 tribal members and 49 -- 56 Native Americans and 49 tribal members are currently working out there.
RANDALL SIMMONS: What law are you quoting? What are you saying that we have, you have a commitment to have local hires? What law are you quoting?
MELANIE FALLS: There is no law. First Solar, it's just an internal policy.
RANDALL SIMMONS: Thank you.
MELANIE FALLS: But the commitment to 75 percent is Nevada state law. Under the Nevada Renewable Energy Tax Abatement Program, we're required to meet 75 percent and, of course, the project won't be participating in that particular program since this is on tribal land. However, in order to receive an

Page 50

equivalent tax abatement from the tribal government, we need to meet those regulations.
RANDALL SIMMONS: I'm sorry, explain that again. Could you say that again real quick?
MELANIE FALLS: Sure.
RANDALL SIMMONS: Because our laws say it's Indian preference, and the contracts say Indian preference.
MELANIE FALLS: Correct.
RANDALL SIMMONS: So you're telling us -- well, basically you're saying you're not going to Indian preference, so please explain what you're talking about.
MELANIE FALLS: I'm sorry if I am creating misunderstanding. We do have a preference for hiring Native Americans. So, yes, we do have a Native American preference. We have a requirement by law to hire 75 percent local.
RANDALL SIMMONS: You understand that the state laws don't apply to us?
MELANIE FALLS: I do understand that.
RANDALL SIMMONS: Do you understand that?
MELANIE FALLS: Yes.
RANDALL SIMMONS: Thank you. So I'm not sure what law you're quoting.

1-SOC 3

Page 51

MELANIE FALLS: Which part of my statement are you asking?
RANDALL SIMMONS: Because that doesn't apply on reservation. You're saying a fact. It's not a fact on the reservation.
MELANIE FALLS: So you're right. State law does not apply on the reservation. However, based on agreements with the Governor's office, we do have to meet that requirement.
RANDALL SIMMONS: Did you disclose this to the Tribal Council when you made the agreement --
MELANIE FALLS: Yes, it's in our agreement.
RANDALL SIMMONS: -- that you have to comply with the state law hiring mandate?
MELANIE FALLS: Yes. It's actually in our lease agreement.
JOHN FLEMING: Is that hiring just for construction or for operations?
MELANIE FALLS: Construction.
JOHN FLEMING: Because operations take 10 people at the most.
RANDY SCHROEDER: Anyone else?
CHAIRMAN DABODA: I have a concern with this project. Are you also going to have, besides monitors, the current project we have right now, we have

Page 52

biological monitors, and we don't have cultural monitors, and I was wondering if you are looking at also looking at, for this project, the second project, cultural monitors?
DAVID STERNER: We certainly will comply with any requirement, if it comes from the Tribe, to provide cultural monitors. We certainly can, and we know that, in fact, you know, we're working with the Tribe to do the cultural surveys and, you know, I mean, you certainly may have the expertise to provide that. Along with that, of course, will be the considerations that are brought forth by our consultation, Section 106 consultation on cultural issues and any mandates that come out of that. We certainly are willing to comply if that's a specific --
CHAIRMAN DABODA: The reason I brought this up with the project, there was cultural artifacts found after the fact when they did the sweeps. They started construction, they found two other artifacts afterwards.
DAVID STERNER: Typically, what's written in our worker education program, et cetera, is that if there is a discovery, that we have someone available to evaluate, and it's a requirement to stop any kind of work activities and, you know, then evaluate that and

1-CUL 1

Page 53

avoid that area until a full evaluation is done. If it's a significant site, then that could be a longer period of time. But certainly there is a requirement that that kind of action has to take place if there is a discovery, and part of that is creating an awareness, a worker awareness for what to be aware of, what to look for in the course of construction.

CHAIRMAN DABODA: Thanks, David.

RANDALL SIMMONS: Insofar as employing tribal members, that's an option contract. That's not a full contract. Once that option ends, this contract can end. And so once the contract ends, the option contract ends, the Tribe doesn't have to do it. And so I'm just letting you know that this is just a temporary deviation from our existing requirements as far as Indian preference. So I'm just letting you know that actually you might want to clarify your statements, that it's pursuant to your limited option contract. Because it's not a full contract yet. Once your option ends, we can end it. So, just letting you know.

RANDY SCHROEDER: Again, one point I was going to make, is I don't think those two things are mutually exclusive. There is a tribal preference, and then beyond that there's also a desire to hire locally as well. And so the tribal preference comes first. And

Page 54

then if you have more people you need to hire, best efforts are made to hire them locally, as opposed to bringing people in from California, as one gentleman mentioned or whatever. They would be hired from the local community. So they're not mutually exclusive, they basically complement each other, but Indian preference is first.

GERALD BEGAY: Okay. When you say "Indian preference," but what about the tribal preference, you said? Because that, all gets lost out in the paperwork or whoever, because I work out there now, and I'm a Tribal Council member, and as a member, I see that we have, well, natives, Native Americans working out there, but when you say that tribal members always -- well, this is what they told me, is that we would never be out of a job, and we are. We've been laid off.

There's been a handful of us that are tribal members and have been laid off. Why, I don't know, but it concerns me, because I talk to people out there when I'm out there, as if when we got laid off, when did these other people come in, and they were just plain -- but they have worked with First Solar before, or different contractors, yet, they were hired before we were even called back, so -- and they are some nonmembers, nonmembers are working and tribal members

Page 55

are left here on the reservation again.

So somewhere it gets lost about the employment of our tribal members and, you know, I've heard that this was supposed to be, you know, tribal members first. But that -- I don't know where the employment part gets lost, and that's something maybe you can, like -- unless you're wearing a tribal member shirt on you, you're going to get laid off, and they don't know who you are.

1-SOC 4

So, I mean, it's kind of like -- because I was kind of disappointed when I got laid off. Yet, you kept other people on, and they're not doing nothing no different than what a trained monkey can do. But that's what I'm saying is, why weren't we kept on the job and the other people let go? It kind of made me feel like, well, I'm getting laid off on my own job, my own project, you know. I mean with, associated with you guys, you know.

I would just be concerned for my people that somebody needs to -- because the contractors that are out there don't have Native Americans working for them or tribal members, because I should have been able to, like, get laid off here and go right into another job, because I've heard First Solar tell me that, that you shouldn't even be laid off. You can go anywhere on

Page 56

this project you want to, and this is coming from one of your First Solar persons, higher up. So I don't understand why we were, you know, getting laid off.

MELANIE FALLS: That's a good point. I don't personally know the answer to your question.

GERALD BEGAY: Like I said, unless --

MELANIE FALLS: I'll look into it.

RANDALL SIMMONS: Unless I'm wearing a tribal member shirt, I'm getting swept underneath the table. And I'm kind of really disappointed in that, because I got tribal members now that are sitting at home. Yet, we got people out there that are working, and they should have been called back, or not even laid off, for that matter.

So I'm just wondering, and I'm speaking out for my people, that's what I'm saying, because they're sitting at home. Yet, you got non-tribal members working out there, and people that are getting called back from other -- and getting actually transferred from other job sites for First Solar over to our site. So I'm just wondering why that's happening.

MELANIE FALLS: Let me look into it and get back to you.

GERALD BEGAY: Well, because we have representations that go over there and are supposed to

Page 57

kind of ask these questions for us, but every time I ask them, it's like, "Oh, we'll look into it," exactly what you're saying right now. And, you know, I don't know if my status as a Councilmember put me ahead of some other Councilmembers -- I mean tribal members.

UNIDENTIFIED VOICE: It did.

THE COURT REPORTER: Your name, ma'am?

UNIDENTIFIED VOICE: Oh, I'm just joking.

GERALD BEGAY: That's what I'm saying, and that's one of my concerns, and hopefully we can -- because, you know, I think Arturo and our project managers, actually we have two of them that are supposed to represent out there that are not here, but will be tomorrow. So maybe they might address that tomorrow.

But I would like to see some changes. I mean, we got -- and I don't know about 49 tribal members working out there, because I don't think we even have 49 tribal members that are there, that are tribal members. But there might be 49 tribal nonmembers.

But, so you can't really -- because I can only count about 15 to 20 people at the most that are tribal members working out there, and a few of them are still sitting at home. That's what I'm concerned about. And I'm speaking for them.

Page 58

MELANIE FALLS: Yes. Like I said, you know, I apologize. I work on the project development arm of the company so I'm not involved with construction, which is -- but we'll look into it, and as soon as I get some information, I'll share with you.

RANDALL SIMMONS: Okay. Because I got six other Councilmembers here that we need to be informed of what's going on.

May I ask another question? Because our employment concerns, would that be part of our cultural, be evaluated through some of your departments regarding our cultural concerns?

CHIP LEWIS: I'm sorry, the very first part I missed.

RANDALL SIMMONS: Would our Indian preference laws and commenting on Indian preference laws with this type of form, would that be taken into account in the EIS Impact Statement?

CHIP LEWIS: Yes.

RANDALL SIMMONS: So that's why it's relevant, we're bringing it up.

CHIP LEWIS: Yes.

RANDALL SIMMONS: Thank you.

CHIP LEWIS: Because there's a whole portion of the EIS on socioeconomics and any detriments or

Page 59

benefits to the Tribe, and so you would assume benefits to the Tribe and tribal members are potential employment opportunities.

RANDALL SIMMONS: So socioeconomics?

CHIP LEWIS: Yes.

JOHN FLEMING: First Solar, are the panels they're going to put in here, are they coming from Malaysia or Ohio?

MELANIE FALLS: I don't know yet.

JOHN FLEMING: I'm wondering if the panels are coming from Malaysia, will there be tariffs on those panels? I don't know how that law goes, because I got a friend that makes panels in India, and told me last six months, everything is cool, no tariffs. He found out today there's tariffs, tariffs on Chinese solar and tariffs on Indian solar, and I was wondering if there's going to be tariffs on Malaysian solar, or those modules coming out of Ohio. Maybe they might come out of Germany. You don't know?

MELANIE FALLS: I haven't heard of any tariffs coming out of Malaysia.

RANDY SCHROEDER: Anything else? Well, two things. We're all going to be here for a while to talk about some of these issues and maybe we can be more specific on some of the discussions that we've had.

Page 60

There's food now back here as well, so certainly help yourself to that. And any questions you might have, there are a lot of us around to try to answer those for you.

RANDALL SIMMONS: I just have one question. Do we have someone here from Fish and Wildlife?

RANDY SCHROEDER: No, not --

CHIP LEWIS: Not tonight.

RANDALL SIMMONS: Just one other question. I'm just wondering if we're going to anticipate this, because previous groundwork have been of concern as far as the Moapa dace, endangered species. I'm wondering if someone can ask us about if there might be any potential issues right now that they may see with the surface water extraction temperature and potential impact on the dace right now? Is there -- 1-BIO 2

DAVID STERNER: I can answer that question. There is a full evaluation. In fact, we've met with the service and discussed potential impacts to species, and the Moapa dace is certainly on the list. The full evaluation of those issues will go out in our biological assessment which goes to the service and which anyone will be able to look at. And that evaluation also will be mentioned in the EIS.

RANDALL SIMMONS: Is there anything

preliminary right now that might impact on Moapa dace?

DAVID STERNER: That might impact? I'm sorry?

RANDALL SIMMONS: Yeah, like any kind of ground water -- once -- there's turbulence that the dace live in. If there's any type of turbulence might -- it might be intolerable for the dace.

DAVID STERNER: I can tell you that the surveys for the dace have been done for many years, and right now the population in this portion of the river is not -- doesn't exist. It's more, it's closer to the springs. That's, that's the result of surveys that have been performed in recent years.

RANDALL SIMMONS: Most of the dace --

DAVID STERNER: Part of the concern has been exotic species, non-introduced species that pray on the dace, BLM has put in -- there have been barriers that have been inserted, I believe, by the BLM. So there is -- it's an effective barrier to keep exotic fish from moving upstream to where the high-quality dace habitat is, but it also eliminates them from coming downstream. The idea is to protect the population, you know, where it's strongest developed.

RANDALL SIMMONS: Thank you.

DAVID STERNER: So that would be above here.

RANDALL SIMMONS: Thank you.

CHIP LEWIS: Well, thank you all for coming and participating in our formal presentation for this scoping meeting.

As was mentioned, we will be here for the next half hour or more, and certainly willing to speak privately or at the bulletin boards or answer questions. If you didn't bring it up before, there has been a lot of lively discussion, going into specific questions. I know they don't want me to say it, but we also have some other specialists here. We have a cultural resource specialist, Mr. Garry Cantley, he's an archeologist with BIA. We have a couple of realty specialists here, one from Phoenix and one from St. George, so if anybody who wants to talk about administrative and realty actions, paperwork, they're the experts on that.

Of course, the Superintendent's here, and I'm kind of the NEPA process guy, and also wildlife biologist. So if you want to talk about that, I'm here, and all of the First Solar staff. So please feel free and I suppose the star of the show is now really the food. So thank you all for coming.

(Presentation adjourned at 7:05 p.m.)

CERTIFICATE OF REPORTER

STATE OF NEVADA)
)
COUNTY OF CLARK)

I, Kevin Wm. Daniel, Certified Court Reporter, do hereby certify:

That I reported in shorthand the proceedings had in the above-entitled matter at the place and date indicated.

That I thereafter transcribed my said shorthand notes into typewriting, and that the typewritten transcript is a complete, true and accurate transcription of my said shorthand notes.

I further certify that I am not a relative or independent contractor of counsel, of any of the parties; nor a relative, employee, or independent contractor of the parties involved in said action; nor do I have any other relationship with any of the parties or with counsel of any of the parties involved in the action that may reasonably cause my impartiality to be questioned.

IN WITNESS WHEREOF, I have set my hand in my office in the County of Clark, State of Nevada this 22nd day of January, 2015.

KEVIN WM. DANIEL, CCR #711

WORD INDEX

WORD LIST

Comment Reference Document 2

Environmental Impact Statement Scoping Meeting

Aiya Solar Project

01/15/2015

OASIS
REPORTING SERVICES
400 South Seventh Street • Suite 400, Box 7 • Las Vegas, NV 89101
702-476-4500 | www.oasisreporting.com | info@oasisreporting.com
COURT REPORTING | NATIONAL SCHEDULING | VIDEOCONFERENCING | VIDEOGRAPHY

AIYA SOLAR PROJECT

ENVIRONMENTAL IMPACT STATEMENT (EIS)

SCOPING MEETING

JANUARY 15, 2015

BUREAU OF LAND MANAGEMENT

SOUTHERN NEVADA DISTRICT OFFICE

4701 NORTH TORREY PINES DRIVE

LAS VEGAS, NEVADA

MODERATOR: CHIP LEWIS

ENVIRONMENTAL PROTECTION OFFICER FOR THE WESTERN REGIONAL OFFICE OF THE BUREAU OF INDIAN AFFAIRS

REPORTED BY: KEVIN WM. DANIEL, FAPR, RDR, CRR, CCR 711

Job No. 11788

P-R-O-C-E-E-D-I-N-G-S

CHIP LEWIS: Welcome, everyone. My name is Chip Lewis. I'm the acting Environmental Protection Officer for the Bureau of Indian Affairs, Western Regional Office of Phoenix, Arizona, and we're here tonight for the Aiya Solar Project Environmental Impact Statement Scoping Meeting. It's kind of the kickoff to our Environmental Impact Statement process that's required by the National Environmental Policy Act, which is our national charter for Federal Government to take into consideration environmental impacts, and public views, and impressions, and socioeconomics, everything we can think of, on a project that we're going to undertake that requires federal approval.

It's very critical because we're at the beginning stages, and I'm sure -- the Environmental Impact Statement, if you don't know, is a big thick government bureaucratic book that gets produced for a major federal project, but it's scoping and talking to and asking the public, as well as other agencies and municipalities and tribes and any interested person, individual citizen. The input we receive from you determines the path we take in writing the document and the content.

So it's real important, and we're required by

the regulations that have been put in place for this process, to engage, and this officially kicks off our process.

So welcome.

I'd like to now turn it over to Chairman Daboda. He's the Chairman of the Moapa River Paiute Tribe, and he's going to do a little welcoming statement.

CHAIRMAN DABODA: Good evening. My name's Darren Daboda. I'm the Chairman of the Moapa band of Paiute. I'd like to welcome you guys here to our Aiya, that's how you really pronounce our word. It means, in our language, "turtle."

And this project is a great opportunity for our community, looking at economic development, looking at leasing our water, because we have an MOU with state engineers, because we don't have federal adjudicated water rights, so it's better use for us to look at using our surface water for this project. Creating jobs for our community, and also for creating jobs for Las Vegas and Southern Nevada.

And as we look at this as a green project, it's a renewable project. As stewards of the land, this is a positive thing that we, as native people, we're taught, our holistic approach, preserving what we

have, living in a symbiotic nature with Mother Earth, and this is a continuation project of solar activity on the reservation. This is our third project in our community. We're excited about this, our Council is excited about this, our elders are excited about the project. There's a lot of positive spins on this for our community, because we've been struggling for almost 35 years.

In 1980, the tribe received back 70,000 acres. If you can imagine when we were first federally recognized in 1873, we had 2.2 million acres. In 1875, we were reduced down to a thousand acres. And so to get some of this land back, when we received this land back in 1980, it was for economic development. And it took us 35 years to get this project, this third project going.

For a long time we were just known in our community for selling fireworks and cigarettes, year-around. You know, that's the only enterprise that we built on our reservation that we're known for in this area. So to look at solar, look at renewable, it's a positive thing for our community. And I think it's a positive thing for Southern Nevada that, you know, we are going green, our state is, the initiative.

And we're moving forward, and I appreciate you

guys all coming out here today, and thank you guys for your time.

CHIP LEWIS: Chairman? Are you going to have an invocation?

CHAIRMAN DABODA: I'll do it, if you don't mind standing, please.

Creator, thank You for this day. We are gathered here today to open our ears to listen to what can be presented to us. We come to You for Your blessing for the Aiya project.

As a struggling tribe, it's going to help us grow and enhance us culturally, mentally, physically and spiritually, because we're giving back to the land. You know, as native people, we have to speak up for the two-legged people, the four-legged people, our Desert Tortoise, an endangered species. We have Moapa dace, pubfish, the Western Willow Flycatcher. These are birds, and we have plants and the land. You know, we have to protect these elements from any harm, and with this development, we become more intimate with our land because we get to explore our land, we get to do transects and cultural, biological surveys, and it's good for our community, because we have to walk these ancestral lands again, to take pride in what we have.

Give us our strength in our community to do

the right thing. Give us strength to all our leaders and the Council, from our elders. You have provided this back to us. Let's make an excellent move forward in our community.

I'm glad we're partnering with First Solar for a second project. Let them fill our hearts in respect in developing on our reservation. We've come a long ways, Grandfather. We will not forget our tradition, our culture, our heritage as native people. I thank you.

CHIP LEWIS: Mr. Schlafly. Usually we like to have local BIA representation, but I think those folks left today, so on behalf of the BIA Western Region, also the local BIA agency in St. George that administers to Aiya, and Las Vegas Paiute and other tribes in Utah, welcome, and thank you for participating in this process.

Besides BIA, which is the lead federal agency for this project, we have cooperators that have vested interests or an action before them. The Tribe, of course, because it's their reservation, so as a sovereign and a government, they're invited to participate officially as a cooperating agency in the preparation of this document.

BLM has the task of approving some

rights-of-way for part of the electrical hookups, so they're involved.

We have the U.S. Fish and Wildlife Service, because of the endangered species that Chairman mentioned were on the reservation.

And we also have Environmental Protection Agency on board, because they have some document review and approval mandates, so they're on board also.

The reason the BIA is the lead federal agency is the Tribe and First Solar came to an agreement, a lease agreement, and they presented that to the Bureau of Indian Affairs, and that causes us to have an action before us, move forward, which ultimately is the approval of the lease. So on approval or funding, any other authorizations, that's the federal nexus or the federal action that causes us to enter into this environmental review process, and because of the scope of a project involving this many acres and some of the issues that have been brought up for, we know we have to do the big one, the Environmental Impact Statement.

Some of the proposed stuff, I'm going to go ahead and let our First Solar partners talk about. Again my name is Chip Lewis. By virtue of being the regional officer, I get the pleasure of being the project manager for this document, so feel free to

contact me if you need to talk or something pops up, and we'll also go through some contact ways to participate, methods, a little farther on.

As I said, the Environmental Impact Statement is required by the National Environmental Policy Act, it's the way decisions are made. Hopefully, we can make better decisions. We can maybe come up with some mitigation. We determine, or develop alternatives if there's some issues with what is being proposed. And like I mentioned, the way we get to the end of this document is through the public participation and the public review process. So it's very important, if you have anything to say, please speak up, or if you have questions, we do have -- it is, it's official, it's on record, it becomes part of the administrative record, and your voices will be heard. That's why we have a court reporter here tonight. So if you do speak up or have a question, please state your name and spell your last name, please.

We're very early in the process. We officially notified the citizens of the United States in the official manner we're required to, in a typical government fashion in a document called the Federal Register, and it noticed our intent to prepare this document.

Page 9

Now, as it shows, we're at the scoping point in the process, where, like I said, we're asking for input to identify the issues or opportunities or concerns that anyone might have with the proposed project.

After we get feedback internally and externally and with the public, talk amongst ourselves with the proponent and the Tribe and we come up with a proposal. If there are issues or problems, that's when we develop alternatives, and then we draft the actual chapters, assessing what we think the impacts are going to be, come up with a draft document, and then we will put that out on the street for public review, for public comment for 45 days, and we will reconvene a new round of public meetings. Because now you'll actually have something in your hand, maybe not literally, it's pretty big, but that way you can see what we've come up with what we think the impacts will be, and that allows folks who might be more in the know or have an opinion, to make corrections or changes or just comment on the document.

We'll go back, make changes that are necessary, produce the final document, that's the final EIS. There will be a little cooling-off period, let everyone take one last look, and then the document will

Page 10

go back to Washington, D.C. for approval and a Record of Decision. That's the ROD, will be prepared and that's the actual decision document that the folks in D.C. will sign that allows us to execute the lease agreement that the Tribe has with the project proponent. And then after that it can move forward. So it's real important, we're glad you're here to participate.

If you would like to participate, like I said, you could call me directly, which I think that information's in the fact sheet. You can e-mail myself or Mr. Schlafly, who is the local agent, and you can go to the project website and there's an actual comment form on the website.

And now I'd like to hand it over to Randy Schroeder, and he's going to go over a little project detail.

RANDY SCHROEDER: Thanks, Chip.

Again, my name is Randy Schroeder. I'm helping the BIA prepare the EIS for the project, and this is just a little bit of background of the project, then I'll turn it over to First Solar to give you a little bit more detail.

Basically, the project purpose is to provide, as we mentioned earlier, a long-term and more diverse

Page 11

economic opportunity for the Tribe, and also in doing so, since it's a renewable energy project, it will also assist both Nevada and the region's needs for renewable energy. And it allows the Tribe to make maximum benefit of the lands, as Chairman Daboda mentioned as well.

The location of the project, it's northeast of Las Vegas, about 40 miles, along I-15 and the interaction of Highway 168. The solar field itself is wholly within the reservation boundary, and the transmission interconnection does involve about two miles. It's a very short interconnection, but it does involve some BLM land.

There's also a temporary water pipeline that would be built to provide water during construction. It's located wholly on the reservation as well.

And then here's a map, just showing the general location. As we said, it's approximately 40 miles northeast of the city, and it's in the northeast corner of the reservation. This is I-15 here. This is highway 168 here.

This is a more close-up view of the proposed project. The outline here in blue is the proposed solar field boundary. As you can see, it's tucked in the northeast corner of the reservation, as was shown

Page 12

previously on the map. These lines here are the potential gen-tie lines or transmission lines that will interconnect the project to the regional grid. They are predominantly on reservation lands, until this point here, where they leave the reservation and cross BLM lands -- you'll see the yellow-shaded lands are BLM lands -- and it will interconnect at one of three locations: The existing Reid-Gardner substation. This is the Reid-Gardner power plant here that's in the process of being decommissioned; or it will be at one of two collector stations that may be built in these locations, and the final location of the interconnection will be determined by NV Energy through the interconnection study process.

So with that just general overview, I'll turn it over to Melanie Falls who will talk a little bit more about the details of the project.

MELANIE FALLS: Thanks, Randy.

As Randy mentioned, I'm Melanie Falls. I'm the project developer for the Aiya Solar Project.

First, I'd like to say that First Solar is very excited to partner with the Moapa band of Paiutes to develop another project on the reservation, and also to provide Nevada with more clean, renewable power.

I'd like to introduce you to other members of

Page 13

First Solar's team who are here tonight, and they're available to answer any questions as well.

We have Austin Quig-Hartman, who's our project development engineer; Dave Sterner, who's our environmental permitting manager; and Bill Chilson, who's also working on environmental permitting.

So a little bit about the project: We are proposing an up to 100-megawatt facility located on approximately 900 acres, on the reservation. There's additional acreage for BLM right-of-way to provide for the transmission line that will connect the project to NV Energy's transmission system.

This project will use First Solar's proprietary cadmium telluride solar photovoltaic modules. First Solar is one of the world's largest solar manufacturers and developers. We have over 800 -- excuse me -- over 8 gigawatts of solar installed worldwide, and we have manufacturing facilities in Kuala, Malaysia and also Ohio.

This particular project may use either single-axis tracking or fixed-tilt mounting structures. Both of those mounting structures will be evaluated in the EIS. Fix-tilt ranges anywhere between 8 and 10 feet high, and single-axis tracking ranges from 10 to 13 feet high.

Page 14

Here's a photograph of what our panels look like. They're very simple technology. It's basically a cadmium telluride semi-conductor material sandwiched between two pieces of glass. These panels are designed to absorb sunlight, not to reflect sunlight. We actually put an anti-reflective coating on top of our panels in order to ensure that glare is minimized.

In addition to that, we've done studies that show our panels do not generate any heat, and they also do not generate any radiation.

One of the benefits of our project is -- of our projects, are they have very minimum impact to the land. Because it's such a simple technology, it doesn't require any major site preparation in order to install these facilities.

So First Solar specializes in power plants. We build power plants, basically sections of -- blocks of panels, panel arrays that include collector systems and inverters that basically collect the power and transmit it to the transmission grid. These blocks are repeated over and over and over again to get up to the desired capacity, which is 100 megawatts for this particular project.

As I mentioned, we have a pretty low impact site preparation technique. Our general policy is to

Page 15

consider mowing as a first step. If mowing doesn't yield a safe working environment, then we consider something called till and roll, which is very similar to conventional farming procedures. We use conventional farming equipment in order to maintain the natural contours of the land. And if that doesn't yield a safe enough working environment, then we consider conventional grading.

For our projects that have been constructed most recently, conventional grading has only been used in localized areas where the topology has been particularly challenging.

In addition to that benefit, our projects also do not use any water to generate electricity. So during operations, our project's water use is very low. We only use water for sinks and toilets, for operations and maintenance employees.

In addition to not using water to generate electricity, our facilities also do not require that we wash the panels during operations. We've done tests, and they've shown that using water to wash panels to remove dust and other debris does not yield a significant economic benefit to justify washing them throughout operations. However, I should note we do use water during construction for dust control, but

Page 16

that is the only time these projects have any major water use requirements.

In addition to the power plant facilities, this project will require several additional facilities. First of all, we've discussed this transmission line. The project will have to construct the transmission line from the project site, down to the Reid-Gardner Substation or the Reid-Gardner Collector Station, as determined by NV Energy.

This will essentially be a 230kV line, consisting of poles and overhead lines down to the substation, not terribly different than the transmission lines that are currently out there. Most of the transmission line will be located on tribal lands, and .7 miles will be located on BLM land.

In addition to the transmission line, we are going to be constructing a temporary water pipeline to provide water for dust control during construction. This pipeline will be removed after construction is complete. The water pipeline will be entirely on reservation property.

We will also have an operations and maintenance building on site. This is a 2,000-square-foot building to house office space and restrooms for our full-time operations and maintenance

Page 17

employees.
Lastly, we will have fencing around the perimeter of the project in order to provide for security. We typically use chain-link fencing with barbed wire wrapped around the top of it.
And with that, I will turn it back over to Randy who's going to discuss some of the impacts as evaluated.
RANDY SCHROEDER: Yes. Basically up to this point, there have been a lot of conversations with agencies, with the Tribe, to kind of outline what the anticipated impacts might be and what will be evaluated in the EIS. This is just a preliminary list of those resources, and obviously part of what we're here to do is to identify additional topics that need to be addressed, or subtopics under these that need some specific focus.
But to date, biological resources have been identified. As we mentioned earlier, Desert Tortoise are located in the vicinity and on the site. There's desert vegetation out there that needs to be taken into account. And then the potential impacts to avian species under the Migratory Bird Act will all be evaluated in the document.
Likewise, impacts to potential cultural

Page 18

resources that occur on site will be evaluated. Visual resources as well, areas from which this project might be visible. There is a highway running through the middle of the project area, so we'll be doing some visual simulations from those locations and others in the area that have been identified or will be identified by others.
Water resources: That will be looked at as well. The water source for the water to be used during construction is coming from surface water on the reservation, and again it's only going to be used during that short period of time during construction. Very low water use thereafter, but all of that will be evaluated.
And then socio-economic impacts, the economic benefits to the Tribe and the local community at large, but also any impacts that might occur to socioeconomics, land use and those types of resources.
Just to go back to the schedule, Chip discussed this a little bit earlier. We're at the scoping stage right now and at the scoping meetings. Right now we expect that a draft EIS will be published roughly at the end of April or the early part of May, and then in May, roughly, we plan to have the draft EIS public meetings, very similar to this round of

Page 19

meetings, but focused on the actual published document and any comments people might have on that, as Chip had mentioned.
And then the final EIS is scheduled to be completed, along with a Record of Decision, roughly in August of this year.
And then with that, we just open it up to any questions or comments or concerns that any of you might have, that Chip would be glad to answer.
(Laughter)
CHAIRMAN DABODA: I had a question, Randy. On the visual, I know we talked about it, I guess at our -- with the Council, road access coming from Reservation Road. Are you also looking at 168 route putting trees in, or just on Reservation Road coming in to the Tribe?
2-VIS 1
RANDY SCHROEDER: For the rest of you, Reservation Road is the road that comes off Highway 168 right here and provides the access to that community on the reservation.
MELANIE FALLS: So that the visual mitigation discussed along Reservation Road was in response to some concerns that tribal members had raised for Reservation Road in specific. So we were only planning on Reservation Road, but if there are concerns along

Page 20

Highway 168, we can discuss that as well.
CHAIRMAN DABODA: What type of tree?
MELANIE FALLS: Native vegetation, not necessarily trees.
CHAIRMAN DABODA: Like Mesquite trees then?
MELANIE FALLS: Yes, and brush and things like that.
CHAIRMAN DABODA: I was only going to bring this up to as a visual aspect of that property. Right now off I-15, you'll see a shining light by the reservation. It's off the reservation. The dome shape, and that's Moapa Water District tank. So half of it is reflective, half is dome. You can see it from I-15. And you add more, I guess, greenery in there, it would absorb some of that reflection on I-15.
MELANIE FALLS: Yes.
CHAIRMAN DABODA: That's just for the northwest of the reservation on the top of the berm. Little above that, about right there.
MELANIE FALLS: Yes.
CHIP LEWIS: Feel free, don't be shy. We have comment sheets back on the back table, too, so if anyone doesn't want to speak up and get recorded exactly, you can fill out a comment sheet and we'll get that in the official public record.

2-VEG 1

CHAIRMAN DABODA: I have another question regarding the cacti. The current project, next to Valley of Fire, we secured -- First Solar secured cacti when they're doing, clearing some of the areas, and we wanted it transplanted. Are we still looking at it for this project, too, potentially, setting aside that we can transplant it later on?

DAVID STERNER: If the Tribe makes a request for that, we can accommodate it. I'm not sure it has to be addressed as an issue in the process, but it certainly could be if that's a request. We would be removing some now. If you wanted to reuse them, that can be accommodated.

CHAIRMAN DABODA: We're looking at barrel cactus, it's not yucca because it's too low elevation, and beavertail.

RANDY SCHROEDER: Anyone else?

JEFF DAVIS: Does First Solar have a power purchase agreement in place as far as where the power's going and --

MELANIE FALLS: No, we don't have.

RANDY SCHROEDER: Anyone else?

CHIP LEWIS: We are going to be here, advertised until 7:30, and we do have the poster boards, and there's First Solar staff and BIA staff

here to talk, if anybody wants to go up, look, point out an area of interest or discuss privately with someone.

We also have BLM staff, Mr. Greg Helseth. Thank you for hosting and having us.

We also have U.S. Fish and Wildlife Service, Mr. Michael Burroughs here, so if anybody wants to talk or air a concern a little more privately, we're available to discuss that, too.

MELANIE FALLS: Lots of cookies and drinks in the back. Help yourself.

(Laughter)

RANDY SCHROEDER: I think that's basically it for the meeting. Like Chip said, we'll be around until 7:30, so feel free to stick around and ask questions if you like. Thank you.

CHIP LEWIS: Thanks for coming.

RANDY SCHROEDER: Thanks for coming.

(Presentation adjourned at 6:22 p.m.)

CERTIFICATE OF REPORTER

STATE OF NEVADA)
)
COUNTY OF CLARK)

I, Kevin Wm. Daniel, Certified Court Reporter, do hereby certify:

That I reported in shorthand the proceedings had in the above-entitled matter at the place and date indicated.

That I thereafter transcribed my said shorthand notes into typewriting, and that the typewritten transcript is a complete, true and accurate transcription of my said shorthand notes.

I further certify that I am not a relative or independent contractor of counsel, of any of the parties; nor a relative, employee, or independent contractor of the parties involved in said action; nor do I have any other relationship with any of the parties or with counsel of any of the parties involved in the action that may reasonably cause my impartiality to be questioned.

IN WITNESS WHEREOF, I have set my hand in my office in the County of Clark, State of Nevada this 22nd day of January, 2015.

KEVIN WM. DANIEL, CCR #711

WORD INDEX

WORD LIST

Interagency Meeting Summary

Comment Reference Document 3

Meeting Minutes
Interagency Meeting for the Aiya Solar Project

Date/Time: January 15, 2015; 3PM

Location: U.S. Bureau of Land Management (BLM) Conference Room 4701 N. Torrey Pines Dr., Las Vegas, Nevada.

Attendees:
Bennie Tso (Chairman, Las Vegas Paiute Tribe); Darren Daboda (Chairman, Moapa Band of Paiutes); Chip Lewis (Bureau of Indian Affairs); Greg Helseth (BLM Southern Nevada District Office ; Tamera Dawes (Bureau of Indian Affairs); Gary Cantley (Bureau of Indian Affairs); Christina Varela (Bureau of Indian Affairs); Dave Sterner (First Solar); Paul Schlafly (BIA – SPA); Melanie Cota (BLM - Las Vegas); Stan Plum (District Archaeologist, BLM – Las Vegas); Andy Reed (City of Las Vegas Planning); Michael Burroughs (USFWS - Las Vegas); Susan Cooper (USFWS - Las Vegas); David Colvin (LVPT); Melanie Falls (First Solar); Bill Chilson (First Solar); Amee Howard (National Park Service); Nancy Shelton (Logan Simpson); Karen Vitulano (U.S. EPA Region 9); Linda Bullen (Bullen Law/First Solar); Tod Oppenborn (USAF Nellis); Tom Miller (Airspace Management, USAF Nellis); Jill Yung (Paul Hastings/First Solar); Randy Schroeder (ENValue); Jeanette Lostracco (ENValue); Steven Ferrand (Nevada Biological Consulting).

Introductions and Purpose of the Meeting

1. From Chip Lewis (BIA), Greg Helseth (BLM), and Stan Plum (BLM):
   - Bureau of Indian Affairs is the lead agency on Aiya Solar project.
   - Project will be on a priority list at the BLM National level. There are seven projects on this priority list.
   - May have the Assistant Secretary of the DOI sign the ROD. Two signatures will be required, same process as the Moapa Solar Energy Center Project. ROD will be split for BLM and BIA
   - Investment Tax Credit – Construction must be completed and the projects must be operating and generating energy by end of year 2016.
   - First Solar (FS) with the Moapa Paiute tribe are the proponents. 50-year land lease on the reservation and ROWs crossing BLM. Located in Clark County - Aiya 40 miles North of Las Vegas west of I-15. Project offers economic development opportunities for the tribe, and ability to meet renewable energy requirements.

Project Overviews

1. Randy Schroeder, ENValue presented a Powerpoint overview presentation.
   - Aiya – A 900 acre site generating 100 MW with interties to existing substation or new collector station including a water pipeline during construction. Located on the northeast corner of the Moapa Reservation and on both sides of SR 168. One substation on the site and one intertie down to the substation to where determined by NV Energy.
   - Technology: –First Solar technology will be used. PV panels do not generate heat or radiation. The antireflection coating minimizes glare and no impacts to aircraft have been noted in studies. The tallest structures are the transmission lines but solar facility will be no higher than 13 feet and inverters are slightly taller than that. Maximum height on the

transmission lines are about 100 feet tall and are smaller at the Aiya project site than the transmission lines already existing at the site area. Panels will not be washed so operational water use is minimal.

- Cooperating agencies: BLM – due to ROW for transmission lines crossing BLM lands; also the USFWS and EPA.
- Schedule: is aggressive because BIA has experience with 2 similar projects. Moapa Solar Energy Center and K-Road now known as the Moapa Southern Paiute Solar Project. Both EISs were quite similar and this project will use similar language. Many studies have already been conducted. Schedule shows a draft EIS in late April Early May, 2015. Chapters of the EIS will be developed in sections. BIA will review and then they will go out to cooperating agencies for reviews. Sections will be available shortly after completion of the scoping meetings for review. Final EISs expected in August, 2015 time frame. Project needs to be online by end of 2016 to get tax credits.
- Affected Resources: The site has desert tortoise, vegetation, avian species; Cultural resources; Visual resources – is proximate to highways and visual assessments will be done; Water resources – use during construction; Socioeconomics – Benefit to tribe and community and potential impacts

Questions/Comments about the projects from attendees:

1. Karen Vitulano (U.S. EPA Region 9): Is not washing the solar panels typical?
    - Response: Not washing them doesn't impact their performance, so there's no economic benefit to washing the panels. First Solar has tested not washing panels for two years. Panels are naturally cleaned by rainfall, and there is no lip on the panel to impede rain run-off.
    - Another First Solar project - Silver State North - is a 50MW PV project nearby. There are several other First Solar projects either in existence or under construction in this general area. Some of these projects use different technologies.

2. Karen Vitulano (U.S. EPA Region 9): Question regarding "lake effect" of panels and avian issues. Is there any mitigation for "lake effect?" 3-BIO 1
    - Response: Anti-glare treatment on panels is for aviation, not avian. First Solar is doing research to evaluate whether there is a "lake effect."
    - Response: More research needs to be conducted to prove there is a connection, per the USFWS. Sites near water don't have high rates but data are being collected and conservation strategies are included in the study and operations. No mitigation in place for "lake effect" yet; USFWS thinks it is a potential concern but recognizes there is limited research to show/predict which problems may occur. So far no mortality has been identified in the sites around these areas.
    - Response: The BLM hasn't seen mortality data yet; looking at monitoring, but currently have nothing reported from BLM standpoint. BLM will have raptor survey data will be available soon from the Dry Lake SEZ area; helicopter surveys are being conducted in a 10-mile radius.

3. Question about impacts to the Desert Tortoise 3-BIO 2
    - Response: Pre-project surveys have been conducted. First Solar is analyzing impacts; biological assessments are currently underway.

- Comment (USFWS): Younger tortoises don't do as well due to coyote predation. Older tortoises are doing okay. On the K-Road Project, 60 tortoises were translocated. Data is available from K-Road project, with similar tortoise densities.

4. Comment: There are no jurisdictional waters on the project site (as reported informally by the USACE); consulted and did a field visit with the USACE on both. A report is due to the USACE and they have not sent a letter yet. USACE declined to be a cooperating agency.
    - Comment Karen Vitulano (U.S. EPA Region 9): Even without jurisdictional waters, there is concern to plan for intense events. With climate change, there will be more frequent intense events, so there is a need to plan for the larger flows.

3-WAT 1

5. Comment from (Tod Oppenborn (USAF Nellis); Tom Miller (Airspace Management, USAF Nellis): Nellis has helicopters and other aviation in the area. Most concerns are with airspace and the height of the structures. Glare is not an issue so far. Nellis already has PV on base and has not had an issue with it. These are dual solar panels, some are fixed. More solar fields are planned by NV Energy at Nellis AFB.

3-VIS 1

6. Comment (First Solar): No PPA has been issued yet, it is still in process.

7. Question: When will the archaeological surveys on the Moapa Reservation be initiated?
    - Old Spanish Historic Trail – need to determine whether it's in the viewshed. NPS (Amee Howard) would like a KOP there. Identifying KOPs is currently in process.
    - Surveys should occur in the next couple weeks. The trail is on the east side of I-15 and the site is much higher than the trail.
    - CK3848 is the official number of the Old Spanish Historic Trail. May have traces through other areas. It is further down by Glendale and Hidden Valley. Shouldn't be an issue. Park Service is a consulting partner for 106 but not a cooperating agency.

3-VIS 2

8. Karen Vitulano (U.S. EPA Region 9): What are the estimates of water use?
    - Response: Not known yet; still doing studies and evaluations.
    - K-Road's water use estimates were lower than needed because they needed to drill into the soils.

3-WAT 2

9. Comment Darren Daboda (Chairman, Moapa Band of Paiutes): A new procedure for installing posts for solar is being tried on the Moapa Reservation. Testing a new drilling technique – couple of panels to test it. Test piling with hammer so they may have found a better approach with an auger.

10. Comment Gary Cantley (BIAS): Need to know answers to these questions; NEPA may be ahead of engineering work. Gary is concerned that First Solar doesn't know answers yet.
    - Response Melanie Falls, (First Solar): The engineering piece is done, just don't have reports finalized. All engineering survey and reports are being completed now.

11. Question (USFWS): When will draft Biological Assessments be ready?
    - Response: It should be completed in the next week and submitted to BIA; there are relatively few tortoises on the site. Comments have been provided by USFWS.

Individual Comments

Comment Reference
Document 4

Kern River
GAS TRANSMISSION COMPANY
A BERKSHIRE HATHAWAY ENERGY COMPANY

2755 E. Cottonwood Pkwy. Suite 300
Salt Lake City, UT 84121
(801) 937-6163
sheldon.byde@kernrivergas.com

January 29, 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: EIS Scoping Comments, Aiya Solar Project

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.

In the general area of the proposed Aiya Solar Project (Aiya), Kern River's mainline facilities consist of two 36-inch-diameter pipelines located approximately 25 feet apart within a 75-foot-wide right-of-way corridor and the Reid Gardner Lateral, an 8-inch-diameter lateral pipeline in a 50-foot-wide right-of-way corridor that extends approximately 3,000 feet from the mainlines to a nearby meter station. Kern River's facilities are located in the area pursuant to an existing right of way grant issued by the U.S. Bureau of Land Management (BLM).

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.

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.

4-LAN 1

Kern River respectfully requests that the environmental impact statement for the Aiya project take into account Kern River's encroachment standards and identify any locations in which proposed facilities may cross or parallel Kern River's existing facilities and any locations in which proposed access roads may cross Kern River's existing facilities.

Kern River appreciates the opportunity provide scoping comments and will make its personnel available to evaluate potential impacts from specific crossings (be they crossings by the Aiya facilities themselves or crossings by heavy equipment during construction, operations or maintenance of the Aiya project) and other encroachments to ensure Kern River may continue to safely operate and maintain its existing pipeline system.

Respectfully submitted,

Sheldon Byde
Sr. Environmental Specialist

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

Comment Reference Document 5

January 29, 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 85004-3050

Dear Mr. Lewis:

SUBJECT: EIS SCOPING COMMENTS, AIYA SOLAR PROJECT

Southern Nevada Water Authority (SNWA) appreciates the opportunity to provide scoping comments on the Aiya Solar Project Notice of Intent to Prepare an Environmental Impact Statement (EIS) (79 FR 69522 [November 21, 2014]) (Notice of Intent). 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 Intent:

The description of water supply and use in the Notice of Intent is overgeneralized. The EIS needs additional information on water resources so the public has accurate information. Per the Notice of Intent:

- Water will be needed during construction for dust control.
- Water will not be used to generate electricity during operations.
- Water will be needed during operations for landscape irrigation and administrative and sanitary water use on site.
- The water supply required for the Aiya Solar Project would be leased from the Moapa Band.
- The EIS will consider the impacts of alternative sources and delivery methods.

5-WAT 1

SNWA is responsible for managing the regional water resources of southern Nevada and therefore we encourage the project proponent to fully analyze all water sources available for the Aiya Solar Project. For the EIS, the first key step in preparing a planning-level inventory of water resources should include an analysis of water rights, water rights ownership, and potential water availability. The Nevada Division of Water Resources State Engineer's Office may have already evaluated potential water resource availability and/or limited additional water uses. The water resources inventory should also verify owners of water rights which could be used to determine stakeholders and/or contacts for water supply. These steps should be included in the initial planning process since they have the potential to dramatically change a proponent's remaining actions regarding water resources.

The Bureau of Land Management is currently reviewing an environmental assessment for the SSEA Eastern Nevada Transmission Project (ENTP) (N-86357). The transmission system would be constructed in Clark County, Nevada and allow for the transport of available electrical resources to meet projected 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 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. Therefore, 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.

SNWA appreciates the opportunity to comment on the Notice of Intent. Please place SNWA on the project interested public mailing list and continue to keep us 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 Luptowitz

Lisa M. Luptowitz
Environmental Resources Division Manager

LML:CL:dg

cc: Paul Schlafly, BIA
Scott Krantz, SSEA

STATE OF NEVADA
DEPARTMENT OF WILDLIFE
1100 Valley Road
Reno, Nevada 89512
(775) 688-1500 • Fax (775) 688-1595

Brian Sandoval
Governor

TONY WASLEY
Director

PATRICK CATES
Deputy Director

JACK ROBB
Deputy Director

Comment Reference Document 6

December 22, 2014

SAI#: E2015-074

Mr. Charles "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

Re: EIS, First Solar Project; Notice of Intent To Prepare an Environmental Impact Statement for Aiya Solar project on the Moapa River Indian Reservation, Clark County, NV

Dear Mr. Lewis:

The Nevada Department of Wildlife (NDOW) appreciates the opportunity to review the Notice of Intent and recognizes the importance of solar energy generation for developing renewable energy resources. The information provided in the Federal Register Notice indicate the transmission line interconnection and access road corridors associated with the project may be located in part on Federal lands administered and managed by the Bureau of Land Management (BLM). These portions of the proposed project will be the emphasis of the comments and recommendations regarding the development of the EIS and possible effects to the State's wildlife resources.

6-BIO 1

On October 16, 2014 NDOW provided Newfield's with GIS analysis using the best available data from the NDOW's wildlife occurrences, raptor nest sites and ranges, greater sage-grouse leks and habitat, and big game distributions databases. On November 14, 2014 NDOW received the Application for Energy Projects and associated check for the Aiya Solar project. To avoid or minimize perching and nesting opportunities on transmission structures, NDOW offers its expertise to coordinate the perch deterrent equipment and locations during construction.

We look to providing input for the development of the project EIS inclusive of implementing appropriate and reasonable actions for wildlife and wildlife-related values. For additional assistance, please contact Anthony Miller, Habitat Biologist, in the Las Vegas Office at (702) 486-5127 x3613 or ajmiller@ndow.org. Thank you again for this input opportunity.

Sincerely,

Anthony J. Miller for

D. Bradford Hardenbrook, Supervisory Habitat Biologist
Southern Region, Nevada Department of Wildlife
4747 Vegas Drive, Las Vegas, Nevada 89108
702.486.5127 x3600; 702.486.9857 FAX
bhrdnbrk@ndow.org

AJM: DBH

cc: Paul Schiafly, Natural Resource Officer, BIA Southern Paiute Agency
Skip Canfield, Program Manager, Division of State Lands
NDOW, Files

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

Comment Reference
Document 7

January 23, 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: Notice of Intent to prepare an Environmental Impact Statement for Proposed Solar Project located on the Moapa River Indian Reservation

Dear Mr. Schlafly:

Thank you for providing the subject notice concerning the preparation of an Environmental Impact Statement (EIS) for the proposed solar project located on the Moapa River Indian Reservation. The Department of Air Quality looks forward to the opportunity to provide comments on the draft EIS.

The air quality concerns associated with the proposed project will likely be very similar to those described in a letter sent to your attention, dated October 15, 2013, regarding the Moapa Solar Energy Center Draft EIS. In preparing an EIS for the proposed project, it is suggested that the air quality concerns focus on the letter's specified requirements found in Sections 12, 91, and 94 of the Clark County Air Quality Regulations.

If you would like us to assist in describing Clark County's current attainment status of the National Ambient Air Quality Standards (NAAQS) for regulated pollutants, we would be pleased to provide that assistance.

Sincerely,

L. Wallenmeyer

Lewis Wallenmeyer, Director
Clark County Department of Air Quality

LW:aml

From: Al Leskys [mailto:LESKYS@ClarkCountyNV.gov]
Sent: Tuesday, February 03, 2015 4:07 PM
To: 'rschroeder@envalue.us'
Cc: Robert Tekniepe; Mike Sword; Lewis Wallenmeyer
Subject: Preparation of EIS for Aiya Solar Project

Hello Mr. Shroeder,

In response to the requests you made concerning the preparation of the Environmental Impact Statement for the Aiya solar project, I've attached the following documents: (i) a copy of the October 15, 2014, letter regarding the Moapa Solar Energy Center DEIS, and (ii) a description of the attainment status for NAAQS regulated pollutants. Please let me know if you have any questions or concerns. Thank you.

Sincerely,

Algirdas (Al) Leskys

Clark County Department of Air Quality

Planning Division

4701 W. Russell Rd, Suite 200

Las Vegas, NV 89118-2231

(702) 455-0679

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

October 15, 2013

Mr. Paul Schlafly
Natural Resource Specialist
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: Moapa Solar Energy Center Draft Environmental Impact Statement

Dear Mr. Schlafly:

The Department of Air Quality (DAQ) has reviewed the subject draft environmental impact statement (DEIS) for compliance with local, state, and federal air quality regulations. Moapa Solar, LLC, in cooperation with the Moapa Band of Paiutes, intends to enter a 30-year lease on the Moapa River Indian Reservation to construct, operate, and maintain a solar power facility.

This project is located within Hydrographic Area (HA) 216, which is a maintenance area for ozone; therefore, it is subject to General Conformity requirements (Section 176(c) of the Clean Air Act). DAQ has reviewed the General Conformity emissions calculations, which indicate that all emissions will be below de minimis levels, so DAQ has no further comments with regard to conformity. The following local provisions; however, still may apply.

7-AIR 1

According to Section 94 of the Clark County Air Quality Regulations (AQR), a dust control permit must be obtained prior to soil disturbing or construction activities that impact 0.25 acres or greater, mechanized trenching 100 feet or greater in length, or 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, a construction project ten acres or more, trenching activities one mile or greater in length, or 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.

7-AIR 2

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 contained 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

Pursuant to Section 91 of the AQR, no unpaved roads or alleys may be constructed in public thoroughfares in HA 216. Owners and/or operators of existing unpaved roads that were constructed prior to April 1, 2002 in HA 216 shall implement one of the control measures in AQR Subsection 91.2.1.3 according to the schedule set forth in this regulation.

Finally, Section 12 of the AQR 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. A definitive determination, however, cannot be made until a complete application is submitted to DAQ and reviewed for applicability.

DAQ appreciates the opportunity to review this document. If you have any questions regarding the comments, please contact me at (702) 455-1600.

Sincerely,

L. Wallenmeyer

Lewis Wallenmeyer
Director

LW:dll

TABLE: Designation Status Cited in 40 CFR §81.329

Pollutant	Final Rule Citation	Designation Status	Geographic Boundary within Clark County
Sulfur Dioxide (1971) **/1**	36 FR 8186 (April 30, 1971)	"Better than national standards"	All of Clark County
Carbon Monoxide	76 FR 54294 (August 31, 2011) **/2**	"Attainment"	Las Vegas Valley Hydrographic Area 212
		"Unclassifiable/Attainment"	Area outside Las Vegas Valley Hydrographic Area 212
Ozone (1-Hour Standard)	44 FR 8202 (February 8, 1979)	"Unclassifiable/Attainment"	Hydrographic areas 164A, 164B, 165, 166, 167, 212, 213, 214, 216, 217, and 218 **/3**
Ozone (1997 8-Hour Standard)	62 FR 38856 (July 18, 1997)	"Attainment"	Hydrographic areas 164A, 164B, 165, 166, 167, 212, 213, 214, 216, 217, and 218 **/3**
		"Unclassifiable/Attainment"	Area outside hydrographic areas 164A, 164B, 165, 166, 167, 212, 213, 214, 216, 217, and 218 **/3**
Ozone (2008 8-Hour Standard)	73 FR 16483 (March 27, 1997)	"Unclassifiable/Attainment"	All of Clark County
PM-10	52 FR 24634 (July 18, 1987) **/4**	"Attainment"	Las Vegas Valley Hydrographic Area 212
		"Unclassifiable"	Area outside Las Vegas Valley Hydrographic Area 212
PM-2.5 (1997, 2006) **/5**	62 FR 38652 (July 18, 1997), 71 FR 61144 (October 17, 2006)	"Unclassifiable/Attainment"	All of Clark County
NO_2 (1971 Annual Standard)	36 FR 8186 (April 30, 1971)	"Cannot be classified or better than national standards"	All of Clark County
NO_2 (2010 1-Hour Standard)	75 FR 6474 (February 9, 2010)	"Unclassifiable/Attainment"	All of Clark County
Lead (2008)	73 FR 66964 (November 12, 2008)	"Unclassifiable/Attainment"	All of Clark County

/1 EPA has not yet provided designations for the 2010 standard.
/2 The CO standard has been retained, without revision, since the 1971 final rule was promulgated (36 FR 8186 (April 30, 1971)).
/3 Excluding the Moapa River Indian Reservation and the Fort Mojave Indian Reservation.
/4 The current 2012 PM-10 24-hour standard has remained unchanged since 1987.
/5 EPA has not yet provided designations for the PM-2.5 2012 standard.

Comment Reference Document 8

---------- Forwarded message ----------
From: **Skip Canfield** <scanfield@lands.nv.gov>
Date: Mon, Dec 22, 2014 at 2:48 PM
Subject: State Agency Comments E2015-074 Scoping - EIS for Aiya Solar - Moapa River Reservation
To: "paul.schlafly@bia.gov" <paul.schlafly@bia.gov>, "chip.lewis@bia.gov" <chip.lewis@bia.gov>
Cc: Skip Canfield <scanfield@lands.nv.gov>

Paul and Chip:

The Nevada State Clearinghouse received the comments below regarding this proposal;

http://clearinghouse.nv.gov/public/Notice/2015/E2015-074.pdf

Skip Canfield

Nevada State Clearinghouse

State Land Use Planning Agency

Nevada Division of State Lands

Department of Conservation and Natural Resources

901 South Stewart Street, Suite 5003

Carson City, NV 89701

775-684-2723

http://clearinghouse.nv.gov

www.lands.nv.gov

As part of the Aiya Solar project on the Moapa River Indian Reservation, please consider the cumulative visual impacts from development activities (temporary and permanent).

8-VIS 1

Utilize appropriate lighting:

- Utilize consistent lighting mitigation measures that follow “Dark Sky” lighting practices.

- Effective lighting should have screens that do not allow the bulb to shine up or out. All proposed lighting shall be located to avoid light pollution onto any adjacent lands as viewed from a distance. All lighting fixtures shall be hooded and shielded, face downward, located within soffits and directed on to the pertinent site only, and away from adjacent parcels or areas.

- A lighting plan should be submitted indicating the types of lighting and fixtures, the locations of fixtures, lumens of lighting, and the areas illuminated by the lighting plan.

- Any required FAA lighting should be consolidated and minimized wherever possible.

In addition, the following mitigation measures should be employed.

8-VIS 2

Utilize building materials, colors and site placement that are compatible with the natural environment:

- Utilize consistent mitigation measures that address logical placement of improvements and use of appropriate screening and structure colors. Existing

8-VIS 2

utility corridors, roads and areas of disturbed land should be utilized wherever possible. Proliferation of new roads should be avoided.

- For example, the use of compatible paint colors on structures reduces the visual impacts of the built environment. Using screening, careful site placement, and cognitive use of earth-tone colors/materials that match the environment improve the user experience for others who might have different values than what is fostered by built environment activities.

- Federal agencies should require these mitigation measures as conditions of approval for all permanent and temporary applications.

Thank you,

Skip Canfield, State Land Use Planning Agency

PUBLIC COMMENT FORM
Bureau of Indian Affairs

Comment Reference Document 9

AIYA SOLAR PROJECT
www.aiyasolarprojecteis.com/
Scoping Comments

NAME: JOHN FLEMING #163
ADDRESS: 8452 BOSECK DRIVE
LAS VEGAS, NEVADA
89145

(X) 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 Aiya Solar Project:

THE PROJECT LEASE SHOULD HAVE A COST OF INFLATION IN THE PRICE BEING PAID YEARLY TO THE TRIBE. THE FIRST YEARS PRICE SHOULD BE DOUBLED IN YEAR 15 (FIFTEEN), DUE TO INFLATION. AND YEAR 30 (THIRTY) SHOULD BE DOUBLED OF YEAR 15 (FIFTEEN).
IF NEVADA POWER DOES NOT BUY THE POWER, IS THE LEASE GUARANTEED?

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)

PUBLIC COMMENT FORM
Bureau of Indian Affairs

AIYA SOLAR PROJECT
www.aiyasolarprojecteis.com/
Scoping Comments

Comment Reference Document 10

NAME: Iris Dapoda

ADDRESS: Box 112
Moapa, NV 89025

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

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

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

I am very proud of our tribe in going green w/ solar & Renewable projects as the corner to our Tribe. I support this project and hope there will be success to all involved -

Thank You

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)

Comment Reference Document 11

A Notice of Intent (NOI) to prepare an Environmental Impact Statement was issued by the Bureau of Indian Affairs (BIA) on November 11th. The Aiya Photovoltaic (PV) Solar Project, proposed by First Solar, would include the development of up to 100 megawatts (MW) of generation capacity on up to 975 acres in the northeastern portion of the Moapa Indian Reservation, along with a short 230 kV transmission interconnection line that may be located, in part, on federal land managed by the BLM or on private land. The proposed project location is approximately 16 miles from the nearest boundary of Lake Mead National Recreation Area. After a cursory review of available project information, due to the technology type (low profile, photovoltaic) and due to the distance from park units NPS will not be pursuing Cooperating Agency Status under NEPA for this project. NPS Team members will continue to track the project and NPS may submit general comments on any NEPA documents during their associated public review periods, should any resource concerns arise in the future. The National Historic Trails team for the Old Spanish NHT has indicated that they will be a consulting agency on this project and advise BIA and the tribe in any trail related issues and concerns. NPS points of contact are Mike Taylor, Cultural Specialist for the Old Spanish NHT and Amee Howard, PWR Renewable Energy Specialist.

Appendix B

Policies, Plans, and Laws
that could apply to the
Proposed Project

APPENDIX B

POLICIES AND PROGRAMS

The following sections summarize the Federal, State, and local policies, plans, and laws that apply to the Proposed Project. The Proposed Project would be located on Tribal lands and Federal lands managed by the Bureau of Land Management (BLM). The Federal actions to be taken by the Bureau of Indian Affairs (BIA) and BLM require compliance with the National Environmental Policy Act (NEPA). The portions of the Proposed Project located on BLM lands must comply with applicable Federal, State, and local rules and policies that apply to BLM. The portion of the Proposed Project on the Reservation would be under the jurisdiction of the Tribe's Environmental Policy Ordinance.

Below is a summary of local, State and Federal laws and regulations that could apply to the Proposed Project.

GENERAL

National Environmental Policy Act (NEPA)

NEPA requires Federal agencies to review the effects of their actions on the natural and human made environment prior to taking action. The law requires all Federal agencies to consider the direct, indirect, and cumulative effects of proposals and reasonable alternatives prior to making a decision and to provide review by Federal, State, local, and tribal environmental authorities, as well as by other affected parties and interested citizens.

Federal Land Policy and Management Act (FLPMA)

The Federal Land Policy and Management Act (FLPMA) (43 U.S.C. 1761(a)) governs the way that public lands administered by the BLM are managed. FLPMA is designed to allow a variety of uses on BLM-administered Federal lands while simultaneously trying to preserve and manage the natural resources on them.

BLM must respond to the Applicant's application under Title V of FLPMA for ROW grants to construct, operate, maintain, and decommission the electric transmission line ROWs on BLM-administered land pursuant to 43 CFR 2800.

Executive Order 11514 (National Environmental Policy Act)

This order requires Federal agencies to continually monitor and control their activities to protect and enhance the quality of the environment. The order also requires Federal agencies to develop procedures to (1) ensure that the public is informed and understands the Federal plans and programs with potential environmental impact and (2) obtain the views of interested parties.

Moapa Band of Paiutes Tribal Environmental Policy Ordinance

The Moapa Band of Paiutes Business Council developed the Tribal Environmental Policy Ordinance to support the Tribal Government, in cooperation with Federal, State and local governments, and other concerned public and private organizations, to use all practicable means and measures to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Tribal members. Under this ordinance, the Tribe will study the environmental impacts of major projects using a systematic, interdisciplinary approach to insure the integrated use of the natural and social sciences and

the environmental design arts in planning and in decision making which may have an impact on man's environment.

AIR QUALITY

Clean Air Act

The U.S. Environmental Protection Agency (EPA) implements and enforces the requirements of most Federal environmental laws. EPA Region 9 administers Federal air programs in Nevada, including oversight of the State of Nevada Department of Environmental Protection (NDEP) and Clark County Department of Air Quality and Environmental Management (DAQEM) which are responsible for implementing those programs within their jurisdiction. The Clean Air Act (CAA), most recently amended in 1990, provides EPA with the legal authority to regulate air pollution from stationary, area, and mobile sources.

Council on Environmental Quality − Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions

In February 2010, the Council on Environmental Quality (CEQ) issued a draft guidance memorandum for public consideration and comment on the ways in which Federal agencies consider the effects of GHG emissions and climate change under NEPA. The guidance advises Federal agencies to consider, in scoping their NEPA analyses, whether analysis of the direct and indirect GHG emissions from their proposed actions may provide meaningful information to decision makers and the public.

Clark County Department of Air Quality and Environmental Management

The Clark County DAQEM has been delegated the authority, under the provisions of Nevada Revised Statute (NRS) 445B.500 and by direction of the Governor of the State of Nevada and the Clark County Board of County Commissioners, to implement and enforce an air pollution control program in Clark County, Nevada. Air quality regulations applicable to the Proposed Action on BLM lands include:

- Section 41, Fugitive Dust: This section establishes that any person engaged in activities involving grading, clearing of land, public or private construction, the operation of machines and equipment, the grading of roads, trenching operations, the operation and use of unpaved parking facilities to take all reasonable precautions to abate fugitive dust from becoming airborne from such activities.
- Section 45, Idling of Diesel- Powered Motor Vehicles: This section limits the idling of the engine of a diesel truck or a diesel bus to less than 15 consecutive minutes.
- Section 94, Permitting and Dust Control for Construction Activities: The purposes of this section are to limit the emission of particulate matter into the ambient air by preventing, controlling, and mitigating fugitive dust from construction activities

.

WATER RESOURCES

There are no perennial surface waters in the Project area so there is no local governing water authority for the area. The management and allocation of water resources for the basin is under the authority of the Nevada Division of Water Resources (NDWR) State Engineer.

Clean Water Act

The Clean Water Act of 1977 was enacted to restore and maintain the integrity of the Nation's water and prohibit the discharge of toxic pollutants to waters of the United States. The Clean Water Act (CWA) provides guidelines and limitations for effluent discharges from point-source discharges, and provides authority for the EPA to implement the National Pollutant Discharge Elimination System (NPDES) permitting program. Section 402(p) requires permits for storm water discharges associated with industrial activity.

Construction General Stormwater Permit

The CWA §402 regulates construction-related stormwater discharges to surface waters through the NPDES program. Region 9 of the EPA manages construction stormwater permits on Tribal lands. In Nevada, the NDEP has been delegated the authority by the EPA to administer the NPDES program through the Bureau of Water Pollution Control for other Federal lands. The construction stormwater permit is required for all sites greater than 1 acre. The permit requires the preparation of a Stormwater Pollution Prevention Plan (SWPPP) during construction. Nevada does not have specific regulations pertaining to the treatment of fuel spills during construction. All petroleum-contaminated materials must be disposed of in accordance with applicable State and local regulations.

Section 404 Permitting

Section 404(a) of the Clean Water Act authorizes the U.S. Army Corps of Engineers (USCOE) to issue permits regulating the discharge of dredged or fill material into the waters of the United States, including wetlands. The main premise of the Section 404 regulatory program is that no discharge of dredged or fill material can be permitted if a practicable alternative exists which is less damaging to the environment.

Section 401 Permitting

Some Section 404 permits issued by the USCOE require that a water quality certification be obtained. In Nevada, 401 permitting is the responsibility of the NDEP, Bureau of Water Quality Planning and to the EPA on Reservation land.

Safe Drinking Water Act

The Safe Drinking Water Act's primary objective is to protect the quality of public water supplies and all sources of drinking water. The State of Nevada regulates public drinking water supplies in Nevada and enforces drinking water standards and implements aquifer and water source protection regulations.

National Flood Insurance Program (NFIP)

The NFIP is administered by the Federal Emergency Management Agency (FEMA) and is designed to reduce future flood risks to new construction in Special Flood Hazard Areas, In support of the NFIP, FEMA identifies flood hazard areas throughout the United States and its territories by producing Flood Hazard Boundary maps, Flood Insurance Rate maps, and Flood Boundary and Floodway maps.

Floodplain Management

The Clark County Regional Flood Control District has a comprehensive floodplain management program in place that includes a regulatory program that establishes standards and requirements for flood hazard management. These regulations outline when and where Floodplain Use Permits are required.

Executive Order 11988 (Floodplain Management)

This order requires Federal agencies to establish procedures to ensure that the potential effects of flood hazards and floodplain management are considered for actions undertaken in a floodplain. It also requires that floodplain impacts be avoided to the extent practicable.

CULTURAL AND HISTORIC RESOURCES

National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966 provides that sites with significant national historic value be placed on the National Register of Historic Places. It requires evaluation of whether a Federal activity could impact a historic property resource. If so, consultation with the Advisory Council on Historic

Preservation will be required that identifies mitigation to minimize adverse impacts. Coordination with the State Historic Preservation Officer is also undertaken to ensure that potentially significant sites are properly identified and appropriate mitigative actions implemented.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act of 1979 protects archaeological resources located on U.S. public lands and American Indian lands. The requirements concerning protection of archaeological resources would be addressed prior to site disturbances by consultation with the Department of Interior Advisory Council on Historic Preservation and the State Historic Preservation Officer.

American Indian Religious Freedom Act.

The American Indian Religious Freedom Act of 1978 is a policy Statement intended to reaffirm American Indian rights regarding religious freedom. The purpose of the Act is to ensure that American Indians have access to and protection of physical locations and resources that are sacred and sometimes required for the practice of American Indian religious rites and ceremonies.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act of 1990 governs ownership or control of American Indian remains and cultural items which are excavated or discovered on Federal or tribal lands.

Antiquities Act

The Antiquities Act of 1906 protects historic and prehistoric ruins, monuments, and antiquities, including paleontological resources, on Federally-controlled lands.

Paleontological Resources Preservation Act

The Paleontological Resources Preservation Act (PRPA) provides protection for vertebrate (i.e., animals with backbones) paleontological resources on Federal lands by limiting the collection of vertebrate fossils and scientifically important fossils to permitted and qualified researchers.

National Trails System Act

This act supports the designation and management of National trails near urban areas and within scenic areas and along historic travel routes often more remotely located.

BIOLOGICAL RESOURCES

Endangered Species Act

The Endangered Species Act (ESA) of 1973, as amended, is intended to prevent the further decline of endangered and threatened species and to restore these species and their habitats. Section 7 of the ESA requires consultation by Federal agencies to determine whether endangered and threatened species are known to have critical habitats onsite or in the vicinity of proposed action.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act promotes more effectual planning and cooperation between Federal, State, public, and private agencies for the conservation and rehabilitation of the nation's fish and wildlife and authorizes the U.S. Department of Interior to provide assistance.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 governs the taking, killing, or possession of migratory birds.

Bald Eagle Protection Act

The Bald Eagle Protection Act of 1940 protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violations.

Public Lands - Wild Horses and Burros Act

The Public Lands - Wild Horses and Burros Act requires the protection, management, and control of wild free-roaming horses and burros on public lands. Free-roaming horses and burros are prohibited from capture, branding, harassment, or death and they are to be considered an integral part of the natural system of the public lands.

Executive Order 13112 - Invasive Plants and Noxious Weeds

Invasive plants and noxious weeds are managed on public lands by the BLM under the direction of the National Invasive Species Council (NISC) established in 1999 (Executive Order 13112). Much of the management of invasive plants and the listing of noxious weeds is also regulated by the U.S. Department of Agriculture (USDA) under the Federal Noxious Weed Act.

Nevada Revised Statute 527.060–527.120

Nevada Revised Statute (NRS) 527 protects and regulates the removal of Christmas trees, yuccas, and cacti for commercial purposes. Such removal or possession requires a permit and tags from the Nevada Spur Forester Fire Warden, Nevada Division of Forestry. Chapter 527 also gives the Nevada Natural Heritage Commission the ability to protect native flora by listing them on their protected species list.

Nevada Revised Statute 501

NRS 501, supplemented by the NAC, covers administration and enforcement of wildlife resources within the State. The administering agency is the Nevada Department of Wildlife (NDOW). Any authorizations for impacts to protected species would be processed through the NDOW.

LAND USE

BLM Las Vegas Resource Management Plan

The Las Vegas Resource Management Plan (LVRMP) contains the land management direction for resources within this area compliant with FLPMA. It includes ROW development guidelines for the authorization of ROWs on public lands for a variety of uses including electrical transmission lines, electrical power plants and substations, and related power distribution lines. The LVRMP emphasizes protecting unique habitats for threatened, endangered, and special status species, while providing various uses including recreation, community growth, and mineral exploration and development (BLM 1998a).

Clark County Comprehensive Plan

This plan provides long-term planning goals and policies for Clark County’s future growth. The Clark County Comprehensive Plan has goals and policies related to land use, energy, and utilities. Clark

County's Utilities Policy UT 1-6 encourages the development of transmission capability and interconnectivity for distributed energy, cogeneration, and alternative energy sources, including regional interconnectivity and transmission capability. Energy Policy CV7-1.6 States that "Clark County supports partnerships and cooperation with local, regional, and Federal agencies to further promote energy conservation and efficiency, renewable energy projects, and sustainable development" (Clark County 2006).

Federal Aviation Administration

Federal Aviation Administration (FAA) regulations address potential aircraft obstruction for structures taller than 200 feet or within 20,000 feet of an airport. Specifically, Federal Regulation Title 14, Part 77, establishes standards and notification requirements for objects that have the potential to affect navigable airspace.

SOCIAL/ECONOMIC

Executive Order 12898 (Environmental Justice)

This order directs Federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States.

Executive Order 13166

Executive Order 13166 requires all recipients of Federal funds to provide meaningful access to persons who are limited in their English proficiency (LEP).

HUMAN HEALTH AND HAZARDOUS MATERIALS

Occupational Safety and Health Act

The Occupational Safety and Health Act of 1970 establishes the authority for assuringsafe and healthful working conditions for employees.

Hazardous Waste and Solid Waste Amendments Act

The Hazardous Waste and Solid Waste Amendments Act of 1984 are amendments to the Resource Conservation and Recovery Act (RCRA) that address waste minimization, land disposal of hazardous wastes, and underground storage tanks.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 provides a statutory framework for the cleanup of waste sites containing hazardous substances. The Superfund Amendments and Reauthorization Act provides an emergency response program in the event of a release (or threat of a release) of a hazardous substance to the environment.

Toxic Substances Control Act

The Toxic Substances Control Act of 1976 provides the EPA with the authority to require testing of both new and old chemical substances entering the environment and to regulate them where necessary. The Act also regulates the treatment, storage, and disposal of certain toxic substances not regulated by the Resource Conservation and Recovery Act or other statutes, particularly polychlorinated biphenyls (PCB), chlorofluorocarbons, and asbestos.

Executive Order 12856 (Right-to-Know Laws and Pollution Prevention Requirements)

This order requires all Federal agencies to reduce and report toxic chemicals entering any waste stream; improve emergency planning, response, and accident notification; and encourage clean technologies and testing of innovative prevention technologies.

Appendix C

Weed Management Plan

WEED MANAGEMENT PLAN

AIYA SOLAR PROJECT

CLARK COUNTY, NEVADA

April 2015

Table of Contents

FIGURES

TABLES

APPENDICES

Acronyms and Abbreviations

BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
EPA	U.S. Environmental Protection Agency
GIS	geographic information system
GPS	global positioning system
LVFO	Las Vegas Field Office
MM	Mitigation Measure
mph	miles per hour
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NRS	Nevada Revised Statute
O&M	Operations and Maintenance
PAR	Pesticide Application Records
PPE	Personal Protective Equipment
Project	Aiya Solar Project
PV	Photovoltaic
PPA	Power Purchase Agreement
PUP	Pesticide Use Proposal
Reservation	Moapa River Indian Reservation
ROW	right-of-way
SDS	Safety Data Sheets
WEAP	Worker Environmental Awareness Procedure
WMP	Weed Management Plan

1 Introduction

1.1 Purpose of the Plan

The purpose of this Weed Management Plan (WMP) is to describe methods to prevent, mitigate, and control the spread and establishment of weeds during the implementation of the Aiya Solar Project (Project). The Project proponent and its approved contractors would be responsible for implementation of this plan. The objective is to understand the type and distribution of weeds in the Project area, and to implement effective control and monitoring efforts toward reducing the spread and establishment of weeds in the Project area. This WMP is applicable to the construction, operation and, decommissioning of the proposed Project.

The Environmental Impact Statement, Section 5.4 Mitigation Measures – Biological Resources states the following:

- *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 cooperating or reviewing agencies (BIA, BLM, NDOW, etc.). Measures in the plan will include, but are not limited to the following:*
- *Areas with current weeds will be mapped. If topsoil is proposed to be salvaged or reused, construction supervisors will reference survey results to ensure topsoil is free of weeds or the weeds have been treated either by mechanical or approved chemical means (coordinated by compliance personnel), or the topsoil will be disposed of properly.*
- *Heavy equipment will be inspected for weed seeds before they enter the Project area. If excessive soil or evidence of noxious weeds is observed, such equipment will be cleaned first to remove weed seeds before being allowed entry. Equipment that has been used in weed-infested areas on the project will be cleaned before moving it to another area. Any straw or hay wattles are used for erosion control must be certified weed free.*

2 Roles and Responsibilities

2.1 General Roles and Responsibilities

All site Project proponent employees, contractors, and sub-contractors will be familiar with the WMP, and will be responsible for implementing aspects of this WMP.

All Workers, Contractors, and Contractor Staff shall:

- Complete all required Worker Environmental Awareness Procedure (WEAP) training before starting work. WEAP training will include a section on weed spread and colonization.
- Ensure vehicles and equipment to be used on site will be inspected for excess soil or signs of noxious weeds prior to gaining entry to the site. If inspections indicated that a vehicle requires washing, this activity will occur off-site at existing car washes with appropriate containment facilities.
- Vehicle cabs may be subject to cleaning in an effort to remove refuse, soil, or other materials susceptible to transporting weed seeds or other plant structures. If it is deemed necessary to clean interiors of vehicles, the use of compressed air is recommended for cleaning vehicle cabs before entry to and immediately prior to departing the site.
- All imported or procured materials used during site reclamation, revegetation, and installation of stormwater/erosion control measures will be certified as weed-free by vendor.
- Limit vehicle travel within the Project area to designated roads and established overland travel routes. Travel outside of these designated areas will be restricted.
- Limit disturbance areas to the smallest area needed for construction.

2.2 Permit Compliance Procedures and Tasks

The following procedure and task matrix identifies the specific Mitigation Measures (MMs) that will be implemented, as needed, to minimize the potential for weed spread and establishment.

TABLE 2-1: PROCEDURES AND TASK MATRIX

BMP#	*Site Procedure(s)*	*Task Assignment and Schedule*
1	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 cooperating or reviewing agencies (BIA, BLM, NDOW, etc.).	This WMP has been prepared and submitted to referenced agencies for approval.
2	Areas with current weeds will be mapped.	Appropriately qualified staff will perform weed surveys.
3	If topsoil is proposed to be salvaged or reused, construction supervisors will reference survey results to ensure topsoil is free of weeds or the weeds have been treated either by mechanical or approved chemical means (coordinated by compliance personnel), or the topsoil will be disposed of properly.	The project will follow this requirement. Topsoil from an area formerly containing weeds that have been properly removed by chemical or mechanical methods will be certified as appropriate for re-use elsewhere on the site by qualified staff. Monitoring for the presence of noxious weeds in these and all areas of the project will occur as summarized in the approved Restoration and Revegetation Plan for the project site.
4	Heavy equipment will be inspected for weed seeds before they enter the Project area. Such equipment will be cleaned first to remove weed seeds before being allowed entry.	All contractors and subcontractors will be required to have all equipment cleaned prior to arriving on-site. Inspections of the vehicles when brought on-site will be performed by appropriate personnel to ensure compliance with this requirement.
5	Equipment that has been used in weed-infested areas on the Project will be cleaned before moving it to another area.	Equipment operators will be required to knock off built up dirt and debris from vehicles prior to moving to a new area if they are working in an area that is weed-infested
6	Any straw or hay wattles are used for erosion control must be certified weed free.	Procurement will ensure that materials ordered are certified weed-free prior to purchase.

3 Project Summary

3.1 Project Location

The proposed solar Project would be located approximately 40 miles northeast of Las Vegas in Clark County, Nevada (Figure 1). The Project would be located on up to 900 leased acres within the Moapa River Indian Reservation (Reservation) in Mount Diablo Meridian, Township 14 South, Range 66 East, Sections 29, 30, 31,and 32. These lands are currently vacant except for roads, pipelines, and transmission line rights-of way (ROWs).

The gen-tie line would be located on Reservation lands, Federal lands managed by the BLM south of the solar site within Section 5 of Township 15 South and Range 66 East, and private lands (owned by NV Energy) adjacent to the Reid-Gardner Substation. The temporary water pipeline associated with the Project would be located on the Reservation south of the solar site in Sections 30 and 31 in Township 14 South, Range 66 East and Section 6 of Township 15 South and Range 66 East. Figure 2 shows the location of the components of the proposed Project and associated facilities.

3.2 Project Description

The following describes the major features of the proposed Project. For a comprehensive description of the proposed Project, refer to the associated Draft Environmental Impact Statement for the Aiya Solar Project for the Project design details (subject to minor design changes).

The Project will consist of up to a 100 MW solar photovoltaic (PV) power generating facility. Project components include on-site facilities, off-site facilities, and temporary facilities needed to construct the Project. The solar site is located entirely on the Reservation. Major on-site facilities are the solar field (comprised of multiple approximately 4 MW blocks of solar PV panels mounted on fixed tilt or tracking systems and associated equipment, a project substation, and operation and maintenance (O&M) facilities. The off-site facilities include an approximately two-mile 230 kV gen-tie, portions of which are located on the Reservation, BLM-administered lands, and private lands. Additional off-site 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. Temporary facilities, which would be removed at the end of the construction period, include the off-site water intake and pipeline mentioned above and the on-site 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 bulk transmission system via the gen-tie, which would interconnect to NV Energy's existing 230kV Reid-Gardner Substation. Once additional planned generation in the area comes online, NV Energy may build a proposed collector station near the existing Reid-Gardner Substation and, if so, the gen-tie would connect to it also. The exact site of the collector station and construction timing would be determined by NV Energy.

4 Weed Surveys

A weed survey of the Project site, including the routes for the transmission lines, pipeline, and access road, will be conducted prior to conducting surface disturbing activities. This survey will be focused on identifying and mapping occurrences of weed species described in the Nevada Revised Statues 555.005, included as **Appendix A** to this WMP.

The Nevada Department of Agriculture Plant Industry Division maintains a list of noxious weeds for the State of Nevada. Noxious weeds on this list are assigned to one of three categories, including:

- **Category A Weeds**: Weeds that are generally not found or that are limited in distribution throughout the State. Category A weeds are subject to active exclusion from the Sate and active eradication where found, including the premises of a dealer of nursery stock.
- **Category B Weeds**: Weeds that are generally established in scattered populations in some counties of the State. Such weeds are subject to active exclusion, where possible; and active eradication from the premises of a dealer of nursery stock.
- **Category C Weeds**: Weeds that are generally established and generally widespread in many counties of the State. Such weeds are subject to active eradication from premises of a dealer of nursery stock.

Occurrences of cheatgrass (*Bromus tectorum*), red brome (*Bromus rubens*), halogeton (*Halogeton glomeratus*), Russian thistle (*Salsola kali*), revennagrass (*Saccharum ravennae*), ripgut brome (*Bromus diandrus*), and Mediterranean grass (*Schismus spp.)* will also be identified and described, although they are not listed as noxious weeds. The State of Nevada has not categorized or designated these species as noxious weeds because their distribution and occurrence are far too widespread for management efforts to successfully eradicate these species. The management efforts, described in this plan, will rely on the results of this initial weed survey.

The results of the weed survey will contribute to the identification of problem areas within the proposed Project site. The weed survey will include botanists walking parallel transects, searching for weeds on both sides of each transect. Identified weed occurrences will be described to species, assigned a ground cover rating, and individuals will be counted or estimated, as appropriate. The location of identified weed occurrences will be recorded using a hand-held global positioning system (GPS) unit and all recorded occurrences will be mapped using geographic information system (GIS) software. All identified weed occurrences will be marked in the field, either by flagging, pin flags or other means so as to indicate to construction personnel that such areas are to be avoided until appropriately treated.

5 Weed Management

Weed management at the proposed Aiya Solar Project will include identification of problem areas, implementation of measures intended to prevent the spread and establishment of new weed occurrences, and application of appropriate measures to treat known occurrences of weeds. These steps toward effective weed management are described in the following sections.

5.1 Preventative Measures

The prevention of weed establishment is the most effective weed management practice. Preventing or reducing the potential for weed establishment reduces additional efforts, costs, and time invested in subsequent weed control or eradication measures. Several measures have proven to be effective toward preventing the spread and establishment of weeds on projects where surface disturbing activities are proposed. The following preventative measures will be implemented:

- Vehicles and equipment to be used on-site will be washed prior to gaining entry to the site. Washing will occur off site at existing car washes with appropriate containment facilities. Vehicles will be inspected upon entry to the site to ensure cleanliness.
- Vehicle cabs may be subject to cleaning in an effort to remove refuse, soil, or other materials susceptible to transporting weed seeds or other plant structures. The use of compressed air is recommended for cleaning vehicle cabs before and immediately prior to departing the site.
- All imported or procured materials used during site reclamation, revegetation, and installation of stormwater/erosion control measures will be certified as weed free by the vendor.
- Vehicle travel in the proposed project area will be restricted to designated roads and established overland travel routes.
- Disturbance areas will be limited to the smallest area needed for construction.
- The WEAP training will include a section on weed spread and colonization.
- Additionally, on BLM lands, all weed stipulations for construction projects developed by BLM will be implemented (Appendix E).

Note: *As this plan is in early draft form, it may be revised to modify or exclude measures listed, or include additional measures as appropriate before the final version is issued for approval*.

5.2 Treatment Methods

Treatment methods are necessary to control and eradicate known invasive and noxious weed occurrences. Treatment methods include a variety of approaches such as mechanical, chemical, and biological controls. The most appropriate and effective weed treatment measures will be determined following the assessment of existing weed populations on the Project site. The Project site is located within suitable and occupied desert tortoise habitats. As such, the application of herbicides may be permitted, though a Pesticide Use Proposal (PUP) would need to be submitted to the BLM prior to

herbicide use on BLM lands. Treatment methods on BIA lands will utilize the BLM's *Chemical Pest Control Manual* as a guideline for weed control (see Section 5.3.1 below)

Mechanical treatments include the use of physical means to remove plants, reproductive parts, or propagules. Mechanical treatments include manual methods (pulling weed plants from the soil), use of hand tools and hand-held power tools, mowing, and more aggressive efforts that involve removing above and below ground plant structures. The designation of the appropriate mechanical treatment will depend on variables including season, plant life stage, weed species, size and population of each occurrence, and more. The weed management contractor will coordinate with the appropriate agencies before implementing any weed treatment methods.

Chemical treatments involve the use and application of herbicides. The use of herbicides is highly regulated and involves a variety of specific protocols, safety measures, and precautions for eliminating, reducing, and mitigating for uncontrolled releases. The possible use of herbicides as a treatment method is described in additional detail in Section 7 of this report.

Biological treatments include the use of plants and animals (particularly insects) that parasitize, ingest, or out-compete weed species. Based on the weed species expected to occur in the Project area and other factors, biological controls are not expected to be a viable or appropriate alternative for treating weed occurrences at the proposed site.

5.3 Agency Specific Requirements

5.3.1 Bureau of Land Management Lands

The BLM regulates the use and type of herbicides on all of its administered lands. Included in its *Final Programmatic Environmental Impact Statement Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States* (BLM 2007) is a list of the 14 active herbicidal ingredients approved for use on BLM lands. **Appendix B** includes the 2014 list of adjuvants, chemical additives intended to improve the efficacy of herbicides, approved for use on lands administered by the BLM. Guidelines for the use of chemical means to control vegetation on lands administered by the BLM are presented in the BLM's *Chemical Pest Control Manual* (BLM n.d.). These guidelines require submittal of a PUP and pesticide application records (PAR) for use of herbicides on lands administered by the BLM. **Appendix C** includes a BLM PUP submittal form, and **Appendix D** includes an example of a BLM PAR form.

PUPs are to be submitted to BLM several weeks before herbicide application on lands administered by the BLM. The appropriate weed control procedures, including target species, timing of control, and method of control, will be determined through consultation with the Las Vegas Field Office (LVFO) weed specialist. All personnel associated with application of weed control measures will be appropriately trained and hold all of the required certifications. PARs are to be submitted no more than 24 hours after application of the herbicide.

5.3.2 Nevada Revised Statute (NRS): The Nevada Control of Insects, Pests, and Noxious Weed Act

The following section applies to BLM controlled and private lands; the BIA has the discretion to utilize existing State regulatory guidelines as appropriate.

NRS 555.150

NRS 555.150 (Eradication of Noxious Weeds by Owner or Occupant of Land) of the Nevada Revised Statute reads:

> *"Every railroad, canal, ditch, or water company, and every person owning, controlling, or occupying lands in this State, and every county, incorporate city or district having the supervision and control over streets, alleys, lanes, rights-of-way, or other lands shall cut, destroy, or eradicate all weeds declared and designated as noxious in NRS 555.130, before such weeds propagate and spread, and whenever required by the State Quarantine Officer."*

NRS 555.210

NRS 555.210 (Performance of Necessary Work by Weed Control Officer on Failure by Landowner Charges as Lien) of the Nevada Revised Statute reads:

> *"If any landowner fails to carry out a plan of weed control for his or her land in compliance with the regulations of the district, the weed control officer may enter upon the land affected, perform any work necessary to carry out the plan, and charge such work against the landowner. Any such charge, until paid, is a lien against the land affected coequal with a lien for unpaid general taxes, and may be enforced in the same manner."*

5.3.3 BLM Las Vegas Field Office Weed Management Plan

The LVFO of the BLM prepared this document as guidance for weed management programs. The methods included in the BLM Weed Management Plan (BLM 2006) originated from a cooperative effort between BLM and other federal agencies that produced the document, Partners Against Weeds.

These regulations and guidelines will be generally followed and implemented on all areas of proposed disturbance BLM controlled land and generally utilized as a guideline throughout the project site.

6 Weed Monitoring

All Project areas that are proposed for surface disturbance will be monitored for weeds by qualified biologists and/or appropriately-trained personnel. Monitoring will occur when weed species are most likely to be detected and can be easily identified. Upon identification of infestation, a qualified biologist or appropriately-trained staff will determine what action is necessary, and treatment measures will be implemented accordingly.

6.1 Ongoing Monitoring

Weed monitoring will occur on an ongoing basis during implementation of the Project. Qualified and appropriately-trained personnel will use the results of the initial weed inventory to monitor known weed occurrences and will observe activity areas for opportunistic weed occurrences.

6.2 Post Construction

Weed monitoring will begin immediately following construction. Weed monitoring will occur at all disturbed sites at least twice a year (March and September) for an estimated five years or until restoration efforts are deemed complete. The goal of weed monitoring is to ensure no net increase in weed species or overall weed cover to the baseline conditions. Identified weed occurrences will be noted and recorded in the same manner as was described for the weed inventory effort. A monitoring report will be made available to applicable agencies. The report will help determine whether success criteria are being met. Adaptive management strategies would be implemented if necessary.

6.3 Monitoring of Known Infestation Area

As previously mentioned, known occurrences of weed infestations will be evaluated on a regular basis. Evaluations will determine if noteworthy changes have occurred at each infestation, particularly if the number or area covered by an infestation has changed dramatically. A brief summary will be prepared for each annual monitoring effort and will include sufficient detail to allow for an evaluation of the effectiveness of the weed management program, including weed infestation identification, weed monitoring, and weed control.

7 Herbicide Application, Handling, Spills and Cleanup

7.1 Herbicide Application

Weed management contractors/personnel that are responsible for applying herbicides will obtain all of the required Federal, State, or local agency permits and will hold all necessary certifications and have received all relevant training. Permits may include terms and conditions that are not included in this weed management plan. A licensed contractor will apply herbicides in accordance with all applicable laws, regulations, and permit stipulation, including U.S. Environmental Protection Agency (EPA) label instructions. A PUP must be obtained from BLM prior to herbicide application. If faced with any of the following scenarios, herbicide application shall be suspended until such conditions no longer exist:

- Wind velocities in excess of 10 miles per hour (mph) during application of liquid herbicides and 15 mph during application of dry herbicides;
- Snow or ice present on weed foliage; or
- Precipitation is occurring or imminent.

For weed infestations readily accessible and passable by vehicle, vehicle-mounted applicators will be used. Manual application methods will be used in weed occurrences that are relatively small, inaccessible by established road or ROW, or in rough, varied terrain. All herbicide applicators, spreaders and sprayers, will be calibrated before each use to ensure all applications rates and procedures are appropriately implemented.

Herbicide transport and handling will follow these methods:

- No herbicides will be stored on-site.
- Only the quantity of herbicide expected for each day's use will be transported.
- Herbicide concentrate will be transported in approved containers in a controlled manner so as to prevent spills. Concentrate will be positioned in delivery or work vehicles so as to be secured and separated from the driving compartment, food, clothing, and safety equipment.
- The mixing of herbicide materials will be conducted at an off-site location or within a controlled space in the O&M Area that is designated on-site. All mixing will take place over a drip/spill containment device and at a distance more than 200 feet from open or flowing water, wetlands, or other sensitive resources.
- Herbicides will not be applied to areas of open or flowing water, wetlands, or other sensitive resources unless authorized by the appropriate regulatory agency.
- All equipment and containers used for herbicide storage, application, and transport will subject to inspection for leaks or damage.
- Emptied herbicide containers will be disposed in accordance with instructions provided on the label.

7.2 Herbicide Spills and Cleanup

All spills and inadvertent releases of herbicides will be addressed immediately upon detection. Spill response kits will be readily available in herbicide contractor vehicles and in daily on-site herbicide storage areas.

Spill response will vary depending on a variety of conditions, including location, amount of spill, area impacted by spill, type of herbicide spilled, and more. For each spill the following procedures should be implemented:

- Disseminate the appropriate on-site and agency notifications of a spill.
- Secure the affected area barring pedestrian and vehicle traffic.
- All spill response personnel shall put on the appropriate Personal Protective Equipment (PPE) prior to entering the spill containment area.
- Personnel, while wearing the appropriate PPE and equipped with the necessary tools and equipment, shall stop the herbicide leak or release.
- All materials associated with spill response, including the released herbicide, affected soils and plants, absorptive material, clothing, and PPE shall be removed and containerized according to appropriate regulations and procedures.

All generated spill response containers shall be transported, following appropriate regulations, and disposed legally at an approved disposal facility.

7.3 Worker Safety and Spill Reporting

All contractors responsible for herbicide use, transport, application, and control at the site will hold the appropriate certifications. Such certifications shall be made available. Contractors transporting herbicides to the site shall also have legible Safety Data Sheets (SDS) and labels on-site. All herbicide spills and inadvertent releases shall be reported in accordance with all applicable laws and regulations.

8 References

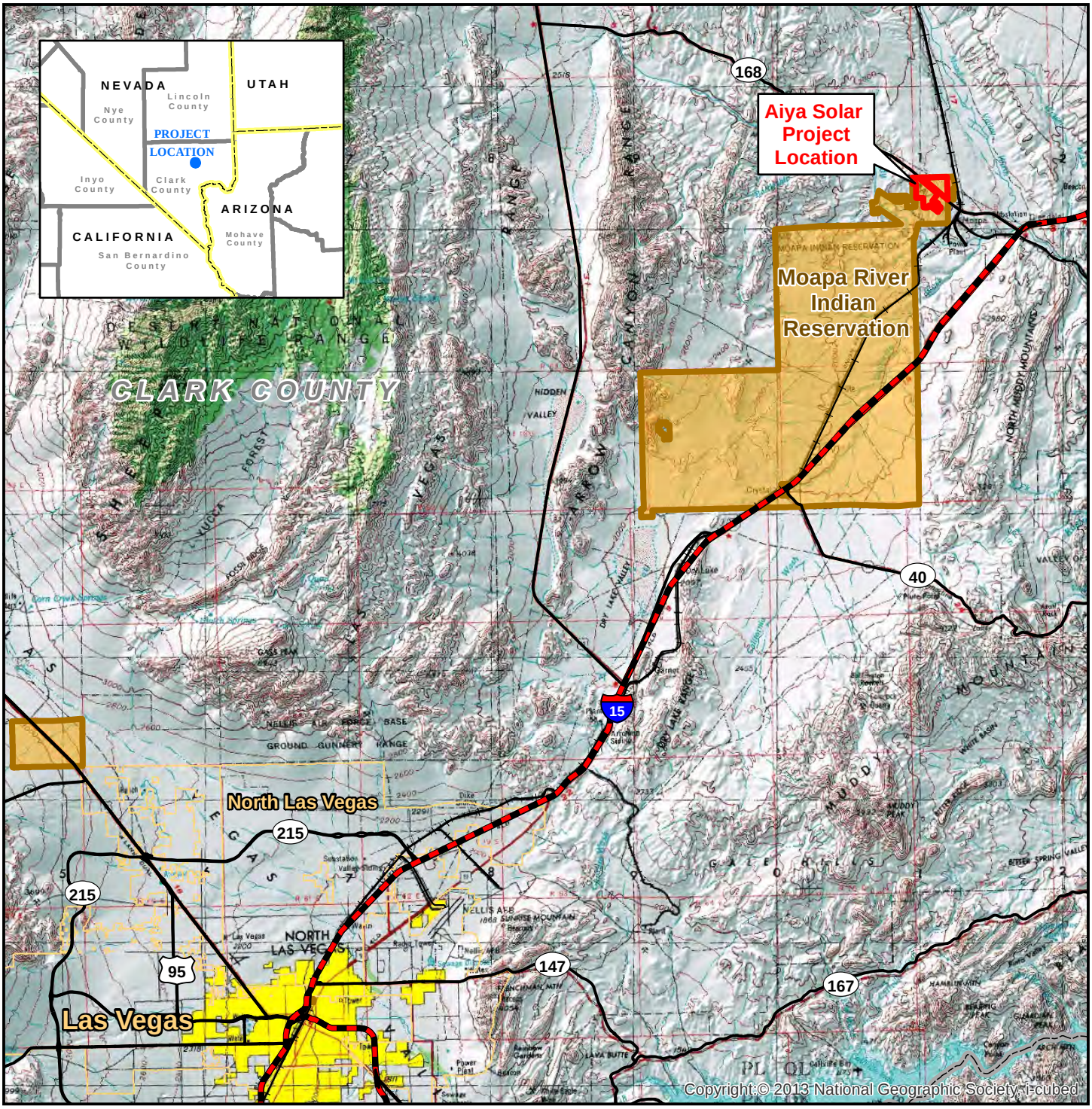
Bureau of Land Management (BLM). 2006. Noxious Weed Plan, Las Vegas Field Office, Bureau of Land Management: A Plan for Integrated Weed Management. 47pp.

BLM. 2007. Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement. Available on the internet at: http://www.blm.gov/wo/st/en/prog/more/veg_eis.html. Accessed on April 22, 2015.

BLM. No Date. BLM Manual 9011 – Chemical Pest Control. Available on the internet at: http://www.blm.gov/ca/st/en/prog/weeds/9011.html. Access on April 22, 2015.

Mac, M.J., P.A. Opler, C.E. Puckett Haecker, and P.D. Doran. 1998. Status and Trends of the Nation's Biological Resources. 2 vols. U.S. Department of the Interior, U.S. Geological Survey, Reston, VA. Available on the internet at: http://www.nwrc.usgs.gov/sandt/SNT.pdf. Accessed on April 22, 2015.

FIGURES



Legend

- Interstate
- US/ State Highway
- Railroad
- Solar Project Location
- Municipal Boundary
- Jurisdictional Land Ownership
- Indian Reservation

0 2 4 6 8 10

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Aiya Solar Project

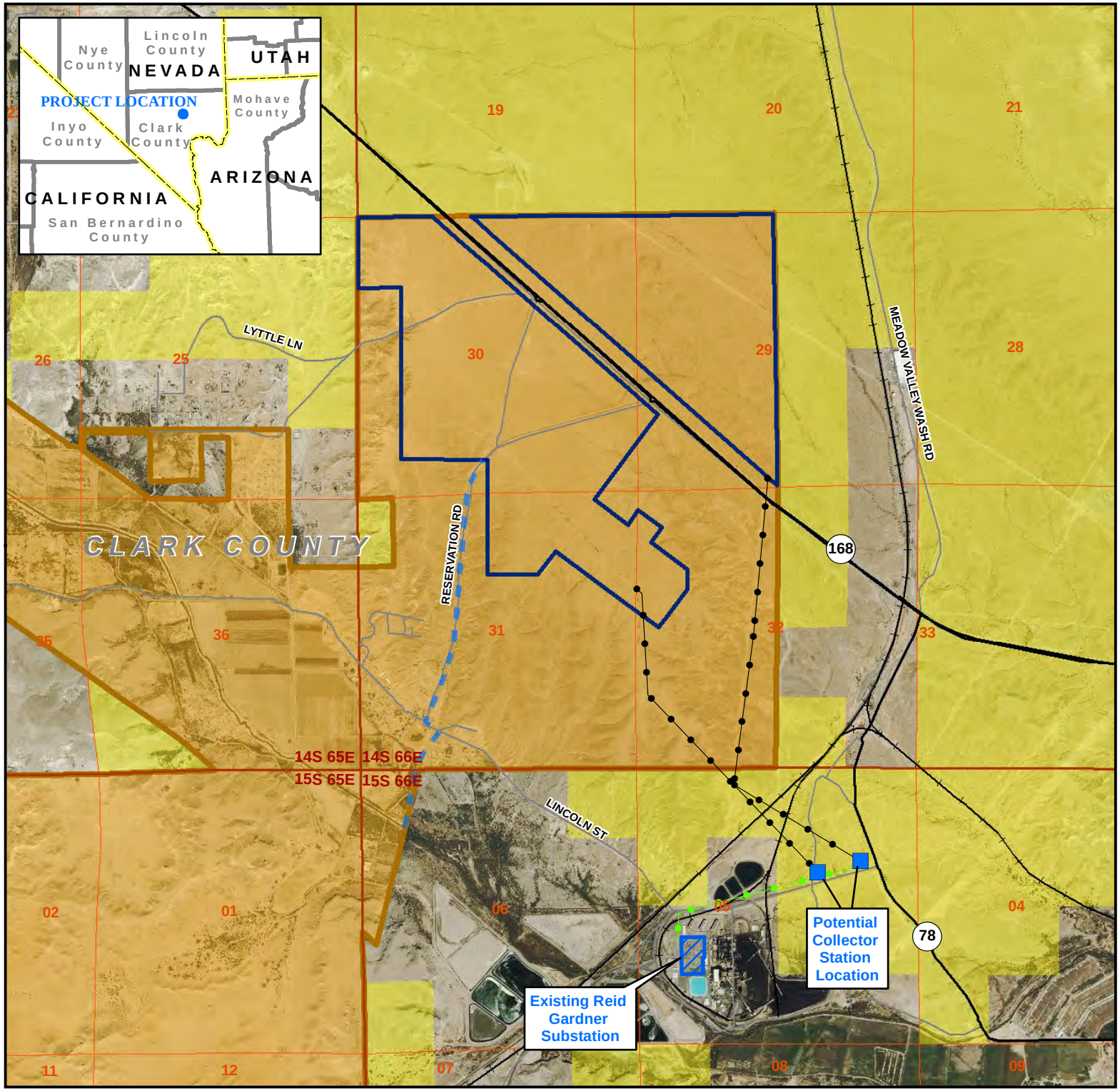
FIGURE 1

PROJECT LOCATION

Map Extent: Clark County, Nevada

Date: 03-24-15		Author: rnc

G:\Aiya Solar Project/MXD's/Project Location 8.5x11 032415.mxd



Legend

- Potential Collector Station Location
- Gen-Tie Routes
- Double-Circuit Line
- Water Pipeline
- State Highway
- Road
- Railroad
- Project Area
- Existing Substation
- County Boundary
- Township / Range Boundary
- Section Boundary

Jurisdictional Land Ownership

- Bureau of Land Management Land
- Tribal Land

0 0.25 0.5 0.75 1

Miles

State Plane
North American Datum 1983
Nevada East, FIPS 2701, Feet

Aiya Solar Project

FIGURE 2
PROJECT AREA

Map Extent: Clark County, Nevada

Date: 03-18-15		Author: rnc

I:\Solar Projectt/MXD's/Project Area

APPENDIX A

NEVADA DESIGNATED NOXIOUS WEED SPECIES

TABLE A-1 – DESIGNATED NOXIOUS AND INVASIVE WEED SPECIES OF THE STATE OF NEVADA

Common Name	*Scientific Name*	*State of Nevada Category*[1]
African rue	*Peganum harmala*	A
Austrian fieldcress	*Rorippa austriaca*	A
Black henbane	*Hyoscyamus niger*	A
Camelthorn	*Alhagi pseudalhagi*	A
Common crupina	*Crupina vulgaris*	A
Common St. Johnswort	*Hypercum perforatum*	A
Crimson fountaingrass	*Pennisetum setaceum*	A
Dalmation toadflax	*Linaria dalmatica*	A
Dyer's woad	*Isatis tinctoria*	A
Eurasian water-milfoil	*Myriophyllum spicatum*	A
Giant reed	*Arundo donax*	A
Giant salvinia	*Salvinia molesta*	A
Goatsrue	*Galega officinalis*	A
Houndstongue	*Cynoglossum officinale*	A
Hydrilla	*Hydrilla verticillata*	A
Iberian start thistle	*Centaurea iberica*	A
Klamath weed	*Hypericum perforatum*	A
Malta start thistle	*Centaurea melitensis*	A
Mayweed chamomile	*Anthemis cotula*	A
Mediterranean sage	*Salvia aethiopis*	A
Purple loosestrife	*Lythrum salicaria, L. virgatum*	A
Purple start thistle	*Centaurea calcitrapa*	A
Rush skeletonweed	*Chondrilla juncea*	A
Sow thistle	*Sonchus arvensis*	A
Spotted knapweed	*Centaurea masculosa*	A
Squarrose star knapweed	*Centaurea virgate Lam Var. squarrose*	A
Sulfur cinquefoil	*Potentilla recta*	A
Swainsonpea	*Sphaerophysa salsula*	A
Syrian bean caper	*Zygophyllum fabago*	A
Yellow starthistle	*Centaurea solstiltialis*	A
Yellow toadflax	*Linaria vulgaris*	A
Carolina horse-nettle	*Solanum carolinense*	B
Diffuse knapweed	*Centaurea diffusa*	B
Leafy spurge	*Euphorbia esula*	B
Medusahead	*Taeniatherum caput-medusae*	B
Musk thistle	*Carduus nutans*	B
Russian knapweed	*Acroptilon repens*	B
Sahara mustard	*Brassica tournefortii*	B
Scotch thistle	*Onopordum acanthium*	B
Silverleaf nightshade	*Solanum elaegnifolium*	B

TABLE A-1 – DESIGNATED NOXIOUS AND INVASIVE WEED SPECIES OF THE STATE OF NEVADA

Common Name	*Scientific Name*	*State of Nevada Category*[1]
White horse-nettle	*Solanum carolinense*	B
Canada thistle	*Cirsium arvense*	C
Hoary cress	*Cardaria draba*	C
Johnson grass	*Sorghum halepense*	C
Perennial pepperweed	*Lepidium latifolium*	C
Poison hemlock	*Conium maculatum*	C
Puncture vine	*Tribulus terrestris*	C
Salt cedar (tamarisk)	*Tamarix spp.*	C
Water hemlock	*Cicuta maculate*	C

[1] A: Weeds not found or limited in distribution throughout the state; actively excluded from the state and actively eradicated where found; control required by the state in all infestations.

B: Weeds established in scattered populations in some counties of the state; actively excluded where possible; control required by the state in areas where populations are not well established or previously unknown to occur.

C: Weeds currently established and generally widespread in many counties of the state; abatement at the discretion of the State Quarantine Officer.

APPENDIX B

ADJUVANT AND HERBICIDE FORMULAS APPROVED BY THE BLM

Adjuvants Approved for Use on BLM Administered Lands				
				Update: May 14, 2014
Adjuvant Class	Adjuvant Type	Trade Name	Manufacturer	Comments
Surfactant				
	Non-ionic Surfactant			
		Agrisolutions Preference	Agriliance, LLC.	WA Reg. No. 1381-50011
		A-90	Alligare, LLC	
		Alligare Surface	Alligare, LLC	
		Alligare Surface West	Alligare, LLC	
		Aqufact	Aqumix, Inc.	
		Brewer 90-10	Brewer International	
		No Foam A	Creative Marketing & Research, Inc.	CA Reg. No. 1050775-50015
		Aquafact	Crop Production Services	
		Baron	Crown (Estes Incorporated)	
		Audible 80	Exacto, Inc.	
		Audible 90	Exacto, Inc.	
		N.I.S. 80	Estes Incorporated	
		Ad Spray 90	Helena Chemical Company	WA Reg. No. 5905-70020
		Inlet	Helena Chemical Company	CA Reg. No. 5905-50099-AA
		Spec 90/10	Helena Chemical Company	
		Spret	Helena Chemical Company	CA Reg. No.
		Optima	Helena Chemical Company	CA Reg. No. 5905-50075-AA
		Induce	Setre (Helena)	CA Reg. No. 5905-50066-AA
			Helena Chemical Company	CA Reg. No. 5905-50091-AA
		Induce pH	Helena Chemical Company	
		Activator 90	Loveland Products Inc.	CA Reg. No. 34704-50034-AA
		LI-700	Loveland Products Inc.	CA Reg. No. 34704-50035
				WA Reg. No. AW36208-70004
		Scanner	Loveland Products Inc.	CA Reg. No. 34704-50064
				WA Reg. No. 34704-09003
		Spreader 90	Loveland Products Inc.	WA Reg. No. 34704-05002-AA
		UAP Surfactant 80/20	Loveland Products Inc.	
		X-77	Loveland Products Inc.	CA Reg. No. 34704-50044
		Magnify	Monterey AgResources	CA Reg. No. 17545-50018
		Range Master	ORO Agri Inc.	
		NIS 90:10	Precision Laboratories, LLC	CA Reg. No. 9349-50002-AA
				WA Reg. No. 9349-13001
		Elite Platinum	Red River Specialties, Inc.	
		Red River 90	Red River Specialties, Inc.	
		Red River NIS	Red River Specialties, Inc.	
		Cornbelt Premier 90	Van Diest Supply Co.	

		Cornbelt Trophy Gold	Van Diest Supply Co.	
		Spray Activator 85	Van Diest Supply Co.	
		NIS-EA	Wilbur-Ellis	
		R-900	Wilbur-Ellis	
		Super Spread 90	Wilbur-Ellis	WA Reg. No. AW-2935-70016
		Super Spread 7000	Wilbur-Ellis	CA Reg. No. 2935-50170
				WA Reg. No. AW-2935-0002
		Agrisolutions Activate Plus	Winfield Solutions, LLC	CA Reg. No. 9779-50004-AA
				WA Reg. No. 1381-09001
		Agrisolutions Preference	Winfield Solutions, LLC	WA Reg. No. 1381-50011
Adjuvant	**Adjuvant**	**Trade**		
Class	**Type**	**Name**	**Munufacturer**	**Comments**
Surfactant				
	Spreader/Sticker			
		Agri-Trend Spreader	Agri-Trend	
		TopFilm	Biosorb, Inc.	
		Onside Kick	Exacto, Inc.	
		Bind-It	Estes Incorporated	
		Surf-King PLUS	Crown (Estes Incorporated)	
		CWC 90	CWC Chemical, Inc.	
		Cohere	Helena Chemical Company	CA Reg. No. 5905-50083-A
		Attach	Loveland Products Inc.	CA Reg. No. 34704-50026
		Bond	Loveland Products Inc.	CA Reg. No. 36208-50005
		Bond Max	Loveland Products Inc.	CA Reg. No. 34704-50060
				WA Reg. No. 34704-08003
		Tactic	Loveland Products Inc.	CA Reg. No. 34704-50041-AA
		Widespread Max	Loveland Products Inc.	CA Reg. No. 34704-50061
				WA Reg. No. 34704-09001
		Rocket DL	Monterey AgResources	CA Reg. No. 17545-50019
		Nu-Film-IR	Miller Chem. & Fert. Corp.	
		Nu Film 17	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50021-AA
		Nu Film P	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50022-AA
		Protyx	Precision Laboratories, LLC	WA Reg. No. 9349-13002
		Lastick	Setre (Helena)	
		Insist 90	Wilbur-Ellis	
		R-56	Wilbur-Ellis	CA Reg. No. 2935-50144
		Aqua-King Plus	Winfield Solutions, LLC	
		Surf-King Plus	Winfield Solutions, LLC	
	Silicone-based			
		Alligare OSS/NIS	Alligare, LLC	
		SilEnergy	Brewer International	

		Silnet 200	Brewer International	
		Scrimmage	Exacto, Inc.	
		Bind-It MAX	Estes Incorporated	
		Thoroughbred	Estes Incorporated	
		Aero Dyne-Amic	Helena Chemical Company	CA Reg. No. 5905-50080-AA
		Dyne-Amic	Helena Chemical Company	CA Reg. No. 5095-50071-AA
		Kinetic	Setre (Helena)	CA Reg. No. 5905-50087-AA
		Freeway	Loveland Products Inc.	CA Reg. No. 34704-50031
				WA Reg. No. 34704-04005
		Phase	Loveland Products Inc.	CA Reg. No. 34704-50037-AA
		Phase II	Loveland Products Inc.	
		Silwet L-77	Loveland Products Inc.	CA Reg. No. 34704-50043
		Speed	Precision Laboratories, LLC	
		Elite Marvel	Red River Specialties, Inc.	
		Sun Spreader	Red River Specialties, Inc.	
		Syl-coat	Wilbur-Ellis	CA Reg. No. 2935-50189
				WA Reg. No. 2935-12002
		Sylgard 309	Wilbur-Ellis	CA Reg. No. 2935-50161
		Syl-Tac	Wilbur-Ellis	CA Reg. No. 2935-50167
		Thoroughbred	Winfield Solutions, LLC.	
Adjuvant	**Adjuvant**	**Trade**		
Class	**Type**	**Name**	**Munufacturer**	**Comments**
Oil-based				
	Crop Oil Concentrate			
		Alligare Forestry Oil	Alligare, LLC	
		Brewer 83-17	Brewer International	
		CWR Herbicide Activator	Creative Marketing & Research, Inc.	CA Reg. No. 1050775-50020-AA
		Majestic	Crown (Estes Incorporated)	
		Agri-Dex	Helena Chemical Company	CA Reg. No. 5905-50094-AA
		Crop Oil Concentrate	Helena Chemical Company	CA Reg. No. 5905-50085-AA
		Power-Line Crop Oil	Land View Inc.	
		Crop Oil Concentrate	Loveland Products Inc.	
		Maximizer Crop Oil Conc.	Loveland Products Inc.	CA Reg. No. 34704-50059
				WA Reg. No. 34704-08002
		Herbimax	Loveland Products Inc.	CA Reg. No. 34704-50032-AA
				WA Reg. No. 34704-04006
		Monterey M.S.O.	Monterey AgResources	CA Reg. No. 17545-50025
		Exchange	Precision Laboratories, LLC	WA Reg. No. 9349-13008
		Red River Forestry Oil	Red River Specialties, Inc.	
		Red River Pacer Crop Oil	Red River Specialties, Inc.	
		Cornbelt Crop Oil Concentrate	Van Diest Supply Co.	

		Cornbelt Premium Crop Oil Concentrate	Van Diest Supply Co.	
		R.O.C. Rigo Oil Conc.	Wilbur-Ellis	
		Mor-Act	Wilbur-Ellis	CA Reg. No. 2935-50098
		Agrisolutions Prime Oil	Winfield Solutions, LLC	CA Reg. No. 979-50002-AA
		Agrisolutions Superb HC	Winfield Solutions, LLC	WA Reg. No. 1381-06003
	Methylated Seed Oil			
		Alligare MSO	Alligare, LLC	
		Alligare MSO West	Alligare, LLC	
		MSO Concentrate	Alligare, LLC	
		SunEnergy	Brewer International	
		Sun Wet	Brewer International	
		Premium MSO	Helena Chemical Company	
		Methylated Spray Oil Conc.	Helena Chemical Company	
		MSO Concentrate	Loveland Products Inc.	CA Reg. No. 34704-50029-AA
		Kixyt	Precision Laboratories, LLC.	WA Reg. No. 9349-12001
		Persist Ultra	Precision Laboratories, LLC.	CA Reg. No. 9349-50005
				WA Reg. No. 9349-13003
		Elite Supreme	Red River Specialties, Inc.	
		Red River Supreme	Red River Specialties, Inc.	
		Sunburn	Red River Specialties, Inc.	
		Sunset	Red River Specialties, Inc.	
		Cornbelt Base	Van Diest Supply Co.	
		Cornbelt Methylates Soy-Stik	Van Diest Supply Co.	
		Hasten	Wilbur-Ellis	CA Reg. No. 2935-50160
				WA Reg. No. 2935-02004
		Renegade 2.0	Wilbur-Ellis	CA. Reg. No. 2935-50194
				WA Reg. No. 2935-13001
		Super Kix	Wilbur-Ellis	
		Super Spread MSO	Wilbur-Ellis	
		Agrisolutions Destiny HC	Winfield Solutions, LLC	WA Reg. No. 1381-09002
		Atmos	Winfield Solutions, LLC	
Adjuvant	**Adjuvant**	**Trade**		
Class	**Type**	**Name**	**Munufacturer**	**Comments**
Oil-based (cont.)				
	Methylated Seed Oil + Organosilicone			
		Alligare MVO Plus	Alligare, LLC	
		Inergy	Crown (Estes Incorporated)	
		Inergy	Winfield Solutions, LLC	
	Vegetable Oil			
		Motion	Exacto, Inc.	

		Noble	Estes Incorporated	
		Amigo	Loveland Products Inc.	CA Reg. No. 34704-50028-AA
				WA Reg. No. 34704-04002
		Elite Natural	Red River Specialities	
		Competitor	Wilbur-Ellis	CA Reg. No. 2935-50173
				WA Reg. No. AW-2935-04001
Fertilizer-based				
	Nitrogen-based			
		Quest	Setre (Helena)	CA Reg. No. 5905-50076-AA
		Quest	Helena Chemical Company	CA Reg. No. 5905-50076-AA
		TransActive HC	Helena Chemical Company	
		Actamaster Spray Adjuvant	Loveland Products Inc.	WA Reg. No. 34704-50006
		Actamaster Soluble Spray Adjuvant	Loveland Products Inc.	WA Reg. No. 34704-50001
		Dispatch	Loveland Products Inc.	
		Dispatch 111	Loveland Products Inc.	
		Dispatch 2N	Loveland Products Inc.	
		Dispatch AMS	Loveland Products Inc.	
		Flame	Loveland Products Inc.	
		Cornbelt Gardian	Van Diest Supply Co.	
		Cornbelt Gardian Plus	Van Diest Supply Co.	
		Bronc	Wilbur-Ellis	
		Bronc Max	Wilbur-Ellis	
		Bronc Max EDT	Wilbur-Ellis	
		Bronc Plus Dry	Wilbur-Ellis	
		Bronc Plus Dry EDT	Wilbur-Ellis	WA Reg. No.2935-03002
		Bronc Total	Wilbur-Ellis	
		Cayuse Plus	Wilbur-Ellis	CA Reg. No. 2935-50171
		Agrisolutions Alliance	Winfield Solutions, LLC	CA Reg. No. 1381-50002-AA
				WA Reg. No.1381-05005
		Agrisolutions Class Act NG	Winfield Solutions, LLC	WA Reg. No. 1381-01004
		Agrisolutions Corral AMS Liquid	Winfield Solutions, LLC	WA Reg. No. 1381-01006
Special Purpose or Utility				
	Buffering Agent			
		Yardage	Exacto, Inc.	
		Buffers P.S.	Helena Chemical Company	CA Reg. No. 5905-50062-ZA
		Spray-Aide	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50006-AA
		Oblique	Red River Specialties, Inc.	
		Brimstone	Wilbur-Ellis	
		Tri-Fol	Wilbur-Ellis	CA Reg. No. 2935-50152
Adjuvant	**Adjuvant**	**Trade**		

Class	Type	Name	Munufacturer	Comments
Special Purpose or Utility - cont.				
	Colorants/Dyes			
		Hi-Light	Becker-Underwood	
		Hi-Light WSP	Becker-Underwood	
		Hash Mark Green Powder	Exacto, Inc.	
		Hash Mark Green Liquid	Exacto, Inc.	
		Hash Mark Blue Powder	Exacto, Inc.	
		Hash Mark Blue Liquid HC	Exacto, Inc.	
		Hash Mark Blue Liquid	Exacto, Inc.	
		Spray Indicator XL	Helena Chemical Company	
		Marker Dye	Loveland Products Inc.	
		TurfTrax	Loveland Products Inc.	
		TurfTrax Blue Spray Indicator	Loveland Products Inc.	
		BullsEye	Milliken Chemical	
		Mark-It Blue	Monterey AgResources	
		Mark-It Red	Monterey AgResources	
		Signal	Precision	
		SPI-Max Blue Spray Marker	PROKoZ	
		Elite Splendor	Red River Specialities, Inc.	
		Mystic HC	Winfield Solutions, LLC	
	Compatibility/Suspension Agent			
		E Z MIX	Loveland Products Inc.	CA Reg. No. 36208-50006
		Support	Loveland Products Inc.	WA Reg. No. 34704-04011
		Convert	Precision Laboratories, LLC	WA Reg. No. 9349-13007
		Blendex VHC	Setre (Helena)	
	Deposition Aid			
		Alligare Pattern	Alligare, LLC	
		Cygnet Plus	Brewer International	CA Reg. No. 1051114-50001
		Poly Control 2	Brewer International	
		CWC Sharpshooter	CWC Chemical, Inc.	
		Offside	Exacto, Inc.	
		Clasp	Helena Chemical Company	WA Reg. No. 5905-13002
		Grounded	Helena Chemical Company	
		Grounded - CA	Helena Chemical Company	CA Reg. No. 5905-50096-AA
		ProMate Impel	Helena Chemical Company	
		Pointblank	Helena Chemical Company	CA Reg. No. 52467-50008-AA-5905
		Strike Zone DF	Helena Chemical Company	CA Reg. No. 5905-50084-AA
		Compadre	Loveland Products Inc.	CA Reg. No. 34704-50050
				WA Reg. No. 34704-06004

		Intac Plus	Loveland Products Inc.	
		Liberate	Loveland Products Inc.	CA Reg. No. 34704-50030-AA
				WA Reg. No. 34704-04008
		Reign	Loveland Products Inc.	CA Reg. No. 34704-50045
				WA Reg. No. 34704-05010
		Reign LC	Loveland Products Inc.	CA Reg. No. 34704-50048
		Weather Gard	Loveland Products Inc.	CA Reg. No. 34704-50042-AA
		Mist-Control	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50011-AA
		Sustain	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50015-AA
		Exit	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50014-AA
		Border AQ	Precision Laboratories, LLC	WA Reg. No. 9349-13009
Adjuvant	**Adjuvant**	**Trade**		
Class	**Type**	**Name**	**Munufacturer**	**Comments**
Special Purpose or Utility - cont.				
	Deposition Aid - cont.			
		Direct	Precision Laboratories, LLC	
		Volare DC	Precision Laboratories, LLC	CA Reg. No. 9349-50004-AA
				WA Reg. No. 9349-13006
		Elite Secure Ultra	Red River Specialties, Inc.	
		Secure Ultra	Red River Specialties, Inc.	
		Sta Put	Setre (Helena)	CA Reg. No. 5905-50068-AA
		Agripharm Drift Control	Walco International	
		Bivert	Wilbur-Ellis	CA Reg. No. 2935-50163
		Coverage G-20	Wilbur-Ellis	
		Crosshair	Wilbur-Ellis	
		EDT Concentrate	Wilbur-Ellis	
		Droplex	Winfield Solution, LLC.	
		Agrisolutions Interlock	Winfield Solutions, LLC	
	Defoaming Agent			
		Fast Break	Agrisolutions	CA Reg. No. 1381-50006-AA
				WA Reg. No. 1381-50006
		Alligare Anti-Foamer	Alligare, LLC	
		Defoamer	Brewer International	
		Tripleline	Creative Marketing & Research, Inc.	CA Reg. No. 1050775-50023-AA
		Reverse	Exacto, Inc.	
		Foambuster Max	Helena Chemical Company	
		Fighter-F 10	Loveland Products Inc.	
		Fighter-F Dry	Loveland Products Inc.	
		Unfoamer	Loveland Products Inc.	CA Reg. No. 34704-50062
				WA Reg. No. 34704-09002
		Foam Fighter	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50005-AA

		Gundown Max	Precision Laboratories, LLC	WA Reg. No. 9349-13013
		Red River Defoamer	Red River Specialities, Inc.	
		Foam Buster	Setre (Helena)	CA Reg. No. 5905-50072-AA
		Cornbelt Defoamer	Van Diest Supply Co	
		FTF Defoamer	Wilbur-Ellis	WA Reg. No. 2935-13002
		No Foam	Wilbur-Ellis	CA Reg. No. 2935-50136
	Diluent/Deposition Agent			
		Improved JLB Oil Plus	Brewer International	
		JLB Oil Plus	Brewer International	
		Bark Oil EC	Crop Production Services	
		Bark Oil	Crop Production Services	
		Hy-Grade I	CWC Chemical, Inc	
		Hy-Grade EC	CWC Chemical, Inc	
		Elite Premier	Red River Specialties, Inc.	
		Elite Premier Blue	Red River Specialties, Inc.	
		Red River Basal Oil	Red River Specialties, Inc.	
		Thinvert TRU	Waldrum Specialities, Inc.	
		Thinvert Concentrate	Waldrum Specialities, Inc.	
		In-Place	Wilbur-Ellis	CA Reg. No. 2935-50169
		W.E.B. Oil	Wilbur-Ellis	CA Reg. No. 2935-50166
				WA Reg. No. AW 2935-70023
Adjuvant	**Adjuvant**	**Trade**		
Class	**Type**	**Name**	**Munufacturer**	**Comments**
Special Purpose or Utility - cont.				
	Foam Marker			
		Align	Helena Chemical Company	
		Tuff Trax Foam Concentrate	Loveland Products, Inc.	
		Trekker Trax	Loveland Products, Inc.	
		Red River Foam Marker	Red River Specialties, Inc.	
		R-160	Wilbur-Ellis	
	Invert Emulsion Agent			
		Redi-vert II	Wilbur-Ellis	CA Reg. No. 2935-50168
	Tank Cleaner			
		Wipe Out	Helena Chemical Company	
		All Clear	Loveland Products Inc.	
		Back Field	Exacto, Inc.	
		Tank and Equipment Cleaner	Loveland Products Inc.	
		Red River Tank Cleaner	Red River Specialties, Inc.	

		Elite Vigor	Red River Specialties, Inc.	
		Kutter	Wilbur-Ellis	
		Neutral-Clean	Wilbur-Ellis	
		Cornbelt Tank-Aid	Van Diest Supply Co.	
	Water Conditioning			
		Alligare Water Conditioner	Alligare, LLC	
		Rush	Crown (Estes Incorporated)	
		Completion	Exacto, Inc.	
		AccuQuest WM	Helena Chemical Company	
		Hel-Fire	Helena Chemical Company	
		Smoke	Helena Chemical Company	CA Reg. No. 5905-50104-AA
		Blendmaster	Loveland Products Inc.	
		Choice	Loveland Products Inc.	CA Reg. No. 34704-50027-AA
				WA Reg. No. 34704-04004
		Choice Xtra	Loveland Products Inc.	
		Choice Weather Master	Loveland Products Inc.	CA Reg. No. 34704-50038-AA
				WA Reg. No. 34704-05005
		Import	Precision Laboratories, LLC	WA Reg. No. 9349-14001
		Transport LpH	Precision Laboratories, LLC	
		Transport Plus	Precision Laboratories, LLC	WA Reg. No. 9349-13014
		Elite Imperial	Red River Specialities, Inc.	
		Cornbelt N-Tense	Van Diest Supply Co.	
		Climb	Wilbur-Ellis	CA Reg. No. 2935-50181
				WA Reg. No. 2935-09001
		Cut-Rate	Wilbur-Ellis	

APPENDIX C

EXAMPLE OF BLM PESTICIDE USE PROPOSAL SUBMITTAL FORM

UNITED STATE DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

PESTICIDE USE PROPOSAL

STATE: _____

COUNTY: _____

DISTRICT: _____

DURATION OF PROPOSAL: _____

_____

DATE: _____

PROPOSAL NUMBER: _____

EA REFERENCE NUMBER: _____

DECISION RECORD (DR) NUMBER:

LOCATION: _____

_____

ORIGINATOR – NAME: _____

ORIGINATOR – COMPANY: _____

ORIGINATOR – CONTACT INFORMATION: _____

PROPOSAL PREPARER - NAME: _____

PROPOSAL PREPARER – COMPANY: _____

PROPOSAL PREPARER – CONTACT INFORMATION: _____

I. APPLICATION INFORMATION – Including mixtures and adjuvants):

1. TRADE NAME(S): _____
2. COMMON NAME(S) _____
3. EPA REGISTRATION NUMBER(S): _____
4. MANUFACTURER(S): _____
5. METHOD OF APPLICATION: _____
6. MAXIMUM RATE OF APPLICATION – AS STATED IN THE EIS:
    a. Pounds Active Ingredient or Acid Equivalent: _____
7. MAXIMUM RATE OF APPLICATION – AS STATED ON THE LABEL:
    a. Formulated Product: _____
    b. Pounds Active Ingredient or Acid Equivalent: _____
8. INTENDED RATE OF APPLICATION:

a. Formulated Product: _____

b. Pounds Active Ingredient or Acid Equivalent: _____

9. APPLICATION DATE(S): _____

10. NUMBER OF APPLICATIONS: _____

II. PEST [List specific pest(s) and reason(s) for the proposed application of the pesticide]:

_____

_____

_____

III. DESIRED RESULTS OF THE APPLICATION – LINKED TO THE OBJECTIVES OF THE APPLICATION:

_____

_____

_____

_____

IV. APPLICATION SITE DESCRIPTION:

1. ESTIMATED NUMBER OF ACRES: _____

2. GENERAL DESCRIPTION (Describe land type or use, size, stage of growth of target species, soil characteristics, and any additional information that may be important in describing the area to be treated.)

_____

_____

_____

_____

_____

V. SENSITIVE ASPECTS AND PRECAUTIONS (Describe sensitive areas – marsh, endangered, threatened, candidate, and sensitive species habitat – and distance to application site. List measures to be taken to avoid impact to these areas):

_____

_____

_____

_____

_____

VI. NON-TARGET VEGETATION (Describe potential immediate and cumulative impacts to non-target pests in project area as a result of the pesticide application. Identify any planned mitigation measures that will be employed – BE GENERAL, SPECIFICS DISCUSSED IN THE EA):

_____

_____

_____

_____

_____

VII. INTEGRATED PEST MANAGEMENT PRACTICES CONSIDERED IN THE OVERALL PROJECT:

_____

_____

_____

VIII. SIGNATURES:

1. Pesticide Use Proposal's Originator: _____ Date: _____
   a. Company: _____
2. Certified Pesticide Applicator: _____ Date: _____
   a. License Number: _____
   b. Certifying Organization: _____
3. Field Office Pesticide/Noxious Weed Coordinator: _____ Date: _____
4. Field Office Manager: _____ Date: _____
5. BLM State Pesticide Coordinator: _____ Date: _____
6. Deputy State Director: _____ Date: _____

- Concur or Approved
- Not Concur or Disapproved
- Concur or Approved With Modifications
  - Any changes (modifications) to this proposal by the State Pesticide Coordinator will be listed in an attached memo to the manager requesting approval from the Deputy State Director.

APPENDIX D

EXAMPLE OF A BLM PESTICIDE APPLICATION RECORD FORM

(Insert PAR Form Example)

APPENDIX E

WEED STIPULATIONS FOR CONSTRUCTION PROJECTS ON BLM LAND

Weed Stipulations:

1. The Project proponent will limit the size of any vegetation and/or ground disturbance to the absolute minimum necessary to perform the activity safely an as designed. The project proponent will avoid creating soil conditions that promote weed germination and establishment.

2. At the onset of Project planning in the NEPA analysis phase, the Project proponent, Project lead or the LVFO noxious weed coordinator will complete the Risk Assessment Form for Noxious/Invasive Weeds. This will provide information about the methods of weed treatments and weed prevention schedules for the management of noxious weeds within the Project footprint. This will identify the level of noxious weed management necessary for stipulation 3 below.

3. The Project proponent will coordinate Project activities with the BLM Weed Coordinator (702-515-5295) regarding any proposed herbicide treatment. If herbicide treatment is needed, the Project proponent will prepare, submit, obtain and maintain a PUP for the proposed action. Weed treatments may include the use of herbicides, and only those herbicides approved for use on public lands by the BLM.

4. Before ground-disturbing activities begin, the Project proponent will review the weed risk assessment and prepare a weed management plan that will inventory and prioritize weed infestations for treatment within the Project footprint. Should the weeds spread beyond the Project footprint as a result of Project activity, these weeds will be treated as a part of the Project. This will include access routes.

5. The Project proponent will begin Project operations in weed-free areas whenever feasible before operating in weed-infested areas.

6. The Project proponent will locate pits and staging areas for the use of equipment storage, machine and vehicle parking or any other area needed for the temporary placement of people, machinery and supplies. These staging areas will be selected from locations that are relatively weed-free. The Project proponent will avoid or minimize all types of travel through weed-infested areas or restrict major activities to periods of time when the spread of seed or plant parts are least likely.

7. Project workers need to inspect, remove, and dispose of weed seed and plant parts found on their clothing and equipment. Disposal methods vary depending on the project.

8. The Project proponent will evaluate options, including area closures, to regulate the flow of traffic on sites where native vegetation needs to be established.

9. A noxious weed inventory will be performed for the Project footprint prior to any ground disturbing activities. The results of this initial inventory will be incorporated into the Weed Management Plan. The type of survey needed will depend on the size of the Project footprint.

10. The Project proponent shall be responsible for controlling all undesirable invading plant species (including listed noxious weeds and other invasive plants including as undesirable by federal, state or local authorities) within the boundaries of their authorization area and Bureau authorized ancillary facilities (e.g. access and utility corridors), including all operating and reclaimed areas, until revegetation activities have been deemed successful and responsibility released by the authorized officer. Control standards and measures proposed must conform to applicable state and federal regulations.

11. The Project proponent shall use weed-free seed for reclamation. Other organic products procured for erosion control, stabilization, or revegetation (e.g. straw bales, organic mulch) must be certified weed-free.

12. The Project proponent is responsible for ensuring that all Project related vehicles and equipment arriving at the site (including, but not limited to, drill rigs, dozers, support vehicles, pickups and passenger vehicles, including those of the operator, any contractor or subcontractor and invited visitors) do not transport noxious weeds onto the Project site. The Project proponent shall ensure that all such vehicles and equipment that will be traveling off constructed and maintained roads or parking areas within the Project area have been power-washed, including the undercarriage, since their last off-road use and prior to off-road use on the Project. When beginning off road use on the Project, such vehicles and equipment shall not harbor soil, mud or plant parts from another locale. Vehicles that have traveled in an off-road area known to have a significant weed population will have excessive dirt and debris knocked off that could harbor plant material or seeds from weeds. Seeds and plant parts will be collected, bagged and deposited in landfills through the waste disposal system when practical.

13. Should undesirable invasive plants become established on developed Project areas prior to reclamation reshaping; appropriate measures will be taken to ensure that invasive plants are eradicated prior to reclamation earthwork. Should undesirable invasive plants become established on reshaped areas prior to reclamation seeding; appropriate measures will be taken to ensure that invasive plants are eradicated prior to seeding the Project site.

Appendix D

Decommissioning Plan

CONCEPTUAL DECOMMISSIONING PLAN

AIYA SOLAR PROJECT

CLARK COUNTY, NEVADA

April 2015

Table of Contents

FIGURES

Acronyms and Abbreviations

BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CSP	Concentrating Solar Power
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
NEPA	National Environmental Policy Act
O&M	Operations and Maintenance
Project	Aiya Solar Project
PV	Photovoltaic
PPA	Power Purchase Agreement
RCRA	Resource Conservation and Recovery Act
Reservation	Moapa River Indian Reservation
SPGF	Solar Power Generation Facility
TSCA	Toxic Substances Control Act

1 Introduction

1.1 Purpose of the Decommissioning Plan

The purpose of this Decommissioning Plan is to establish the conceptual methodologies that would be employed for decommissioning activities associated with the permanent closure of the facilities at the Aiya Solar Project (Project or facility). The actual actions implemented in the facility closure would be determined based on the expected future use of the site. Therefore, a more detailed decommissioning plan would be developed in advance of the start of decommissioning activities.

The Project is expected to operate at a minimum for the life of its lease with the Tribe (30 years) and the term of its Power Purchase Agreement (PPA) or other energy contracts. Because much of the needed electrical infrastructure will have been developed, it is possible that the Solar Power Generation Facility (SPGF) would continue to be upgraded and used to generate solar energy even beyond the term of the initial lease and energy purchase agreements, remaining in solar energy production for the foreseeable future. It is also possible that the Tribe could re-purpose the Project site at the termination of solar project. Certain facility components such as the access road, electrical transmission lines, water pipeline, Operations and Maintenance (O&M) building, and others could be used to support other future uses on this site.

For purposes of developing this plan, it is assumed that if and when the Project is decommissioned, all Project structures and electrical equipment would be removed from the SPGF site and associated rights-of way (ROWs) and the disturbed areas would be reclaimed in accordance with the Restoration and Revegetation Plan.

This conceptual decommissioning plan addresses the following:

- Project Description
- Regulatory Criteria
- Decommissioning Activities
    - Pre-Decommissioning
    - Removal of Facilities
    - Hazardous Waste Management
    - Debris Management, Disposal, and Recycling
    - Post-Demolition Site Stabilization
- Project Decommissioning Costs and Bonding

As mentioned above, because this document addresses Project actions that would occur well in the future, it will be updated and finalized in the months prior to the scheduled decommissioning. This will ensure the final plan addresses the proposed future land use of the site and the applicable rules and regulations in place at that time.

2 Project Description

2.1 Project Area

The Proposed Project would be located approximately 40 miles northeast of Las Vegas in Clark County, Nevada (Figure 1). The solar project would be located on up to 900 leased acres within the Moapa River Indian Reservation (Reservation) in Mount Diablo Meridian, Township 14 South, Range 66 East, Sections 29, 30, 31,and 32. These lands are currently vacant with the exception of roads, pipelines, and transmission line ROWs.

The gen-tie line would be located on Reservation lands, Federal lands managed by the BLM south of the solar site within Section 5 of Township 15 South and Range 66 East, and private lands (owned by NV Energy) adjacent to the Reid-Gardner Substation. The temporary water pipeline associated with the Project would be located on the Reservation south of the solar site in Sections 30 and 31 in Township 14 South, Range 66 East and Section 6 of Township 15 South and Range 66 East. Figure 2 shows the location of the components of the proposed Project and associated facilities.

2.2 Proposed Project

The following describes the major features of the proposed Project. For a comprehensive description of the proposed Project, refer to the DEIS.

The project will consist of up to a 100 MW solar photovoltaic (PV) power generating facility on approximately 900 acres of land on the Reservation in Clark County, Nevada. Project components include on-site facilities, offsite facilities, and temporary facilities needed to construct the Project. The solar site is located entirely on the Reservation. Major on-site facilities are the solar field (comprised of multiple approximately 4 MW blocks of solar PV panels mounted on fixed tilt or tracking systems and associated equipment, a project substation, and O&M facilities. The offsite facilities include an approximately two-mile 230 kV gen-tie located on the Reservation, BLM-administered lands, and private lands. 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. Temporary facilities, which would be removed at the end of the construction period, include the offsite water intake and pipeline mentioned above and the on-site 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 bulk transmission system via the gen-tie, which would interconnect to NV Energy's existing 230kV Reid-Gardner Substation. Once additional planned generation in the area comes online, NV Energy may build a proposed collector station near the

existing Reid-Gardner Substation and, if so, the gen-tie would connect to it as well. The exact site of the collector station and construction timing would be determined by NV Energy.

Access Road

The Project would require vehicular access for construction, operation, and maintenance. Two short 20 foot-wide access roads would be constructed for the Project; these roads are located entirely on Reservation lands. The first would be approximately 100 feet in length and would connect the southern portion of the solar site with the State Highway 168. The second access road would connect the portion of the solar site located north of Highway 168 to the highway. The access roads would be utilized for delivery of all Project components, and would be used by workers traveling to and from the site for construction. The primary access road would be comprised of native graded and compacted dirt and may be improved to aggregate rock or paved for dust control. In addition, road improvements to Highway 168 may be required to facilitate construction of the access roads connecting to Highway 168.

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. The secondary access roads would connect Highway 168 to the project site to the north, but its entrance would be located further west along Highway 168 than that of the proposed primary access road. The secondary access road for the array south of Highway 168 would be located along the easternmost boundary of the southern array with its entrance located along Highway 168.

Water Pipeline

Water needed during construction would be provided via a new temporary metered intake installed in the Muddy River and a new temporary above-ground pipeline, approximately two miles in length to be constructed just outside the existing ROW of Reservation Road. The proposed pipeline route is shown on Figure 2. From the intake, the pipeline would travel north along a dirt road until it meets Reservation Road. The route continues north paralleling Reservation Road to the temporary stand tank on the Project site.

The new intake would be a temporary structure to be used during the 15-month construction period. The structure would most likely consist of a 2-foot by 2-foot pad with a mounted centrifugal pump capable of providing adequate capacity (up to 500 gallons per minute [gpm]) and lift required to get water from the Muddy River to the stand tank located on the project site via the proposed pipeline. The pumping apparatus would be located adjacent to the Muddy River with a flexible and/or rigid pipe intake located in the Muddy River.

The pipeline would be constructed of rigid pipe (most likely 10-inch HDPE fusion welded pipe). The pipe would be installed above grade and be supported by concrete (or equivalent) pipe supports approximately every 10 feet. The intake and water pipeline discussed above will be removed when construction is completed.

3 Regulatory Criteria

During the decommissioning process, all activities will be conducted in compliance with all applicable Federal and Tribal regulations in place at the time. Consultation with the Tribe, BIA, BLM, and any other involved entities would be conducted to ensure that all Federal and Tribal requirements are addressed.

The primary guidance documents for decommissioning will be the Final Decommissioning Plan (prepared just in advance of project closure) and the Restoration and Revegetation Plan.

Federal requirements involving hazardous wastes and toxic substances will also be followed during decommissioning activities. Among these are the Toxic Substances Control Act (TSCA) (15 U.S.C. §2601) that requires reporting, record-keeping and testing requirements and restrictions relating to the use and disposal of chemical substances and/or mixtures. TSCA also addresses the production, importation, use and disposal of specific chemicals (EPA 2011a). The Resource Conservation and Recovery Act (RCRA) (42 U.S.C. §6901) gives the EPA the authority to control hazardous waste from its generation until its disposal, including transportation, treatment, and storage (EPA 2011b).

Coordination with the Tribe and agencies throughout the life of the Project, including decommissioning, is critical so that applicable regulations are not violated and the public and the environment are not impacted by the Project.

4 Project Decommissioning

The procedures described for decommissioning are designed to promote public health and safety, environmental protection and compliance with applicable regulations. It is assumed that decommissioning will begin approximately 30 or more years after Project operation is initiated. The Project decommissioning plan may incorporate the sale of some of the facility components via the used equipment market and recycling of components. Decommissioning will be conducted in accordance with a Final Decommissioning Plan that will be developed in the months prior to decommissioning being initiated.

This decommissioning plan assumes that all equipment and facilities within and associated with the SPGF will be removed. The transmission lines, access road and water pipeline would also be restored to as close to its original state as practicable. A compliance inspection would be performed by BLM on the Project's BLM lands.

4.1 Pre-Decommissioning Activities

Pre-decommissioning activities will be conducted to prepare the Project for demolition. This would include assessing the existing site conditions and development of the Final Decommissioning Plan and schedule as described above.

An Environmental Site Assessment (ESA) will be conducted before any decommissioning activities occur. The ESA will document the existing conditions of the SPGF, including the location and presence of hazardous materials on the site. The results of the ESA will be used to define any remediation or cleanup methodologies that could be required and incorporated into the Final Decommissioning Plan. This documentation would ensure that areas containing hazardous materials can be decommissioned appropriately.

Other pre-decommissioning activities would include removing hazardous materials from the site including residues that occur in equipment. All operational liquids and chemicals are expected to be removed and disposed of as discussed in Section 4.4. Hazardous material and petroleum containers, pipelines, and other similar structures shall be rinsed clean, when feasible, and the waste liquid collected for off-site disposal.

Locations for decommissioned structures, non-hazardous waste, and debris will be designated on the Final Decommissioning Plan to facilitate the decommissioning process and off-site removal.

4.2 Removal of Facilities

Site decommissioning and equipment removal may take a year or more. Therefore, access roads, fencing, electrical power, and raw/sanitary water facilities will temporarily remain in place for use by the

decommissioning and restoration workers until no longer needed. Therefore, these components would be the last to be removed prior to site rehabilitation.

SPGF Above- and Below-Ground Facilities

Structures that need to be dismantled during decommissioning include the onsite substation, onsite O&M area, perimeter fence, solar field, and transformers and inverters. These structures will be dismantled and moved to designated areas for either recycling or disposal at an approved landfill.

Above-ground structures will be removed through mechanical or other approved methods. Below-ground structures will be removed or, upon agency approval, may remain in place to minimize soil disturbance. Below-ground facilities/utilities that potentially may be removed include pipelines, electrical lines and conduits, gas lines, and concrete slabs.

Any evaporation, stormwater holding, or construction/decommissioning water holding ponds will be closed by removing any non-biodegradable materials (e.g., high density polyethylene (HDPE) liners), along with any hard surface/non-draining layers that may have been used as base material. The pond(s) will then be filled with weed- and other contaminant free-fill and brought to grade level.

Gen-Tie Transmission Lines

If the gen-tie transmission lines will not continue to be utilized by the Tribe for another purpose at the time of Project decommissioning, the lines will be removed. Decommissioning of the gen-tie will consist of removal of all structures associated with the construction of the transmission line(s) to include, but not limited to overhead conductors and the removal of poles. All steel will be recycled and the foundations will be removed to a depth of at least 2 feet below the ground surface, unless the Tribe or BLM does not require removal of the foundations. Aluminum from overhead conductors will be recycled.

Roads

Access and on-site roads will remain in place to accomplish decommissioning at the end of the facility's life and would be one of the last Project components to be removed. If the graveled access road is not needed for other future uses by the Tribe or BLM, the gravel and base material would be removed and recycled or transported to an appropriate disposal site. The same is true of any on-site roads developed in the solar field.

After the road materials are removed, the roads will be restored to approximate preconstruction conditions in accordance with the Restoration and Revegetation Plan.

Water Pipeline

If the water pipeline would not be utilized by the Tribe for another purpose, it may be removed or, alternatively, isolated and left in place to minimize soil disturbance.

4.3 Debris Management, Disposal, and Recycling

All removed material and demolition debris will be placed in designated locations within the SPGF. Each stockpile will be transported off-site to either a used equipment market, off-site recycling center, or approved landfill depending on the material type. Debris will be broken down into manageable sizes so that transportation is simplified.

4.4 Hazardous Waste Management

All disposal and transportation of hazardous waste will be conducted under compliance with RCRA (42 U.S.C. §6901), and TSCA (15 U.S.C. §2601), and other regulations as needed. In areas where no record of hazardous waste exposure occurred, a visual inspection would be conducted as part of the post-operational ESA described earlier. If a concern is identified, further evaluation of the area shall occur and the area or structure will be treated accordingly. A licensed state waste contractor would be used to ensure that all required laws and regulations have been met and to address any remaining requirements needed to successfully close the Project.

4.5 Post-Demolition Site Stabilization

After all removal of existing structures of the SPGF and ancillary facilities, the Project area will be restored to topographic conditions similar to pre-construction. Then re-vegetation and reclamation activities required to return the disturbed areas to a pre-construction state will be conducted in accordance with the plans prepared as part of the Project. These plans include:

- Restoration and Revegetation Plan
- Noxious Weed Management Plan

The objectives of these plans include the following:

- Restore topography and reduce potential for erosion
- Restore habitat suitable to support desert fauna
- Implement the weed management program that minimizes the need for non-native species eradication.

5 Project Decommissioning Costs and Bonding

Prior to the issuance of any Project permits (e.g., Record of Decision, Right of Way Grants, Grants of Easements), the Applicant will provide performance and reclamation bonding in an amount sufficient to ensure the implementation of the approved Decommissioning Plan for restoration and performance.

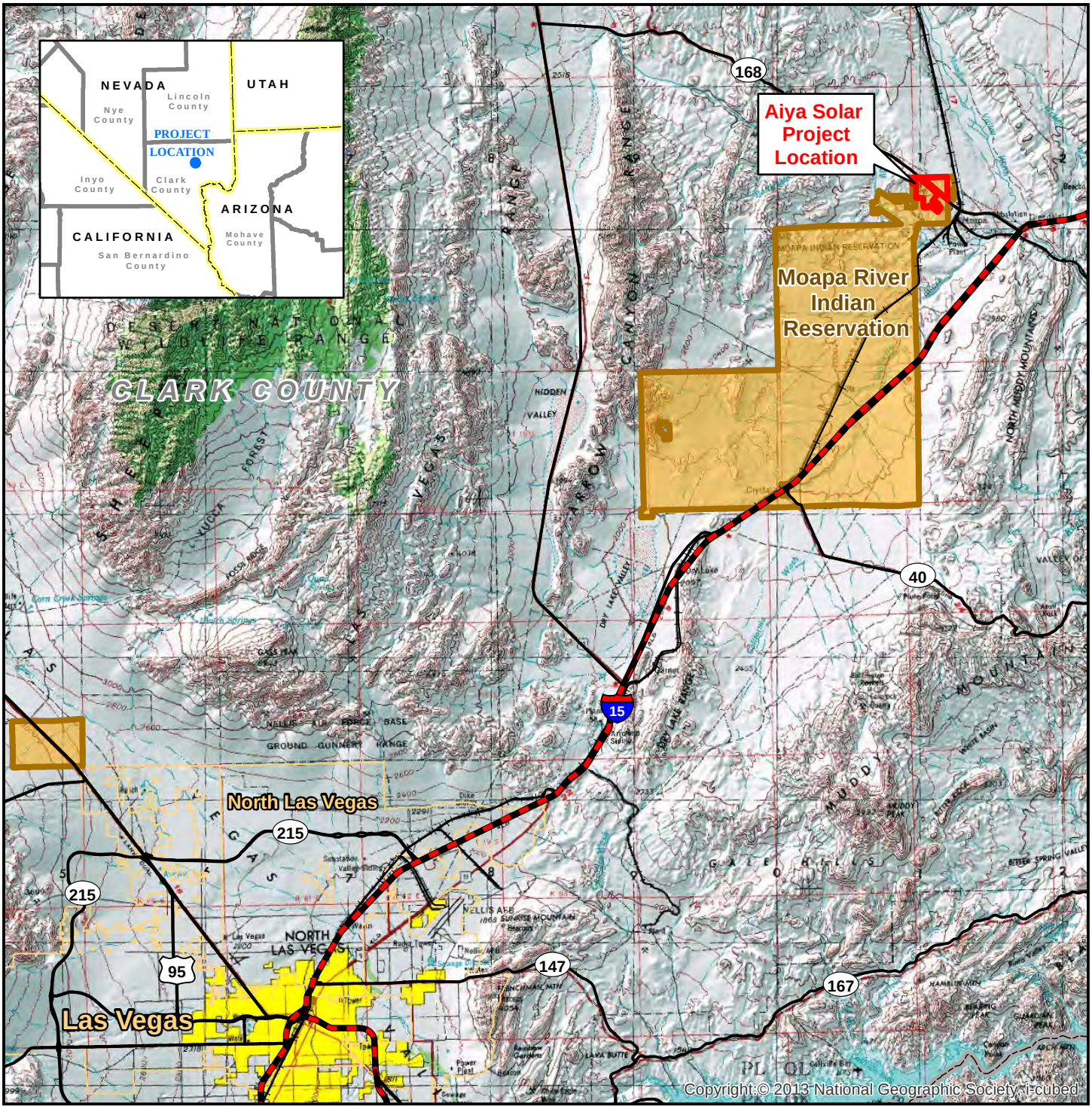
The bond instrument will be based on a decommissioning cost estimate provided by the Applicant and based on the final design of the Project. This estimate will consider any Project components that are expected to be left in place at the request of and for the benefit to the Tribe (e.g., gen-tie lines, access road, water pipeline). The decommissioning, performance and reclamation estimate will also include the residual value of any salvageable or recyclable property, as well as the then-current cost of decommissioning.

6 References

United States Environmental Protection Agency (EPA). 2011a. Summary of the Toxic Substances Control Act. http://www.epa.gov/lawsregs/laws/tsca.html.

United States Environmental Protection Agency (EPA). 2011b. Summary of the Resource Conservation and Recovery Act. http://www.epa.gov/lawsregs/laws/rcrs.html.

FIGURES



Legend

- Interstate
- US/ State Highway
- Railroad
- Solar Project Location
- Municipal Boundary
- Jurisdictional Land Ownership
- Indian Reservation

0 2 4 6 8 10

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Aiya Solar Project

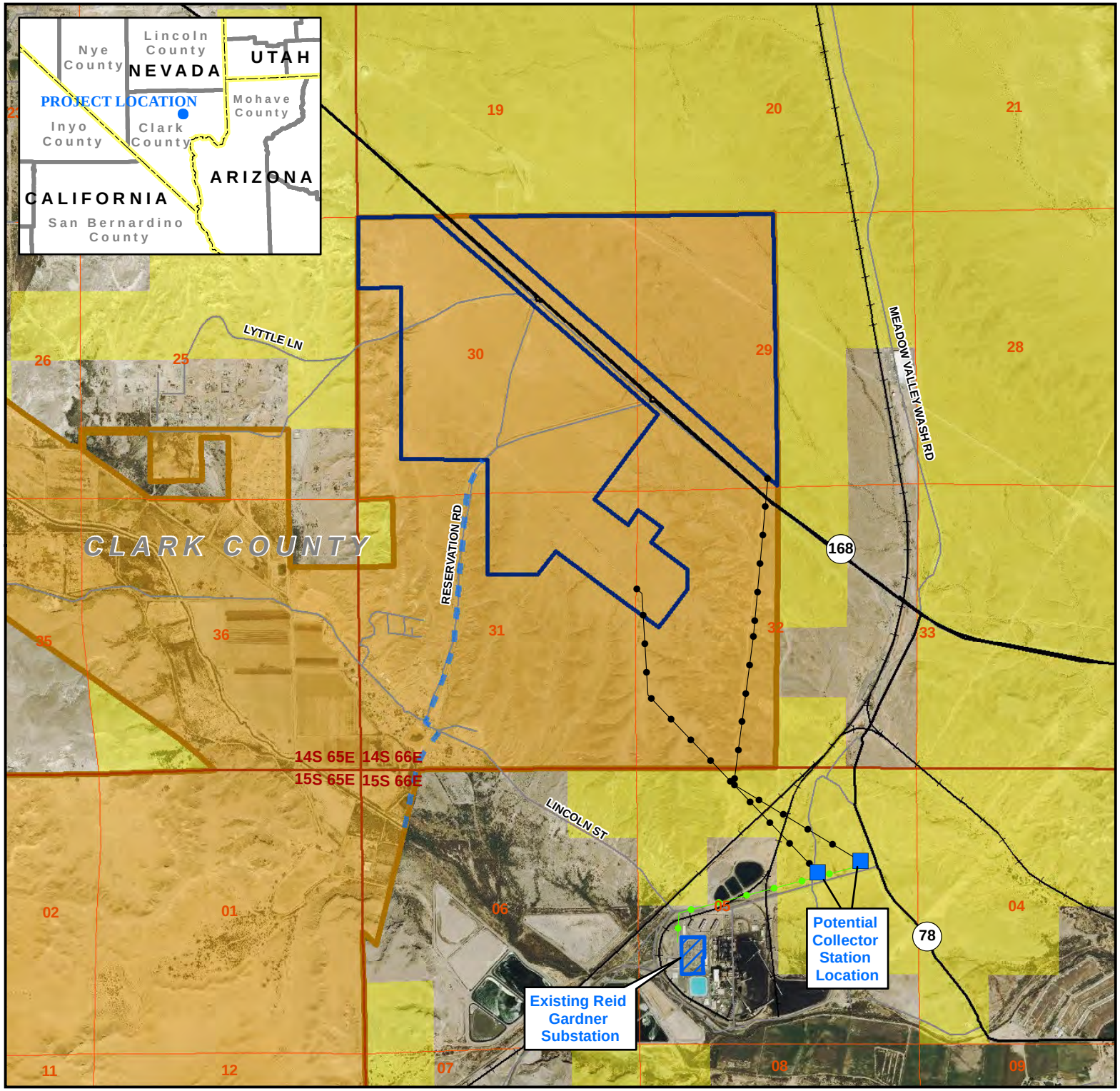
FIGURE 1

PROJECT LOCATION

Map Extent: Clark County, Nevada

Date: 03-24-15		Author: rnc

G:\Aiya Solar Project/MXD's/Project Location 8.5x11 032415.mxd



Legend

- Potential Collector Station Location
- Gen-Tie Routes
- Double-Circuit Line
- Water Pipeline
- State Highway
- Road
- Railroad
- Project Area
- Existing Substation
- County Boundary
- Township / Range Boundary
- Section Boundary

Jurisdictional Land Ownership

- Bureau of Land Management Land
- Tribal Land

0 0.25 0.5 0.75 1

Miles

State Plane
North American Datum 1983
Nevada East, FIPS 2701, Feet

Aiya Solar Project

FIGURE 2
PROJECT AREA

Map Extent: Clark County, Nevada

Date: 03-18-15		Author: rnc

I:\Solar Projectt/MXD's/Project Area

Appendix E

Restoration and Revegetation Plan

HABITAT RESTORATION AND REVEGETATION PLAN

AIYA SOLAR PROJECT

CLARK COUNTY, NEVADA

April 2015

Table of Contents

FIGURES

APPENDICES

TABLES

Acronyms and Abbreviations

BIA	Bureau of Indian Affairs
BMP	best management practice
BLM	Bureau of Land Management
HRRP	Habitat Restoration and Revegetation Plan
NDOW	Nevada Department of Wildlife
NRS	Nevada Revised Statute
O&M	Operations and Maintenance
Project	Aiya Solar Project
PV	Photovoltaic
Reservation	Moapa River Indian Reservation
ROW	right-of-way

1 Introduction

1.1 Purpose

The purpose of this Habitat Restoration and Revegetation Plan (HRRP) is to describe the proposed Aiya Solar Project (Project), considerations related to restoration and revegetation, and the various factors and methods to be applied toward restoring the site to as close to pre-project conditions as practicable. The goal of this HRRP and its successful implementation is to mitigate the potential impacts associated with the proposed Project and to facilitate managed and natural restoration of the site and impacted areas toward achieving pre-project or similar conditions.

The Environmental Impact Statement, Section 5.1 Mitigation Measures – Soils, states the following:

> *A Site Restoration and Revegetation Plan would be implemented to limit impacts to temporary disturbance areas as much as practicable. The Plan would define temporary disturbance areas and BMP measures for soil restoration and re-planting and establish monitoring and success criteria.*

The following procedure and task matrix identifies the specific Best Management Practices (BMPs) that will be implemented, as needed, to minimize disturbance and implement restoration and revegetation of the Project site.

TABLE 1-1 – PROCEDURES AND TASK MATRIX

BMP #	*Site Procedure(s)*	*Task Assignment and Schedule*
1	Minimize temporary disturbance areas as much as practicable.	Construction Supervisors and Staff will coordinate and perform work to minimize temporary disturbance areas as much as practicable.
2	Preserve site-specific materials for use in the restoration/revegetation phase, including topsoil, plants, and seeds, where practicable.	Construction Supervisors and Staff will preserve materials, as practicable, prior to the start of work.
3	Implement revegetation practices in a timely manner, thereby reducing secondary effects including soil erosion and establishment of noxious plant species.	Construction Supervisors and Environmental Managers will coordinate to ensure revegetation occurs within a timely manner.

2 Roles and Responsibilities

All site Project proponent employees, contractors, and sub-contractors will be familiar with the HRRP, and will be responsible for implementing aspects of this HRRP.

All Workers, Contractors, and Contractor Staff shall:

- Minimize initial disturbance to habitats within the proposed Project area;
- Preserve site-specific materials for use in the restoration/revegetation phase, including top-soil, plants, and seeds, where practicable;
- Use native, agency-approved plant species to revegetate temporarily disturbed areas;

Environmental Managers and/or Construction Supervisors shall:

- Implement revegetation practices in a timely manner, thereby reducing secondary effects including soil erosion and establishment of noxious plant species; and
- Coordinate to return the Project site to conditions similar to those that existed prior to Project-initiation by restoring soils, topography, plant species and their densities and distribution.

Individuals responsible for general program auditing and reporting include:

- Environmental Managers and Representatives, as they relate to restoration and revegetation measures.

3 Project Summary

3.1 Project Location

The proposed solar Project would be located approximately 40 miles northeast of Las Vegas in Clark County, Nevada (Figure 1). The Project would be located on up to 900 leased acres within the Moapa River Indian Reservation (Reservation) in Mount Diablo Meridian, Township 14 South, Range 66 East, Sections 29, 30, 31,and 32. These lands are currently vacant except for roads, pipelines, and transmission line rights-of way (ROWs).

The gen-tie line would be located on Reservation lands, Federal lands managed by the BLM south of the solar site within Section 5 of Township 15 South and Range 66 East, and private lands (owned by NV Energy) adjacent to the Reid-Gardner Substation. The temporary water pipeline associated with the Project would be located on the Reservation south of the solar site in Sections 30 and 31 in Township 14 South, Range 66 East and Section 6 of Township 15 South and Range 66 East. Figure 2 shows the location of the components of the proposed Project and associated facilities.

3.2 Project Description

The following describes the major features of the proposed Project. For a comprehensive description of the proposed Project, refer to the associated Aiya Solar Project Draft Environmental Impact Statement for the Project design details (subject to minor design changes).

The Project will consist of up to a 100 MW solar photovoltaic (PV) power generating facility. Project components include on-site facilities, off-site facilities, and temporary facilities needed to construct the Project. The solar site is located entirely on the Reservation. Major on-site facilities are the solar field (comprised of multiple approximately 4 MW blocks of solar PV panels mounted on fixed tilt or tracking systems and associated equipment, a project substation, and operation and maintenance (O&M) facilities. The off-site facilities include an approximately two-mile 230 kV gen-tie, portions of which are located on the Reservation, BLM-administered lands, and private lands. Additional off-site 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. Temporary facilities, which would be removed at the end of the construction period, include the off-site water intake and pipeline mentioned above and the on-site 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 bulk transmission system via the gen-tie, which would interconnect to NV Energy's existing 230kV Reid-Gardner Substation. Once additional planned generation in the area comes online, NV Energy may build a proposed collector station near the existing Reid-Gardner Substation and, if so, the gen-tie would connect to it also. The exact site of the collector station and construction timing would be determined by NV Energy.

Temporary disturbance areas would include the waterline, laydown areas, temporary disturbance areas needed for construction of the gen-tie and solar field, and parking areas needed for construction and staging of materials.

4 Vegetation

The Mojave Desert hosts a wide variety of vegetation, including approximately 250 species of annual herbaceous plants, at least 80 of which are endemic (Randall et al. 2010). These plants are typically tolerant of low humidity, prolonged droughts, desiccating winds, high alkalinity or salinity, rocky or very sandy soils, and the periodic influx of high quantities of water in the form of surface flooding (NDOW 2006).

The most commonly found plant species in the Mojave Desert are creosote bush and white bursage. Approximately 70 percent of the Mojave Desert is covered by creosote bush-white bursage associations. Species associated with creosote bush-white bursage communities in the Mojave Desert include Shockley's goldenhead (*Acamptopappus shockleyi*), Anderson's wolfberry (*Lycium andersonii*), range ratany (*Krameria parvifolia*), Mojave yucca (*Yucca schidigera*), California joint fir (*Ephedra funerea*), spiny hopsage (*Grayia spinosa*), and winterfat (*Krascheninnikovia lanata*). Other associated species are desert senna (*Cassia armata*), Nevada ephedra (*Ephedra nevadensis*) and white burrobrush (*Hymenoclea salsola*) (USDAFS 2010). Grasses regularly found are big galleta (*Pleuraphis rigida*), Indian rice grass (*Oryzopsishymenoides*), bush muhly (*Muhlenbergia porteri*), fluff grass (*Erioneuron pulchellum*), red brome (*Bromus rubens*), desert needle (*Stipa speciosa*), Arabian grass (*Schismus arabicus*), snakeweed (*Gutierrezia spp*), desert trumpet (*Eriogonum inflatum*), fourwing saltbush (*Atriplex canescens*) and desert grass (*Blepharidachne kingii*).

The proposed Project area is dominated by open stands of creosote bush and white bursage. Mojave xeroriparian, tamarisk/mesquite, and disturbed habitats are also present. Cactus species observed during the biological surveys were the beavertail pricklypear (*Opuntia bsilaris*), buckhorn cholla (*Cylindropuntia acanthocarpa*), cottontop cactus (*Echinocactus polycephalus*), and common fishhook cactus (*Mammillaria tetracistra*). The majority of the proposed Project area was homogeneous creosote bush – white bursage with sporadic inclusions of other species.

A list of plant species observed in the proposed Project area is presented in Table 4-1.

TABLE 4-1 – PLANT SPECIES OBSERVED ON PROPOSED PROJECT SITE

Common Name	*Scientific Name*
Creosote bush	*Larrea tridentata*
White bursage	*Ambrosia dumosa*
Desertsenna	*Senna armata*
Desert trumpet	*Eriogonum inflatum*
Big galleta	*Pleuraphis rigida*

TABLE 4-1 – PLANT SPECIES OBSERVED ON PROPOSED PROJECT SITE

Common Name	*Scientific Name*
Beavertail pricklypear	*Opuntia basilaris*
Buckhorn cholla	*Cylindropuntia acanthocarpa*
Devil's spineflower	*Chorizanthe rigida*
Desert globemallow	*Sphaeralcea ambigua*
Catclaw acacia	*Acacia greggii*
Rough jointfir	*Ephedra nevadensis*
Compact brome	*Bromus madritensis*
Mediterranean grass	*Schismus barbatus*
Threeawn	*Aristida purpurea*
Desert marigold	*Baileya multiradiata*
Wingnut cryptanth	*Cryptantha pterocarya*
Cleftleaf phacelia	*Phacelia crenulata*
Red brome	*Bromus tectorum*
Russian thistle	*Salsola tragus*
Gilia	*Gilia sp.*
Buckwheat	*Eriogonum sp.*
Threadleaf snakeweed	*Gutierrezia microcephala*
Cottontop cactus	*Echinocactus polycephalus*
Common fishhook cactus	*Mammillaria tetracistra*
Pincushion flower	*Chaenactis fremontii*
Brownplume wirelettuce	*Stephanomeria pauciflora*
Four o'clock	*Mirabilis sp.*
Desert indianwheat	*Plantago ovata*
Desert needlegrass	*Achnatherum speciosum*
Indian ricegrass	*Achnatherum hymenoides*
Low woollygrass	*Erioneuron pulchella*

Source: Newfields 2015a

4.1 Federally-Listed and Candidate, Threatened or Endangered Plant Species

4.1.1 Las Vegas Buckwheat

In April 2008, the Center for Biological Diversity (CBD) petitioned the U.S. Fish and Wildlife Service (USFWS) to protect the Las Vegas buckwheat (*Eriogonum corymbosum nilesii*) under the federal Endangered Species Act (ESA). The Las Vegas buckwheat was designated as a candidate for ESA listing on December 10, 2008. The Las Vegas buckwheat is also designated as a sensitive species by the BLM. The Las Vegas buckwheat is native to Las Vegas and is found in Clark and Lincoln counties.

The Las Vegas buckwheat was not observed on the proposed Project site or ROWs during biological surveys. The proposed Project site does not contain suitable habitat for this species and none were detected during biological surveys of the Project area.

4.2 State Protected, Regulated, Listed and BLM Special Status Vegetation Species

The following section applies to BLM controlled and private lands; the BIA has the discretion to utilize existing State regulatory guidelines as appropriate.

In the State of Nevada cacti and yucca are afforded protection. According to the Nevada Revised Statute (NRS 527.100):

> "*It is unlawful….to remove or possess any Christmas tree, cactus, yucca or branches thereof, or knowingly transport or sell any Christmas tree, cactus, yucca or its branches from any of the lands owned by or under the jurisdiction of the State of Nevada or its counties, or any reserved or unreserved lands owned by the United States, or from any privately owned lands, without permission from the legal owner, or the legal owner's duly authorized agent, specifying locality by legal land description and number of plants to be removed or possessed."*

4.2.1 Vegetation Species Not Present on Project Site

The following state-protected, regulated, listed and BLM special-status vegetation species were not detected on or near the Project site during vegetation surveys, and are lacking suitable habitat for the species within the Project area:

- Blue diamond cholla (*Cylindropuntia multigeniculata*)
- Three-corner milkvetch (*Astragalus geyeri* var. *triquetrus*)
- Beaverdam breadroot (*Pediomelum castoreum*)

- Rosy twotone beardtongue (*Penstemon bicolor* ssp. *roseus*)

4.2.2 Mojave Yucca

Mojave yucca is a common inhabitant of the creosote desert flats. This plant provides browse for a number of wildlife species during spring, summer, and fall. The flowerstalks and foliage of Mojave yucca are palatable to Merriam kangaroo rats (*Dipodomys merriami*), white-tailed antelope squirrels (*Ammospermophilus leucurus*), woodrats (*Neotoma* spp.), desert cottontails (*Sylvilagus auduboni*), black-tailed jackrabbits, and some wild ungulates during much of the year (USDA 2012). The Mojave yucca provides shelter and shade for many mammals, birds and reptiles. There is an obligate, mutualistic relationship between the Mojave yucca and the small white yucca moth (*Tegeticula yuccasella*). The sale and transport of Mojave yucca is protected and regulated by the State of Nevada under Nevada Revised Statute (NRS) and Nevada Administrative Code (NAC) Chapter 527. Mojave yucca is present on the proposed Project site.

4.2.3 State Protected and Regulated Cacti Species

Cacti are another type of vegetation common to the proposed Project site. Cacti and yuccas, which are protected under Nevada state law (NRS 527.100 – Protection and Preservation of Timbered Lands, Trees and Flora), were found throughout the upland portions of the proposed Project site **(Table 4-2)**.

TABLE 4-2 – STATE PROTECTED AND REGULATED CACTI OBSERVED ON PROPOSED PROJECT SITE

Scientific Name	*Common Name*	*Protection Status*
Mammillaria tetrancistra	common fishhook	CY
Echinocactus polycephalus	cottontop cactus	CY
Opuntia basilaris	Beavertail prickly pear cactus	CY
Yucca schidigera	Mojave yucca	CY

Source: Nevada Natural Heritage 2010.

CY = Protected as a Cactus, Yucca, or Christmas tree

4.2.4 Nye Milkvetch

Nye milkvetch (*Astragalus nyensis*) is not designated a sensitive species by the BLM or protected by the State of Nevada, though it is on the NNHP At-Risk Tracking List (G3 S3 [NNHP 2010]). It occurs in foothills of desert mountains, calcareous outwash fans and gravelly flats, and sometimes in sandy soil. No individuals were found, but suitable habitat for this species exists on the proposed Project site.

4.2.5 White Bearpoppy

The white bearpoppy (*Arctomecon merriamii*) is an evergreen perennial herb that blooms from April through July. This species is found in Nevada from Clark, Nye, and Lincoln counties on wide variety of dry to sometimes moist basic soils, including alkaline clay and sand, gypsum, calcareous alluvial gravels, and carbonate rock outcrops in chenopod scrub and rocky Mojave desert communities from 1,600 to 6,280 feet. The white bear poppy is listed as a special status species in Nevada by the BLM (NNHP 2001). The suitable habitats are limited to the badland areas on the perimeter of the Project and surveys did not detect this species within the proposed Project site or along the linear facilities.

5 Restoration Actions

5.1 Pre-Construction Tasks

Pre-construction tasks may include 1) perennial plant salvage and seed collection, 2) succulent plant salvage, 3) vegetation propagation, and/or 4) topsoil salvage.

The collection of locally-occurring seeds is an effective means of increasing the success of revegetation efforts because this resource represents local genetic variations, adaptations, and vigor of the plant species. However, seed collection can be labor- and time-intensive, costly, and often seed collection efforts fail to yield the type and quantity of seed required for full revegetative success. The application and effectiveness of performing on-site seed collection prior to the start of surface disturbing activities will be evaluated with the BIA, Tribe, and BLM, as appropriate.

In some cases, active local seed collection is not necessary, as the removed and stockpile topsoil contains a seed bank that can provide natural opportunities for reseeding. In situations where the local seed bank is insufficient or enough topsoil is not available to resurface and reclaim disturbed sites, commercially available certified weed-free seed would be obtained and used for reseeding. The seed mix would be approved by the BIA, Tribe, and BLM, as appropriate.

As previously described, aspects of the proposed Project occur on Tribal lands within the Moapa River Indian Reservation and on land managed by BLM. In instances of cacti and yucca relocation and salvaging, both the Tribe and BLM will be consulted for guidance. Cacti or yucca that occur in areas that are proposed for permanent disturbance may be subject to salvage operations and either transplanted at an approved off-site location, or in areas on-site that are not proposed for disturbance and suitable to supporting these plants. The Tribe will be consulted prior to transplanting cacti or yucca to off-site Tribal lands.

The BLM manages cacti and yucca as special forest products with a commercial value. As appropriate, cacti and yucca that occur in areas proposed for temporary disturbance will be removed and maintained onsite until temporary disturbance has concluded and appropriate restoration efforts have occurred to support replanting these plants in their original habitats. All cacti and yucca planting activities shall be conducted by a qualified salvage contractor. BLM requires contractors to have at least three years of experience in Mojave Desert plant salvaging, including maintaining cacti and yucca. On BLM lands, the contractor will also be required to use the BLM salvage protocol (included as **Appendix A**).

5.2 Post-Construction Tasks

Restoration and revegetation efforts at temporarily disturbed sites will begin as soon as practical after completing the soil disturbing activities. For sites that may be disturbed again during the construction phase, temporary soil covering, erosion control, and weed monitoring would occur until more permanent revegetation efforts can be applied.

Temporarily disturbed areas will be reclaimed as much as practicable prior to initiating specific revegetation efforts. Consistent with Nevada Guidelines for Revegetation and BLM or BIA requirements, salvaged topsoil would be replaced. Disturbed sites would be recontoured to pre-disturbance elevations, soils would be decompacted, and stockpiled topsoil will be replaced. The soil surface would then be textured, and succulents would be replanted. In instances when salvaged topsoil and its associated seed bank are not in sufficient supply or type, seed mixes approved by the BLM and Tribe will be used. Seed mixes shall be certified weed-free, obtained from local suppliers, and should preferentially be of native varieties that originate from within 1,000 feet elevation of the Project site. In cases where native seed are not available, the BLM and Tribe shall approve the use of non-native, non-invasive, naturalized species.

The use of stockpiled topsoil may not be appropriate or possible in all areas proposed for disturbance. In areas that stockpiled topsoil is not used during restoration and revegetation, the following practices will be implemented:

- Disturbed soil will be scarified, harrowed or disked, in order to prepare a seed bed;
- Native and/or naturalized seeds will be broadcast;
- Sowed seeds will be protected with a layer of weed-free mulch or straw;
- Seed contact with soil will be improved by disking or rolling; and
- Reseeded areas will be appropriately watered.

All restoration and revegetation efforts should be implemented as soon as practical after disturbance of a site has concluded and prior to the typical rainy season of late summer and early fall. This will minimize the potential for soil loss and establishment of noxious weeds, as well as maximize revegetation efforts. Reseeded reclaimed areas shall be watered as needed in order to promote seed propagation.

6 Phases of Restoration and Revegetation

Restoration and revegetation activities will occur primarily in two phases; 1) post-construction and 2) post-decommission.

6.1 Post-Construction

Post-construction restoration and revegetation activities focus on areas that have been temporarily disturbed and will not experience additional surface disturbing activities (e.g. service roads required during construction, equipment and material laydown areas, etc.). Seeds of native herbaceous plants will be used to revegetate temporary work areas and other areas that will not be disturbed following construction. Successful revegetation will decrease the potential for soil erosion, preserving suitable conditions for plant growth, as well as maintaining structural support and foundation for the installed solar modules (Section 8).

6.2 Post-Decommissioning

Post-decommission restoration and revegetation efforts will focus on all areas within the solar facility. Other features that occur beyond the solar facility on BLM administered lands, including roads and transmission lines, will not be restored or revegetated. Post-decommission restoration and revegetation will be based on similar regulations, guidelines, practices, and techniques as previously described in this report. The goal of post-decommission restoration and revegetation is to restore the Project site to conditions similar to pre-construction conditions.

7 Weed Management

Weed management for this Project will be conducted throughout the life of the Project and in accordance with the Project-specific Weed Management Plan.

8 Monitoring

The goal of restoration and revegetation both after construction and after decommissioning is to achieve plant densities and species compositions that reflect the native, non-invasive vegetative communities occurring in adjacent or nearby habitats. A qualified biologist that is familiar with Nevada flora and restoration practices will oversee the monitoring.

Qualitative and quantitative monitoring will be conducted per the schedule described in Table 8-1. Both quantitative and qualitative monitoring data will be used to evaluate recovery, identify the need for additional remediation, and inform a final decision to release the proponent from further responsibility. Monitoring of pre-construction restoration actions, such as plant salvage and seed collection, will be performed under the supervision of a qualified biologist or restoration ecologist.

TABLE 8-1 – RESTORATION MONITORING SCHEDULE

Task	*Year 1*	*Year 2*	*Years 3-5*	*Year 6*
Qualitative Monitoring				
Site inspections/visual assessments	Monthly	Quarterly	Biannually	Annually
Photo monitoring	Biannually	Annually	Annually	Annually
Quantitative monitoring				
Transect/plot monitoring	Annually	Annually	Annually	Annually

8.1 Qualitative Monitoring

Qualitative monitoring will be used to identify the trajectory of recovery and identify potential problems at an early stage so that corrective actions can be taken before the overall Project timeline is adversely affected. Qualitative monitoring will include documentation via photo points, site inspections and visual assessments made by the Project Biologist, Restoration Ecologist, or qualified staff member working under the guidance of the Project Biologist or Restoration Ecologist. A site-specific qualitative monitoring form should be developed and used to provide consistency throughout the monitoring period. The goal of qualitative monitoring is to document site conditions and evaluate the need for remediation to ensure that sites are progressing toward the success standard.

Qualitative monitoring should include: observations regarding the germination and establishment of species included in the seed mix; estimates of the success parameters (cover, density and richness of

perennial vegetation); and estimates of the density and richness of native annuals. Other site characteristics that should be observed and noted include: soil erosion, natural recruitment of native plant species, reproduction, nonnative plant species abundance, animal use, and patterns of establishing vegetation (i.e., presence of large interspaces).

8.2 Qualitative Monitoring

Quantitative monitoring will be used to objectively evaluate whether the Project has achieved sufficient progress so that it can be considered restored to a point where natural processes will complete recovery, and the proponent can be released from further responsibility. As part of quantitative monitoring, success parameters are measured on restored sites in the sixth growing season (or sooner if deemed appropriate) and compared to undisturbed reference areas to determine if the restoration standards have been met.

Sample locations within both the reference area and reclaimed area need to be randomly selected. Sample size adequacy should be calculated to ensure a sufficient number of samples are taken to estimate the means for success parameters with a given level of confidence. If the mean for a given success parameter is less than the standard (i.e., 70% of the reference area mean) a statistical comparison is made with a one sample, one-sided t-test (with a=0.10 and a=0.20). Failure to reject the null hypothesis that the reclaimed area value is greater than or equal to 70% of the reference area value for each parameter (cover and density) indicates that the site has been successfully reclaimed.

Species richness is evaluated by comparing the total number of native perennial plant species encountered in the measured area of the reclaimed site to that of the reference area. Species richness of the reference area is based on the same amount of area that was sampled within the restored site. Because species richness is based on the entire measured area of a site, there is no measure of variation, and therefore no statistical test can be performed. Therefore, a comparison of the absolute numbers of species to the reference area must be made.

8.2.1 Qualitative Performance Standards

Restoration will be considered successful if plant cover, density, and species richness of the dominant native perennial vegetation is equal to or exceeds a designated percentage of the values for these parameters in undisturbed reference areas. .

The annual performance targets in Table 8-2 are recommended to evaluate annual progress towards achieving the final standard. If progress substantially differs from these performance targets, remedial measures could be necessary to bring the Project back on schedule.

TABLE 8-2 – SIX YEAR PERFORMANCE TARGETS

	Year	*Transplant/ Container Survival*	*Native Perennial Species Cover*	*Density of Native Perennial Species*	*Richness of Native Perennial Species*	*Noxious Weed Cover*
Recommended Performance Targets	1	N/A	10%	>100%	60%	<2%
	2	N/A	20%	80%	60%	<2%
	3	N/A	30%	60%	60%	<2%
	4	N/A	40%	60%	60%	<2%
	5	N/A	50%	60%	60%	<2%
Final Performance Standard	**6**	**N/A**	**60%**	**60%**	**60%**	**<2%**

[1]Depending on conditions that affect seedling germination establishment and growth, achieving the final performance standard for cover may be less important, if density, species richness and other factors indicate an overall positive upward trend for the Project

9 Maintenance and Reporting

Regular maintenance and reporting are essential for Project success. Regular maintenance includes weeding and maintaining fencing, if constructed. Maintenance and reporting will be performed as described in Table 9-1.

TABLE 9-1 – RESTORATION MONITORING SCHEDULE

Task	*Year 1*	*Year 2*	*Years 3-5*	*Year 5*
Maintenance				
Weeding	As needed	As needed	Annually	Annually
Fencing Inspections/Repair	Monthly	Quarterly	Annually	Annually
Trash Removal	As needed	Quarterly	Annually	Annually
Reporting				
Upon Completion of Construction	As-built	-	-	-
Email Progress Reports	Quarterly	Quarterly	Biannually	N/A
Annual Report	Yes	Yes	Yes	Yes

9.1 As-Built Report

Within 30 days of the completion of Project construction, the As-Built report will be submitted to BLM and BIA as appropriate. The six-year monitoring, maintenance and reporting period will then begin. The purpose of the As-Built report is to document implementation of the pre- and post-construction restoration tasks described in Table 9-1 and describe any changes made during implementation. At a minimum, the As-Built report will include:

- Discussion of how the Project was implemented, key personnel responsible for the Project, any problems encountered, and how they were resolved.
- A chronology of the implementation with dates and names of contractors and key personnel responsible for implementing restoration tasks.
- Photo documentation of all milestone restoration tasks (i.,e. earthwork, seeding, signage)
- Copies of field notes or log entries from biological monitors present.
- A map of the restoration site indicating treatment locations, the location of photo points, quantitative reference sites and monitoring sites.

- Scans of the seed tags or any germination viability testing performed on wild collected seed used for seeding.
- Copies of dated invoices from applicable contractors and subcontractors that provided services for the Project.
- Baseline data collected for quantitative monitoring.

9.2 Progress Reports

Progress reports will be provided using the schedule described in Table 9-1. The purpose of the progress reports is to document regular site monitoring by the Project proponent or designated contractor. Progress reports are not expected to be extensive and are anticipated to be delivered in an email or similar format. At a minimum, the progress reports will include:

- The dates and name(s) of the biological monitor(s) completing the site assessments.
- A brief discussion of site conditions.
- A discussion of problems encountered with recommendations for corrective actions, if necessary.
- The dates and a brief description of all maintenance activities completed during the monitoring period.

9.3 Annual Report

Annual reports will be provided using the schedule described in Table 9-1. The annual report will be provided to BLM by December 31 of each calendar year. The purpose of the annual report is to summarize maintenance and monitoring activities for the year, document wildlife activity of the site, report the results of the annual qualitative and quantitative monitoring activities, compare current seasons findings with the base line and previous years to evaluate Project progress towards meeting annual performance targets the final performance standards, identify potential problems, and, if necessary, recommend corrective actions.

10 Corrective Actions

If the recommended annual performance goals are not achieved, corrective actions will be necessary. Making corrective actions early in the Project during the first or second growing season is particularly important to keeping the Project on schedule for completion in the six-year timeframe. Corrective actions could include, but are not limited to, reseeding, weed treatments, installing and maintaining container plantings, and installing protective fencing or wire cages to protect individual plants.

11 References

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Game, Sacramento, CA. 164 pages.

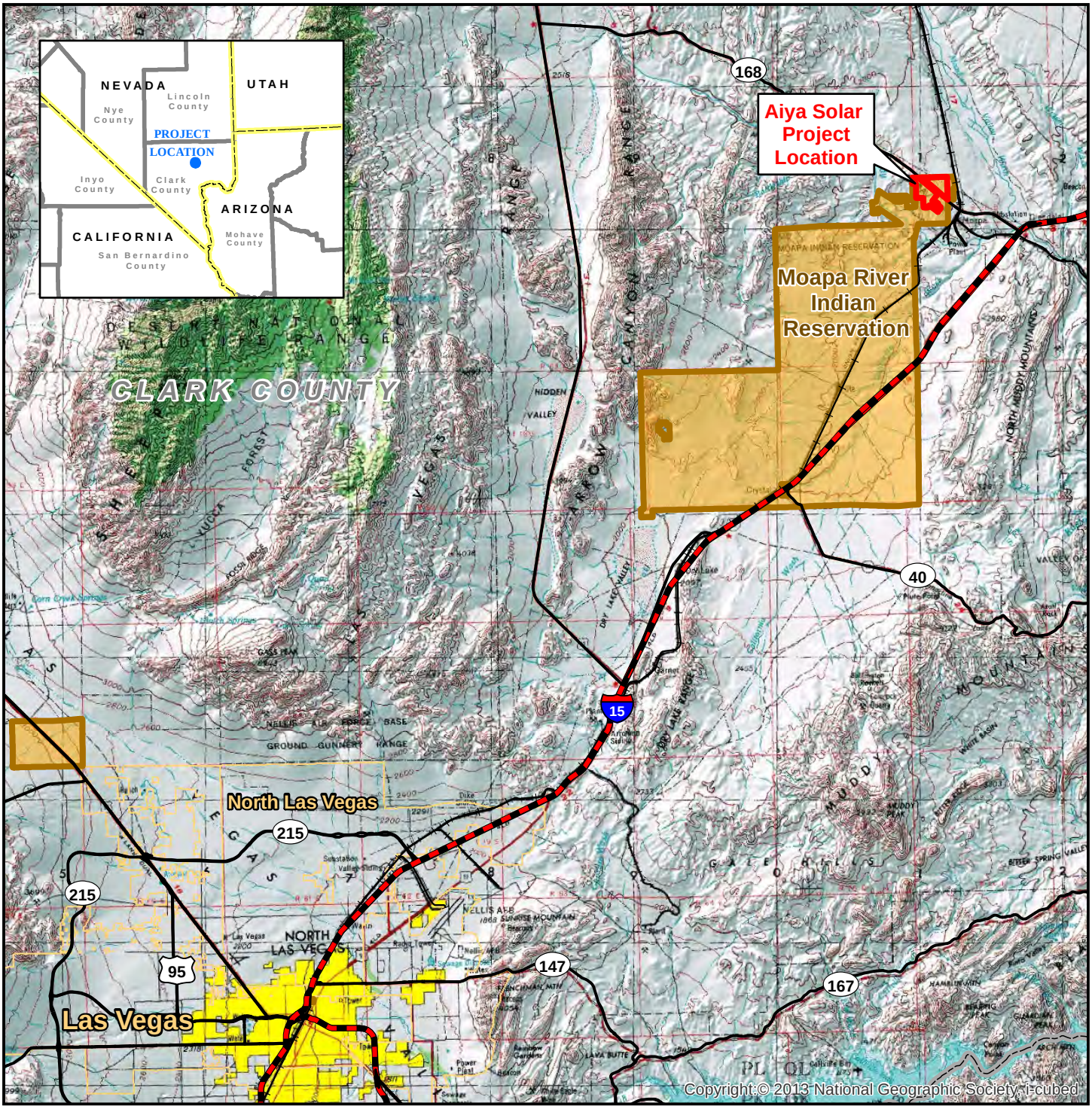
Mac, M.J., P.A. Opler, C.E. Puckett Haecker, and P.D. Doran. 1998. Status and Trends of the Nation's Biological Resources. 2 vols. U.S. Department of the Interior, U.S. Geological Survey, Reston, VA. Available on the internet at: http://www.nwrc.usgs.gov/sandt/SNT.pdf. Accessed on March 22, 2013.

Nevada Department of Wildlife (NDOW). 2012. Nevada Wildlife Action Plan. Available on the internet at http://www.ndow.org/Nevada_Wildlife/Conservation/Nevada_Wildlife_Action_Plan/. Accessed May 15, 2012.

Randall, J. M., S.S. Parker, J. Moore, B. Cohen, L. Crane, B. Christian, D. Cameron, J. MacKenzie, K. Klausmeyer, S. Morrison. 2010. Mojave Desert Ecoregional Assessment. Unpublished Report. The Nature Conservancy, San Francisco, California. 106 pages + appendices. Available at: http://conserveonline.org/workspaces/mojave/documents/mojave-desert-ecoregional-2010/@@view.html. Accessed March 26, 2013.

United States Department of Agriculture. 2010. Forest Service. Index of Species Information. http://www.fs.fed.us/database/feis/plants/shrub/ambdum/all.html. Accessed January 3, 2010.

FIGURES



Legend

- Interstate
- US/ State Highway
- Railroad
- Solar Project Location
- Municipal Boundary
- Jurisdictional Land Ownership
- Indian Reservation

0 2 4 6 8 10

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Aiya Solar Project

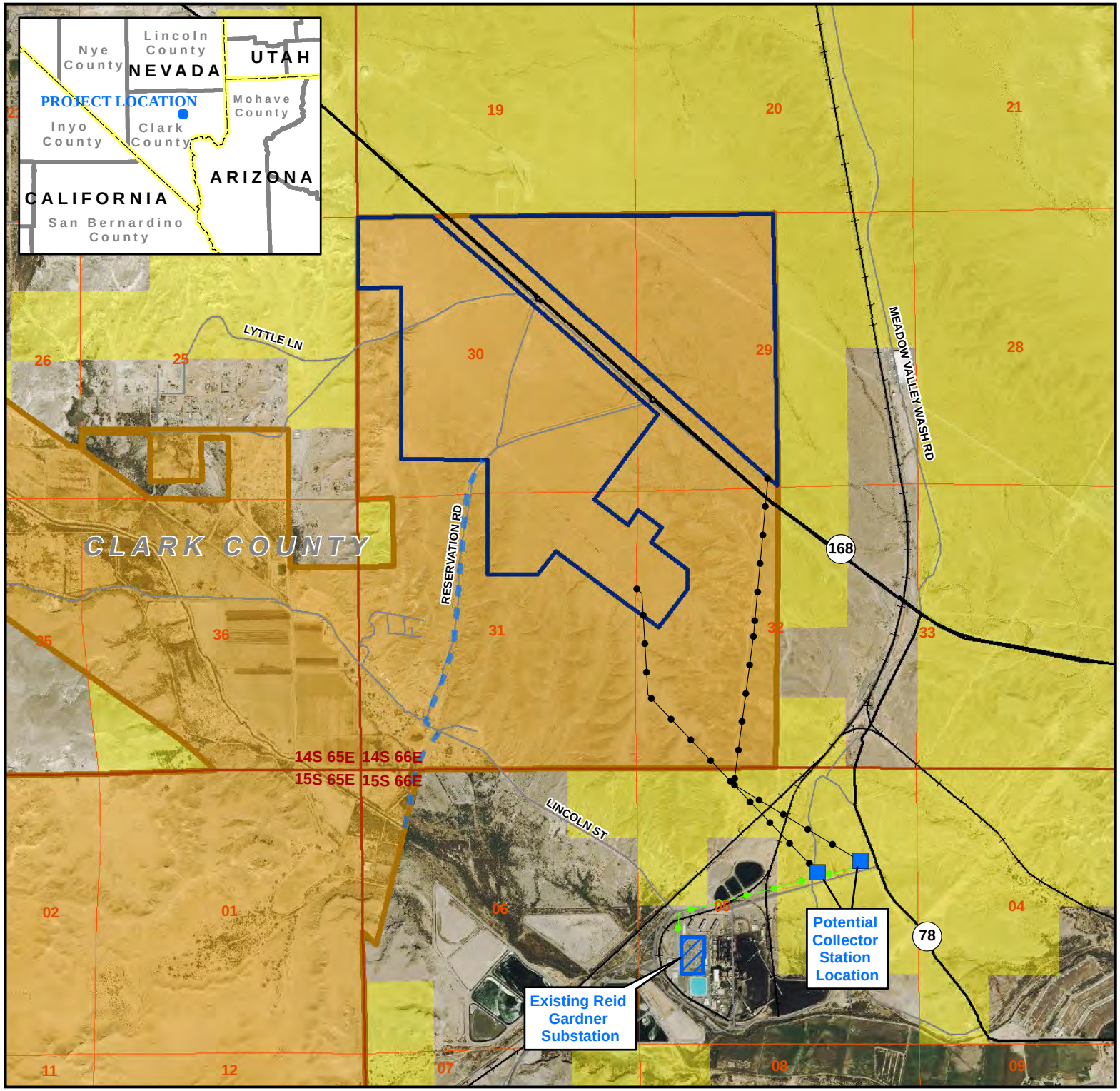
FIGURE 1

PROJECT LOCATION

Map Extent: Clark County, Nevada

Date: 03-24-15		Author: rnc

G:\Aiya Solar Project/MXD's/Project Location 8.5x11 032415.mxd



Legend

- Potential Collector Station Location
- Gen-Tie Routes
- Double-Circuit Line
- Water Pipeline
- State Highway
- Road
- Railroad
- Project Area
- Existing Substation
- County Boundary
- Township / Range Boundary
- Section Boundary

Jurisdictional Land Ownership

- Bureau of Land Management Land
- Tribal Land

0 0.25 0.5 0.75 1

Miles

State Plane
North American Datum 1983
Nevada East, FIPS 2701, Feet

Aiya Solar Project

FIGURE 2
PROJECT AREA

Map Extent: Clark County, Nevada

Date: 03-18-15		Author: rnc

I:\Solar Projectt/MXD's/Project Area

APPENDIX A
CACTUS AND YUCCA SALVAGE PROTOCOL

Salvage, Stockpiling, and Final Transplanting of Cacti and Yucca

Salvage: The salvaging contractor shall identify on-site with flagging tape all cacti and yucca that are subject for removal and will mark the north orientation for any barrel or Joshua tree. The following plants will be salvaged as required by BIA, the Tribe and BLM: 1) all yucca, 2) barrel cactus, 3) hedgehog, 4) cottontops, 5) all beavertail cactus and other cactus species; and 6) all cholla less than three feet in height.

Cholla over three feet in height and Joshua trees over 10 feet in height do **not** need to be salvaged. This material will be used as vertical mulch and spread over the surface of the restored areas to prevent possible trespass.

During the survey, all yucca clusters shall be counted as separate plants. Since the material will not be used immediately, it needs to be stockpiled in a location that can be protected (fenced). Cacti and yucca are very shallow-rooted.

- Cacti should be dug by hand and carefully removed in order to not damage roots.
- Yucca must be salvaged with heavy equipment (eg, front end loader). The material must be carefully extracted to not damage any of the roots, stems, or lower part of the plant. The material must be transplanted to a stockpiling area immediately.

Stockpiling: The salvage can be transferred to prepared, 3-foot wide, 18-inches deep stockpiling trenches of any desired length. If using multiple, parallel trenches, they should be far enough apart to allow heavy equipment access to each trench. Trenches shall be watered thoroughly prior to transplanting material. In planting cacti and yucca, they should be placed in the trench and planted with native soil. Care should be taken to properly tamp down and compact all soil around roots of plants to remove all air pockets. A depression around each plant should be formed to hold water. After cacti are transplanted, they shall be watered thoroughly one time. A one-time watering approximately fifteen (15) days after planting shall occur to remove or minimize any air pockets and assure proper soil compaction. Yucca will be placed in the trenches and the soil tamped by hand around the base of the plant so that there are no air pockets. To reduce watering, DriWater can be applied to each yucca. DriWater is a gelatinous polymer that slowly breaks down to water over time. DriWater comes in biodegradable cartons and is applied by cutting the top of the carton and placing it upside-down around the plant to be watered. The area around the plant must be thoroughly wet to activate the DriWater. The DriWater is applied around the base of the plant at a rate of one quart for every foot in plant height. DriWater cartons are to be buried completely. At the surface, a watering well will be formed around the plant. Afterward, the plant will be watered thoroughly again. A 9-inch soil moisture probe (which can be obtained from any commercial plant nursery) will be used after 2 weeks to assess the moisture of the soil to see if further watering is needed. If the probe reads “dry” on the moisture scale, then a second watering will be done.

Final Planting at Landscape Sites: All salvaged plant material shall be replanted in a natural pattern. Large yucca will be carefully removed from the stockpiling area, taking care to not damage stems, roots, or the base of the plant. A hole at least two feet deep and three feet wide shall be prepared for each single-stem yucca. Multiple-stem plantings will be accordingly larger to accommodate the stem size. The hole will be filled with water and allowed to drain once. Then the hole will be filled with water again and then back-filled with soil to form a muddy matrix to approximately 18 inches from the surface. The yucca will then be planted and the soil tamped around the plant so that there are no air pockets. DriWater will be applied around the plant at a rate of one quart for every foot in height. DriWater cartons are to be buried completely. At the surface, a watering well will be formed around the plant. Afterward, the plant will be watered thoroughly again. A 9-inch soil moisture probe (which can be obtained from any commercial plant nursery) will be used after 2 weeks to assess the moisture of the soil to see if further watering is needed. If the probe reads “dry” on the moisture scale, then a second watering will be done. Mojave yuccas will be re-planted in groups of three or more for a natural effect. All small cacti shall be watered thoroughly one time upon being transplanted into the field.

Transplanting and maintenance of plant material will be done such that 80 percent survivorship after two years is achieved.

Appendix F

Jurisdictional Waters Report

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

June 16, 2015

Regulatory Division SPK-2014-00801-SG

First Solar
Attn: Mr. Bill Chilson
135 Main Street 6th floor
San Francisco, California 94105

Dear Mr. Chilson:

We are responding to your May 4, 2015 request for a preliminary jurisdictional determination (JD), in accordance with our Regulatory Guidance Letter (RGL) 08-02, for the Aiya Solar Project site. The approximately 1,000-acre site is located on the Moapa Indian Reservation, Section 29-32, Township 14 S, Range 66 E, Mount Diablo Meridian, Latitude 36.67994°, Longitude -114.64156°, Clark County, Nevada.

Based on available information, **we concur with the amount and location of wetlands and/or other water bodies on the site as depicted in the enclosed May 4, 2015, *Aiya Solar Project Jurisdictional Waters Report, Figure A2-A3, B1-B3, C1-C2* drawings prepared by Heritage Environmental Consultants, LLC**. The approximately 7,950 lineal feet of ephemeral waters present within the survey area are potential waters of the United States regulated under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act.

We have enclosed a copy of the *Preliminary Jurisdictional Determination Form* for this site. Please sign and return a copy of the completed form to this office. Once we receive a copy of the form with your signature, we can accept and process a Pre-Construction Notification or permit application for your proposed project.

You should not start any work in potentially jurisdictional waters of the United States unless you have Department of the Army permit authorization for the activity. You may request an approved JD for this site at any time prior to starting work within waters. In certain circumstances, as described in RGL 08-02, an approved JD may later be necessary.

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This preliminary determination has been conducted to identify the potential limits of wetlands and other water bodies which may be subject to Corps of Engineers' jurisdiction for the particular site identified in this request. A Notification of Appeal Process and Request for Appeal form is enclosed to notify you of your options with this determination. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under *Customer Service Survey*.

Please refer to identification number SPK-2014-00801-SG in any correspondence concerning this project. If you have any questions, please contact Jason Brewer at Saint George Regulatory Office, 196 E Tabernacle Street Room 30, St. George, Utah 84770, email at *Jason.D.Brewer@usace.army.mil*, or telephone at 435-986-3979. For more information regarding our program, please visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx*.

Sincerely,

Patricia L. McQueary
Senior Regulatory Project Manager
St. George Regulatory Office
Sacramento District

Enclosures

cc: (w/o encls)
Mr. Chip Lewis, Bureau of Indian Affairs – Western Regional Office, chip.lewis@bia.gov
Mr. Patrick Golden, Heritage Environmental Consultants, pgolden@heritage-ec.com

Aiya Solar Project
Waters of the U.S. Report

January 2016

Contents

Figures

Tables

Appendices

INTRODUCTION

This report documents drainage features on the site of the proposed Aiya Solar Project (project) and along gen-tie line alternative routes for the project, to allow determination of their federal jurisdictional status under Section 404 of the Clean Water Act. For the purposes of this report, drainages include all ephemeral, intermittent, and permanent water bodies, including constructed ditches and drains.

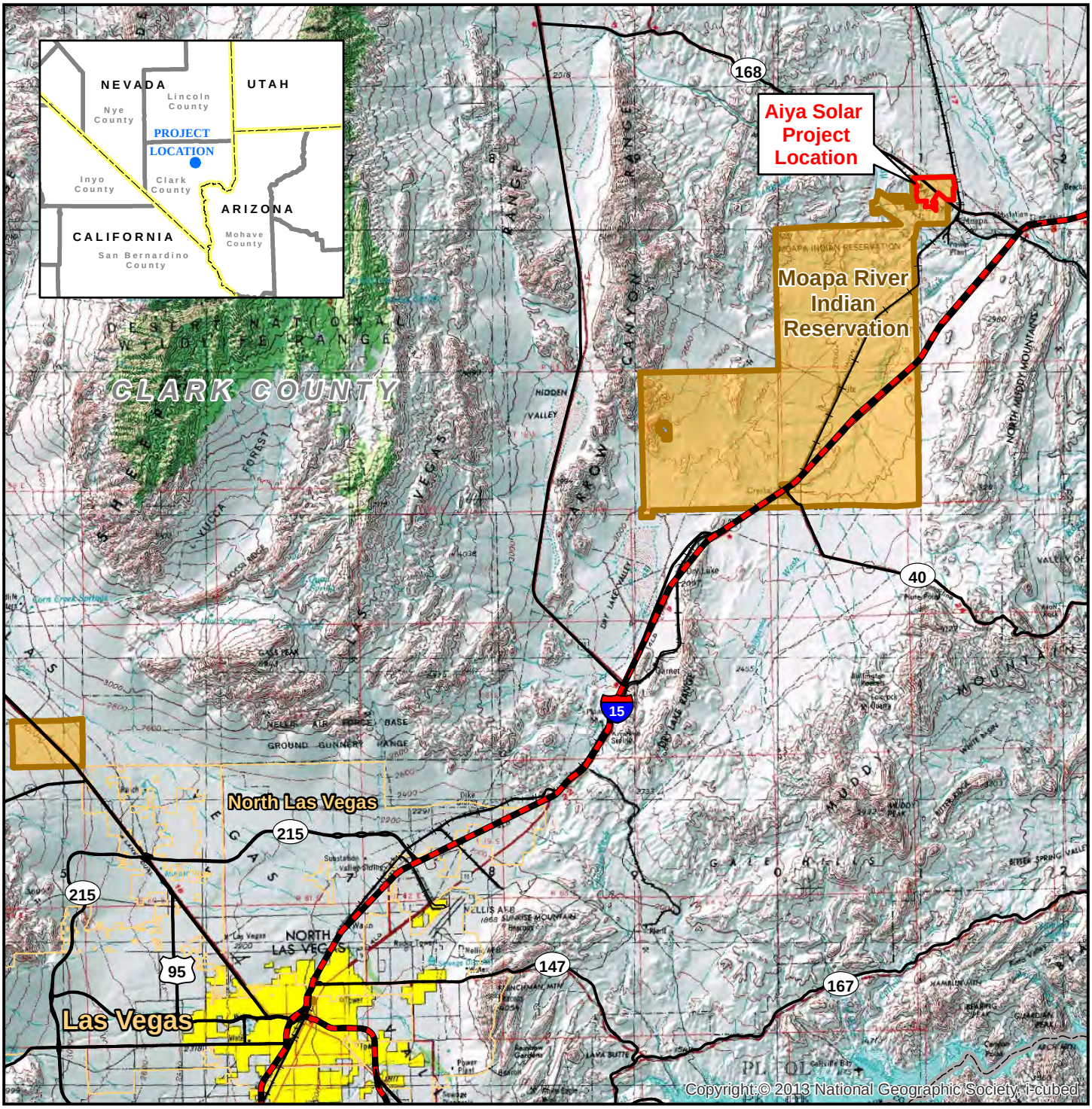
Aiya Solar Project

Aiya Solar Project, LLC (Aiya Solar or Applicant), a wholly owned subsidiary of First Solar, Inc., proposes to construct, operate, maintain, and decommission the Project, consisting of up to a 100 MW_{AC} solar PV power generating facility on the Moapa River Indian Reservation in Clark County, Nevada. The solar site is located entirely on the Reservation, approximately three miles west of the communities of Glendale and Moapa. **Figure 1** shows the general location of the project. The project site is northwest of Exit 90 on Interstate 15 at Glendale, Nevada and is bisected by Nevada State Highway (SH) 168, with approximately one-third of the site northeast of SH 168, while the remaining approximately two-thirds is southwest of SH 168.

Project components include onsite facilities, offsite facilities, and temporary facilities needed to construct the Project. Major onsite facilities are the solar field (comprised of multiple approximately 4 MW_{AC} blocks of solar panels mounted on fixed tilt or tracking systems and associated equipment), a substation, and operation and maintenance (O&M) facilities. The offsite facilities include an approximately two=mile 230 kilovolt (kV) transmission line (gen-tie) located on the Reservation, BLM-administered lands, and private lands. 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. Temporary facilities, which would be removed at the end of the construction period, include the offsite water intake and pipeline mentioned above and the onsite mobilization, laydown, and construction areas and water storage tanks that would also be located on the Reservation. **Figure 2** shows the solar site and the off-site linear facilities. The solar site includes lands that are presently undeveloped, with the exception of several paved and unpaved roads, a water line, and electric utility lines.

Transmission Interconnection: Gen-tie Line Alternatives

The Project would require the construction of an approximately two-mile 230 kV gen-tie 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 about 1.0 to 1.2 miles of Tribal land where it would enter federal lands managed by the BLM and cross southeasterly to a point northeast of the existing Reid-Gardner Substation where a new NVE collector station could 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 collector station where the gen-tie line would change ownership between the Project and NV Energy.



Legend

- Interstate
- US/ State Highway
- Railroad
- Solar Project Location
- Municipal Boundary
- Jurisdictional Land Ownership
- Indian Reservation

0 2 4 6 8 10

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

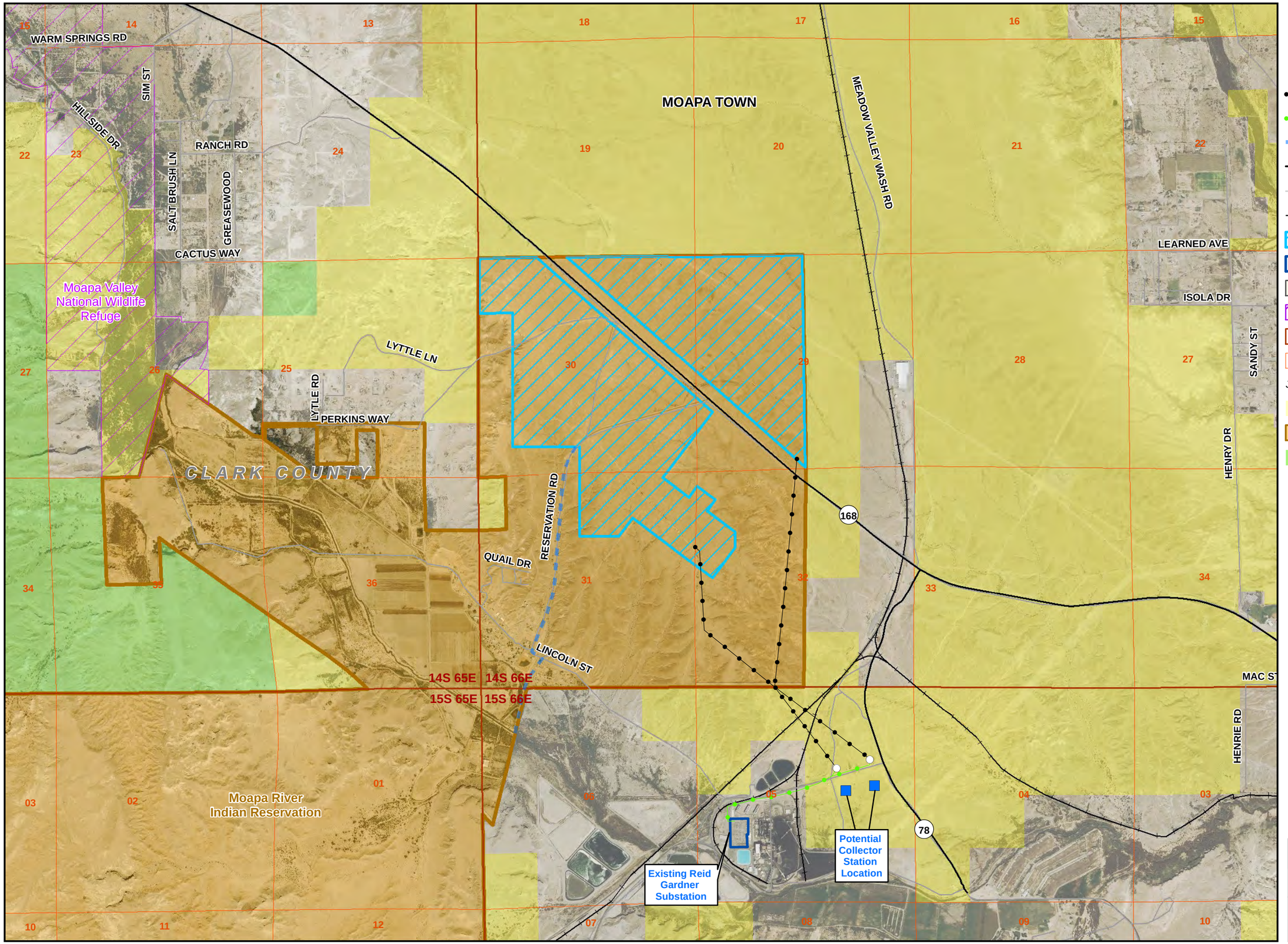
Aiya Solar Project

FIGURE 1
PROJECT LOCATION

Map Extent: Clark County, Nevada

Date: 09-29-14		Author: rnc

G:\Aiya Solar Project/MXD's/Project Location 8.5x11 092914.mxd



Legend

- Potential Collector Station Location
- Switch Station
- Proposed Gen-Tie Routes
- Proposed Double-Circuit Line
- Water Pipeline
- State Highway
- Road
- Railroad
- Project Area
- Existing Substation
- Municipal Boundary
- US Fish & Wildlife Service Approved Acquisition
- Township / Range Boundary
- Section Boundary

Jurisdictional Land Ownership

- Bureau of Land Management Land
- Indian Reservation
- Bureau of Reclamation

0 1,000 2,000 3,000
Feet

0 0.25 0.5 0.75
Miles

State Plane Coordinate System
Nevada East, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

AIYA SOLAR PROJECT

FIGURE 2
PROJECT LOCATION

Map Extent: Clark County, Nevada

Date: 05.04.15 | Author: rnc

...Maps\ProjectLocation.mxd

The overhead 230 kV line would be installed on approximately 20 to 30 steel monopole structures spaced approximately 400 to 800 feet apart. The structures would be up to approximately 120 feet above grade with 15-foot spacing between conductors and minimum ground clearance of 26 feet, per local and national electrical code requirements. Monopole structures would be galvanized steel with a dull gray appearance.

The Project would use a combination of existing and new access roads and spur roads on designated routes to get construction equipment to each structure location. Where new roads are needed, they would be approximately 12 feet wide and improved only to the extent necessary to provide safe access. Where the gen-tie would parallel existing lines, the road associated with the existing line would be used and short spur roads may be developed to access structure locations. The existing roads within the ROW at some locations may require improvements.

Federal Jurisdiction

The Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (ACOE) have jurisdiction over wetlands and other Waters of the United States (collectively "waters") that are subject to Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act. Based on current legal opinion, regulations, and guidance (EPA and ACOE 2007, 2008), the ACOE and EPA will assert jurisdiction over the following waters:

- Traditional Navigable Waters (TNWs) and wetlands adjacent to TNWs
- Relatively Permanent Waters (RPWs), which are defined as non-navigable tributaries of TNWs that are relatively permanent (that is, the tributaries typically flow year-round or have continuous flow at least seasonally) and wetlands that directly abut such tributaries

The following waters will also be found jurisdictional based on a fact-specific analysis that they have a significant nexus with a TNW:

- Non-navigable tributaries that are not relatively permanent (non-RPWs)
- Wetlands adjacent to non-RPWs
- Wetlands adjacent to but that do not directly abut a RPW
- Certain geographical features (for example, ditches, canals) that transport relatively permanent (continuous at least seasonally) flow directly or indirectly into TNWs or between two (or more) waters, including wetlands.

Certain geographic features generally are not jurisdictional waters:

- Swales, erosional features (for example, gullies) and small washes characterized by low volume, infrequent, and short duration flow
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water
- Uplands transporting over land flow generated from precipitation (that is, rain events and snowmelt)

With respect to non-tidal waters, federal jurisdiction over non-wetlands extends to the Ordinary High Water Mark (OHWM) (33 C.F.R. § 328.4(c) (1)). The Ordinary High Water (OHW) zone in low-

gradient, alluvial, ephemeral or intermittent channels in the Arid West is defined as the active floodplain. The dynamics of arid channels and the transitory nature of traditional OHWM indicators in arid environments render the limit of the active floodplain the only reliable and repeatable feature in terms of OHWM delineation. The extent of flood model outputs for effective discharges (5 to 10 year events in arid channels) aligns well with the boundaries of the active floodplain (ACOE 2008). As such, a feature is first identified as being potentially jurisdictional by the presence of traditional OHWM indicators, which help distinguish non-RPW features from swales, gullies, ditches, and other non-jurisdictional geographic features. The extent of the jurisdictional area for ephemeral washes is then delineated by mapping the outer boundary of the active floodplain per ACOE guidelines (2008).

METHODS

This section describes the methods used to investigate and document the potential federal jurisdictional status of drainage features on the project site.

Existing information, including topographic maps, aerial photographs, soil maps, hydrologic data, climate records, and National Wetland Inventory (NWI) maps were reviewed to characterize the environmental baseline condition on the project site as well as to assist in determinations of potential jurisdictional status.

The project site was evaluated for potentially jurisdictional drainage features during field visits performed on September 11 and September 13, 2014. All drainage features were mapped using sub-meter Trimble Global Positioning System (GPS) receivers. Field notes and photographs were taken for each drainage feature. Additional information was gathered using Geographic Information Systems (GIS) and aerial imagery.

Determinations regarding the potential jurisdictional status of waters of the U.S. (WUS) were based on applicable federal laws and regulations, and associated guidance documents. OHWM determinations were based on A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States – A Delineation Manual (ACOE 2008). OHWM data forms (ACOE 2010) were completed for all potentially jurisdictional waters.

It is important to note that a high-intensity rain event occurred immediately preceding the field surveys, on September 8, 2014. This event, which originated from the remnants of Hurricane Norbert, caused rainfall that exceeded four inches in parts of the Moapa Valley in a period of two hours (Usufzy and Visconti 2014) and may have exceeded six inches over 12 hours in some parts of the valley (Paddock et al. 2015). In contrast, normal annual precipitation in the Moapa Valley is four to six inches (Paddock et al 2015). Precipitation of approximately 2.8 inches in a two-hour period or 3.2 inches in a 12-hour period can be considered to exceed the 1000-year recurrence interval (Paddock et al. 2015). Interstate 15 east of Glendale, approximately five miles southeast of the project site, was washed out and remained closed for several days. This event also caused extensive flooding and evacuations on the Moapa River Indian Reservation adjacent to the project site.

Evidence of this flood event, in the form of recent erosion in drainages, residual mud and water, and flood debris along channels, was widespread on and near the project site during the field surveys. No distinction was possible between low flow channels and active floodplains because this event filled and, in some cases, appears to have exceeded the active floodplain. The flood event removed any evidence of pre-flood low flow channels, but the receding phase did not persist sufficiently to allow redevelopment of new low flow channels. Given this challenge, all mapping of drainage features was based on the extent of the post-flood active floodplain and its transition to the low terrace.

RESULTS

This section describes the results of the review of existing information and field surveys.

Environmental Baseline

The majority of the project site consists of a flat to gently rolling upland, which slopes gently from northwest to southeast. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop towards the Muddy River, the nearest RPW. The highest elevation is approximately 1,850 feet above mean sea level (AMSL) near the northwest corner of the project site. The lowest elevation is approximately 1,600 feet AMSL where Gen-tie Option 4 terminates adjacent to the Reid Gardner Generating Station. Surface drainages are limited on the upland, with the exception of several ephemeral swales and one potentially jurisdictional ephemeral wash. Rilling and gullying of badland areas has created several small drainages. Those on the west side of the project site run south for approximately one mile before entering the Muddy River. The drainages on the east side of the project site run generally southeast one to three miles before intersecting the Muddy River. The Muddy River is a small perennial stream that originates in a series of springs in the Moapa Valley about six miles upstream of the project site and runs for 32 miles before discharging into Lake Mead, the nearest TNW.

Soils

Two soil types have been mapped on the project site, the Badland and Bard mapping units (Natural Resource Conservation Service [NRCS] 2015). These soil types correspond to the two dominant topographical features of the project site, with the Bard mapping unit covering the uplands and the Badland mapping unit covering the above-described badlands. Neither of these mapping units is on the National Hydric Soils list (NRCS 2014).

The Badland mapping unit consists of sloping to very steep outcrops of the Muddy Creek Formation, which consists of stratified sands, silts, and clays that contain a high proportion of gypsum and calcium carbonate. These soils are highly erosive and runoff is very rapid. Slopes are typically 15 to 50 percent, but exceed 100 percent in some highly eroded areas. Vegetation is often absent because of the steep slopes and high erosion rate.

The Bard gravelly fine sandy loam consists of well-drained alluvium derived from limestone and dolomite. It is found on alluvial fans, fan remnants, and valley fill terraces and has a calcium carbonate cemented layer at depth. Slopes are slight (two to eight percent), runoff is very rapid, and erosion risk is high. Vegetation is typical for this area with creosote bush and white bursage the most common plant species.

Climate

Climate at the project site is typical for the hot, dry Mojave Desert. Las Vegas, Nevada, about 40 miles to the southwest, is situated at a similar elevation and has a similar climate. Las Vegas had an average of 70 days per year with high temperatures exceeding 100 degrees Fahrenheit between 1981 and 2010 (National Weather Service 2015). High and low temperatures in July (the hottest month) averaged 104 and 81, respectively. High and low temperatures in December (the coldest month) averaged 57 and 39, respectively. Average annual precipitation is 4.2 inches. Snow is uncommon, but small accumulations are occasionally recorded (National Weather Service 2015). Thunderstorms occur an average of 12 days a

year, most in July and August, associated with the monsoon season. Wind is also a common weather feature (National Weather Service 2015).

Vegetation

Creosote bush (*Larrea tridentata*) is the dominant shrub across the project site. In upland areas, it is widely spread with intervening areas of desert pavement. Less common associated species include white bursage (*Ambrosia dumosa*), hop sage (*Grayia spinosa*), and boxthorn (*Lycium* spp.). In low areas, swales, and washes with better soil development or moisture availability, creosote bush tends to be more dense and additional associated species are present, including cat claw (*Acacia greggi*), brittle bush (*Encelia farinosa*), ephedra (*Ephedra* spp.), big galleta (*Pleuraphis rigida*), indigo bush (*Psorothamnus schottii*), bladder sage (*Scutellaria mexicana*), and apricot mallow (*Sphaeralcea ambigua*).

National Wetlands Inventory

A review of NWI data (USFWS 2015) showed that no wetlands have been mapped by the NWI on the project site.

Field Survey

All water conveyance features were evaluated to determine potential federal jurisdiction. Details related to the drainage features and locations are provided in the Drainage Descriptions section. Photographs of these features are provided in **Appendix A**. A map book depicting the location of all drainage features evaluated can be found in **Appendix B**. Data forms for each potentially jurisdictional feature are provided in **Appendix C**.

Twenty features were identified as potentially subject to federal jurisdiction, at least in part. A key finding of the investigation was that in 14 cases, the upper reaches or side branches of drainages were non-jurisdictional, while lower reaches or larger branches appeared to be potentially jurisdictional. None of the drainages investigated appear to be RPWs, nor did any of these drainages contain wetlands. The only riparian vegetation identified was xeroriparian. All features or portions of features identified as potentially jurisdictional are non-RPWs that may connect to a RPW – the Muddy River, which is connected downstream with Lake Mead (the nearest TNW). All features or portions of features identified as non-jurisdictional are swales or erosional features such as gullies or small washes where flows are infrequent and of short duration.

Drainage Descriptions

This section provides discussion of each drainage feature investigated during the field survey.

Drainage M01

Map book pages:	B1, B2
Photographs:	1, 2
Project Component:	Solar Site
Feature Type:	Non-RPW (ephemeral desert wash)

The higher reaches of M01 are upland swales that grade into gullies (erosional features) (**Photo 1**) and do not present the features of a WUS. These features show indicators of surface water presence from the recent precipitation event, such as damp soil, cracking caused by drying of damp soil, and minor movement of small particle size (silt, sand) sediment. OHWMs were not observed. These observations indicate that overland flow from the recent precipitation event collected in the swales and gullies, leading to a brief period of flow immediately after the event. Typical flow is expected to be of low volume and short duration, occurring only after high intensity precipitation events.

The lower reaches of M01 are small, ephemeral desert washes (non-RPWs) and are potentially jurisdictional. They show distinct OHWMs, including presence of bed and bank; sediment sorting, and deposition; collection of litter and debris; and destruction of terrestrial vegetation (**Photo 2**). Limited xeroriparian vegetation, such as cat claw, is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, the break in bank slope, and the outer edge of drift accumulation, varies from two to 12 feet wide, with an average width of about six feet.

M01 runs parallel to Reservation Road and passes through a residential area before connecting with the Muddy River about 1.4 miles downstream of the project site. The recent high intensity precipitation event caused flooding in this wash, moving large amounts of debris and sediment, washing out part of Reservation Road, and causing damage in the residential area.

Drainage M02

Map book pages:	C1
Photographs:	3, 4
Project Component:	Solar Site
Feature Type:	Non-RPW (ephemeral desert wash)

The highest reach of M02 is an upland swale that grades into a gully (erosional feature) and do not present the features of a WUS. This feature shows limited indicators of surface water presence from the recent precipitation event, such as damp soil and minor movement of small particle size (silt, sand) sediment (**Photo 3**). OHWMs were not observed. These observations indicate that overland flow from the recent precipitation event collected in the swale and gully, leading to a brief period of flow immediately after the event. Typical flow is expected to be of low volume and short duration, occurring only after high intensity precipitation events.

The lower reaches of M02 are small, ephemeral desert washes (non-RPWs) and are potentially jurisdictional. They show distinct OHWMs, including presence of bed and bank; sediment sorting and deposition; and collection of litter and debris; and destruction of terrestrial vegetation (**Photo 4**). Limited xeroriparian vegetation, such as cat claw, is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, the break in bank slope, and exposed roots in recently eroded banks, varies from two to 24 feet wide, with an average width of about six feet.

M02 runs generally south, crosses Lincoln Street, and joins an unnamed wash below M03 before connecting with the Muddy River about 1.4 miles downstream of the project site. The recent high intensity precipitation event caused flooding in this wash, moving large amounts of sediment and washing out Lincoln Street.

Drainage M03

Map book page:	C2
Photographs:	n/a – see Photos 3 and 4, which are representative of the upper and lower reaches of M03, respectively
Project Component:	Solar Site
Feature Type:	Non-RPW (ephemeral desert wash)

The higher reaches of M03 are upland swales that grade into gullies (erosional features) and do not present the features of a WUS. These features show indicators of surface water presence from the recent precipitation event, such as damp soil and minor movement of small particle size (silt, sand) sediment. OHWMs were not observed. These observations indicate that overland flow from the recent precipitation event collected in the swales and gullies, leading to a brief period of flow immediately after the event. Typical flow is expected to be of low volume and short duration, occurring only after high intensity precipitation events.

The lower reach of M03 is a small, ephemeral desert wash (non-RPW) and is potentially jurisdictional. It shows distinct OHWMs, including presence of bed and bank; sediment sorting, and deposition; and presence of litter and debris. Limited xeroriparian vegetation, such as cat claw, is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope varies from two to 15 feet wide, with an average width of about six feet.

M03 runs generally south, crosses Lincoln Street, and joins an unnamed wash below M02 before connecting with the Muddy River about 1.3 miles downstream of the project site. The recent high intensity precipitation event caused flooding in this wash, moving large amounts of sediment and washing out Lincoln Street.

Drainage M04

Note: This drainage is labeled M17 where it crosses one of the alternative gen-tie corridors. The discussion here considers only the portion of the drainage on the solar site.

Map book page:	B2, B3, C2

Photographs:	5 – see also Photo 4, which is representative of the lower reaches of M04
Project Component:	Solar Site
Feature Type:	Non-RPW (ephemeral desert wash)

The higher reaches of M04 are upland swales that grade into gullies (erosional features) and are considered non-jurisdictional. These features show indicators of surface water presence from the recent precipitation event, such as damp soil, accumulation of drift, and minor movement of small particle size (silt, sand) sediment (Photo 5). OHWMs were not observed. These observations indicate that overland flow from the recent precipitation event collected in the swales and gullies, leading to a brief period of flow immediately after the event. Typical flow is expected to be of low volume and short duration, occurring only after high intensity precipitation events.

The lower reaches of M04 are small, ephemeral desert washes (non-RPWs) and are potentially jurisdictional. They show distinct OHWMs, including the presence of bed and bank; sediment sorting and deposition; collection of litter and debris; and destruction of terrestrial vegetation. Limited xeroriparian vegetation, such as cat claw, is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from two to 14 feet wide, with an average width of about four feet.

M04 runs generally southeast, joining other drainages before connecting with the Muddy River about 2.9 miles downstream of the project site.

Drainage M06

Map book page:	B2, B3
Photographs:	8, 9, 10, 11, 12, 13, 14, 15, 16
Project Component:	Solar Site
Feature Type:	Non-RPW (ephemeral desert wash), swale

The higher reaches of M06, which are located north of Reservation Road and west of SH 168, is an upland swale. This feature shows indicators of surface water presence from the recent precipitation event (**Photo 8**), such as pooling of residual water, damp soil, cracking caused by drying of damp soil, and minor movement of small particle size (silt, sand) sediment. Concentration of flow in small reaches (less than 20 feet in length) caused scour holes (**Photo 9**); however, these areas are isolated, often confined to a particular obstruction (for example, a large clump of vegetation adjacent to the low point in the swale), and appear to have been caused by the recent precipitation event. OHWMs were not observed. Vegetation in parts of the swale is different from the surrounding uplands, with both increased density and additional species that were not observed nearby, including some xeroriparian species (for example, cat claw). These observations indicate that overland flow from the recent precipitation event collected in the swale, leading to a brief period of flow immediately after the event. Typical flow is expected to be of low volume and short duration, occurring only after high intensity precipitation events. The change in vegetation is likely a function of accumulation of fine soil particles in the swale, leading to increased nutrient availability and water holding capacity.

A second area that drains to M06 begins at the north boundary of the project site, crosses its nearly flat northeast corner parallel to M05, and is an upland swale. This feature shows indicators of surface water presence from the recent precipitation event, such as pooling of residual water, damp soil, cracking caused by drying of damp soil, and minor movement of small particle size (silt, sand) sediment (**Photo 12**). Concentration of flow in small reaches (less than 20 feet in length) caused scour holes; however, these areas are isolated, often confined to a particular obstruction (for example, a large clump of vegetation adjacent to the low point in the swale), and appear to have been caused by the recent precipitation event. OHWMs were not observed. Vegetation in the swale is essentially the same as the surrounding uplands (**Photo 13**). No riparian vegetation is present. These observations indicate that overland flow from the recent precipitation event collected in the swale, leading to a brief period of flow immediately after the event. Typical flow is expected to be of low volume and short duration, occurring only after high intensity precipitation events.

M06 begins to exhibit OHWMs east of SH 168 across the highway, runs generally east of the project boundary, and is potentially jurisdictional. Any high flows would cross the highway, as evidenced by sediment on the highway and erosion of the downstream shoulder of the highway caused by the recent precipitation event (**Photo 10**). Runoff generated by the impervious surface and roadside ditches of SH 168 may also contribute to flows in this section. It shows distinct OHWMs, including presence of bed and bank; sediment sorting and deposition; and collection of litter and debris (**Photo 11**). Limited xeroriparian vegetation, such as cat claw is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from 10 to 120 feet wide, with an average width of about 16 feet.

M06 continues southeast of the Project area. Approximately 400 feet at the upper end of this section showed similar OHWM indicators to Section B (**Photo 14**), with the active floodplain, ranging from six to 32 feet wide and having an average width of 20 feet. Downstream of this reach was a segment about 900 feet in length with limited OHWM indicators. While there was evidence of recent flow in the form of damp soil and movement of fine sediment, break in bank slope was not observed, nor were changes in particle size distribution, or alteration of vegetation by the recent flood event (**Photo 15**). The downstream 500 feet mapped in this section once again showed OWHMs, such as presence of bed and bank, sediment sorting, and destruction of terrestrial vegetation (**Photo 16**). In this reach, the active floodplain ranged from two to 24 feet wide, with an average width of six feet. M06 continues generally southeast, joining drainage M05, then crossing a set of railroad tracks, Meadow Valley Wash Road, State Highway 168, and another set of railroad tracks (all by culvert), before connecting with the Muddy River about 2.5 miles downstream.

Drainage M07

Note: This drainage is labeled M12 where it crosses the other alternative gen-tie corridor and is described elsewhere. The discussion here considers only the portion of the drainage labeled M07 in the map book.

Map book page:	C2, D2
Photographs:	17, 18
Project Component:	Gen-tie
Feature Type:	Non-RPW (ephemeral desert wash)

The upper reaches of M07 are gullies (erosional features) eroded into the surrounding uplands and do not present the features of a WUS. These features show indicators of surface water presence from the recent precipitation event, such as minor movement of small particle size (silt, sand) sediment. OHWMs were not observed (Photo 17). These observations indicate that overland flow from the recent precipitation event collected in the gullies, leading to a brief period of flow immediately after the event. Typical flow is expected to be of low volume and short duration, occurring only after high intensity precipitation events.

The lower reach of M07 is a small, ephemeral desert wash (non-RPW) and is potentially jurisdictional. It shows OHWMs, including presence of bed and bank; scouring; sediment sorting and deposition; and destruction of terrestrial vegetation (**Photo 18**). No riparian vegetation is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from two to nine feet wide, with an average width of about four feet.

M07 runs generally east, joining other drainages before connecting with the Muddy River about 2.4 miles downstream of the project site.

Drainage M08

Note: This drainage is labeled M12 where it crosses the other alternative gen-tie corridor and is described elsewhere. The discussion here considers only the portion of the drainage labeled M08 in the map book.

Map book page:	D2
Photograph:	n/a – see Photo 18, which is representative of M08
Project Component:	Feature is near gen-tie, but outside the right-of-way
Feature Type:	Non-RPW (ephemeral desert wash)

M08 is a small, ephemeral desert wash (non-RPW) and is potentially jurisdictional. It shows OHWMs, including presence of bed and bank; and sediment sorting and deposition. No riparian vegetation is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from two to four feet wide, with an average width of about three feet.

M08 runs generally east, joining other drainages before connecting with the Muddy River about 2.4 miles downstream of the project site.

Drainage M11

Note: Downstream portions of this drainage are labeled M19 and M27 and are described elsewhere. The discussion here considers only the portion of the drainage labeled M11 in the map book.

Map book page:	D2
Photographs:	19, 20
Project Component:	Gen-tie
Feature Type:	Non-RPW (ephemeral desert wash)

The northern- and southernmost branches of M11 are gullies (erosional features) and do not present the features of a WUS. These features show indicators of surface water flow from the recent precipitation event, such as damp soil and minor movement of small particle size (silt, sand) sediment (**Photo 19**). Concentration or acceleration of flow in small reaches (less than 20 feet in length) caused scouring; however, these are isolated, often confined to small areas of higher gradient channel, and appear to have been caused by the recent precipitation event. OHWMs were not observed. These observations indicate that overland flow from the recent precipitation event collected in these gullies, leading to a brief period of flow immediately after the event. Typical flow is expected to be of low volume and short duration, occurring only after high intensity precipitation events.

The middle segment of M11 is a small, ephemeral desert wash (non-RPW) and is considered potentially jurisdictional. It shows OHWMs, including presence of bed and bank and sediment sorting and deposition (**Photo 20**). No riparian vegetation is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from two to 12 feet wide, with an average width of about six feet.

Outside of the gen-tie corridor, M11 runs generally south, passing under two railroad tracks via culvert, and intersecting drainages that collectively pass via culvert under Wally Kay Way. The combined drainage then skirts the east edge of the Reid Gardner Generating Station in a constructed ditch before connecting with the Muddy River about 1.3 miles downstream of the project area.

Drainage M12

Note: Upstream tributaries of this drainage are labeled M07 and M08 and are described elsewhere. The discussion here considers only the portion of the drainage labeled M12 in the map book.

Map book page:	D2
Photograph:	21
Project Component:	Gen-tie
Feature Type:	Non-RPW (ephemeral desert wash), gully (erosional feature)

The main branch of M12 is a small, ephemeral desert wash (non-RPW) and is considered potentially jurisdictional. It shows OHWMs including presence of bed and bank; scouring; shelving; sediment sorting and deposition; collection of litter and debris; and destruction of terrestrial vegetation (Photo 21). No riparian vegetation is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from eight to 36 feet wide, with an average width of about 15 feet.

A northern branch of this drainage was also mapped. It consists of a small gully (erosional feature). This gully shows indicators of surface water presence from the recent precipitation event, such as damp soil and minor movement of small particle size (silt, sand) sediment. OHWMs were not observed. These observations indicate that overland flow from the recent precipitation event collected in the gully, leading

to a brief period of flow immediately after the event. Typical flow is expected to be of low volume and short duration, occurring only after high intensity precipitation events.

Outside of the gen-tie corridor, M12 runs generally southeast, joining drainages downstream , before passing under two railroad tracks and Hidden Valley Road via culvert and connecting with the Muddy River about 2.0 miles downstream of M12.

Drainage M13

Map book page:	D2
Photograph:	22
ACOE Jurisdiction:	Potentially Jurisdictional
Project Component:	Gen-tie
Feature Type:	Non-RPW (ephemeral desert wash)

M13 is a small, ephemeral desert wash (non-RPW) and is potentially jurisdictional. It shows OHWMs including presence of bed and bank; sediment sorting and deposition; collection of litter drift; vegetation matted down; and destruction of terrestrial vegetation (Photo 22). No riparian vegetation is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from two to 10 feet wide, with an average width of about four feet.

Outside of the gen-tie corridor, M13 runs generally southeast, joining drainages downstream before passing under two railroad tracks and Hidden Valley Road via culvert and connecting with the Muddy River about 2.0 miles downstream of the project area.

Drainage M15

Map book page:	C2
Photograph:	23, 24
Project Component:	Gen-tie
Feature Type:	Non-RPW (ephemeral desert wash)

The lower reach of the main branch of M15 is a small, ephemeral desert wash (non-RPW) and is potentially jurisdictional. It shows OHWMs including presence of bed and bank; sediment sorting and deposition; and collection of litter and debris (Photo 23). No riparian vegetation is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from two to eight feet wide, with an average width of about four feet.

A northern branch of this drainage was also mapped and consists of small swales lacking OHWMs. These swales show indicators of surface water presence from the recent precipitation event, such as damp soil, cracking of damp soil that has dried, and minor movement of small particle size (silt, sand) sediment. OHWMs were not observed (**Photo 24**). These observations indicate that overland flow from the recent precipitation event collected in the swales, leading to a brief period of flow immediately after the event.

Typical flow is expected to be of low volume and short duration, occurring only after high intensity precipitation events.

Outside of the gen-tie corridor, M15 runs generally southeast, joining drainages downstream before passing under two railroad tracks and Hidden Valley Road via culvert and connecting with the Muddy River about 2.1 miles downstream of the project area.

Drainage M16

Map book page:	C2
Photograph:	25
Project Component:	Gen-tie
Feature Type:	Non-RPW (ephemeral desert wash), swale

The main branch of M16 is a small, ephemeral desert wash (non-RPW) and is potentially jurisdictional. It shows OHWMs including presence of bed and bank; sediment sorting and deposition; and collection of litter and debris (Photo 25). No riparian vegetation is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from two to 10 feet wide, with an average width of about four feet. M16 was mapped both above and below an existing native surface road. It appears that the road was constructed in the wash between the two mapped potentially jurisdictional segments (see map book, page C2).

Southern and northern branches of this drainage were also mapped. They consist of small swales lacking OHWMs. These swales shows indicators of surface water presence from the recent precipitation event, such as damp soil, cracking of damp soil that has dried, and minor movement of small particle size (silt, sand) sediment. OHWMs were not observed. These observations indicate that overland flow from the recent precipitation event collected in the gully, leading to a brief period of flow immediately after the event. Typical flow is expected to be of low volume and short duration, occurring only after high intensity precipitation events.

Outside of the gen-tie corridor, M16 runs generally southeast, joining drainages downstream before passing under two railroad tracks and Hidden Valley Road via culvert and connecting with the Muddy River about 2.1 miles downstream of the project area.

Drainage M17

Note: Upstream tributaries of this drainage are labeled M04 and are described elsewhere. The discussion here considers only the portion of the drainage labeled M17 in the map book.

Map book page:	C2
Photograph:	26
Project Component:	Gen-tie
Feature Type:	Non-RPW (ephemeral desert wash)

M17 is a large, braided, ephemeral desert wash (non-RPW) and is potentially jurisdictional. It shows OHWMs including presence of bed and bank; shelving; scour; sediment sorting and deposition; destruction of terrestrial vegetation, and presence of litter and debris (Photo 26). Limited xeroriparian vegetation, such as cat claw, is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from two to 70 feet wide, with an average width of about 30 feet.

Outside of the gen-tie corridor, M17 runs generally southeast, joining drainages downstream before passing under two railroad tracks and Hidden Valley Road via culvert and connecting with the Muddy River about 2.2 miles downstream of the project area.

Drainage M18

Map book page:	C2
Photograph:	27
Project Component:	Gen-tie
Feature Type:	Non-RPW (ephemeral desert wash)

M18 is a small, ephemeral desert wash (non-RPW) and is considered potentially jurisdictional. It shows OHWMs including presence of bed and bank; sediment sorting and deposition; scouring, and accumulation of litter and debris (Photo 27). No riparian vegetation is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from two to 10 feet wide, with an average width of about four feet.

Outside of the gen-tie corridor, M18 runs generally southeast, joining drainages before passing under two railroad tracks and Hidden Valley Road via culvert and connecting with the Muddy River about 2.3 miles downstream of the project area.

Drainage M19

Note: Upstream tributaries of this drainage are labeled M11 and are described elsewhere. A downstream portion of this drainage is labeled M27 and is described elsewhere. The discussion here considers only the portion of the drainage labeled M19 in the map book.

Map book page:	E3
Photograph:	28
Project Component:	Gen-tie
Feature Type:	Non-RPW (ephemeral desert wash)

M19 is a small, ephemeral desert wash (non-RPW) and is considered potentially jurisdictional. It shows OHWMs including presence of bed and bank; sediment sorting and deposition; and collection of litter and debris (Photo 28). No riparian vegetation is present. The active floodplain, which was defined based on

changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from two to eight feet wide, with an average width of about four feet.

Outside of the gen-tie corridor, M19 runs generally south through a segment labeled M27 and then intersects other drainages that collectively pass via culvert under Wally Kay Way. The combined drainage then skirts the east edge of the Reid Gardner Generating Station in a constructed ditch before connecting with the Muddy River about 0.9 miles downstream of the project area.

Drainage M24

Note: Downstream portions of this drainage are labeled M25 and M28 and are described elsewhere. The discussion here considers only the portion of the drainage labeled M24 in the map book.

Map book page:	D2
Photographs:	29
Project Component:	Gen-tie
Feature Type:	Non-RPW (ephemeral desert wash)

The upper reach of M24 is a gully (erosional feature) lacking OHWMs. This feature shows indicators of surface water presence from the recent precipitation event, such as damp soil and minor movement of small particle size (silt, sand) sediment. OHWMs were not observed. These observations indicate that overland flow from the recent precipitation event collected in the gully, leading to a brief period of flow immediately after the event. Typical flow is expected to be of low volume and short duration, occurring only after high intensity precipitation events.

The lower reach of M24 is a small, ephemeral desert wash (non-RPW) and is potentially jurisdictional. It shows distinct OHWMs, including presence of bed and bank; sediment sorting and deposition; and collection of litter and debris (**Photo 29**). No riparian vegetation is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from two to 25 feet wide, with an average width of about six feet.

Downstream of the gen-tie corridors, M24 runs generally southeast, intersecting drainages M10, M25, and M26 before passing under two railroad tracks via culvert. It then passes through another reach and intersects drainages that collectively pass via culvert under Wally Kay Way. The combined drainage then skirts the east edge of the Reid Gardner Generating Station in a constructed ditch before connecting with the Muddy River about 1.2 miles downstream of the project area.

Drainage M25

Note: A downstream portion of this drainage is labeled M28 and is described elsewhere. The discussion here considers only the portion of the drainage labeled M25 in the map book.

Map book page:	D2
Photographs:	n/a – see Photo 29, which is representative of M25
Project Component:	Gen-tie

Feature Type:	Non-RPW (ephemeral desert wash), gully (erosional feature)

The upper reaches of M25 are gullies (erosional features) and lack OHWMs. These reaches show indicators of surface water presence from the recent precipitation event, such as damp soil and minor movement of small particle size (silt, sand) sediment. OHWMs were not observed. These observations indicate that overland flow from the recent precipitation event collected in the gullies, leading to a brief period of flow immediately after the event. Typical flow is expected to be of low volume and short duration, occurring only after high intensity precipitation events.

The lower reach of M25 is a small, ephemeral desert wash (non-RPW) and is considered potentially jurisdictional. It shows distinct OHWMs, including presence of bed and bank; sediment sorting and deposition; and collection of litter and debris. No riparian vegetation is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from two to 15 feet wide, with an average width of about four feet.

Downstream of the gen-tie corridors, M25 runs generally southeast, intersecting other drainages before passing under two railroad tracks via culvert. It then passes through a reach labeled M28 and intersects a drainage that collectively pass via culvert under Wally Kay Way. The combined drainage then skirts the east edge of the Reid Gardner Generating Station in a constructed ditch before connecting with the Muddy River about 1.0 miles downstream of the project area.

Drainage M26

Note: A downstream portion of this drainage is labeled M28 and is described elsewhere. The discussion here considers only the portion of the drainage labeled M26 in the map book.

Map book page:	D2
Photographs:	n/a – see Photo 29, which is representative of the potentially jurisdictional reach of M26 and Photo 1, which is representative of the non-jurisdictional upper reaches of M26.
Project Component:	Gen-tie
Feature Type:	Non-RPW (ephemeral desert wash)

The upper reaches of M26 are gullies (erosional features) and are considered non-jurisdictional. These reaches shows indicators of surface water presence from the recent precipitation event, such as damp soil and minor movement of small particle size (silt, sand) sediment. OHWMs were not observed. These observations indicate that overland flow from the recent precipitation event collected in the gullies, leading to a brief period of flow immediately after the event. Typical flow is expected to be of low volume and short duration, occurring only after high intensity precipitation events.

The lower reach of M26 is a small, ephemeral desert wash (non-RPW) and is potentially jurisdictional. It shows distinct OHWMs, including presence of bed and bank; sediment sorting and deposition; and collection of litter and debris. No riparian vegetation is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from two to 22 feet wide, with an average width of about four feet.

Downstream of the gen-tie corridors, M26 runs generally southeast, intersecting drainages before passing under two railroad tracks via culvert. It then passes through a reach labeled M28 and intersects drainages that collectively pass via culvert under Wally Kay Way. The combined drainage then skirts the east edge of the Reid Gardner Generating Station in a constructed ditch before connecting with the Muddy River about 1.0 miles downstream of the project area.

Drainage M27

Note: Upstream portions of this drainage are labeled M11 and M19 and are described elsewhere. The discussion here considers only the portion of the drainage labeled M27 in the map book.

Map book page:	E3
Photographs:	n/a
Project Component:	Gen-tie
Feature Type:	Non-RPW (ephemeral desert wash)

The main branch of M27 is a large, braided, ephemeral desert wash (non-RPW) and is potentially jurisdictional. It shows OHWMs including presence of bed and bank; sediment sorting and deposition; scouring; destruction of terrestrial vegetation, and collection of litter and debris. No riparian vegetation is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from four to 24 feet wide, with an average width of about 10 feet.

Downstream of the gen-tie corridor, M27 runs generally south, intersecting another drainage. Collectively, this drainage passes via culvert under Wally Kay Way. The combined drainage then skirts the east edge of the Reid Gardner Generating Station in a constructed ditch before connecting with the Muddy River about 0.7 miles downstream of the project area.

Drainage M28

Note: Upstream portions of this drainage are labeled M24, M25, and M26 and are described elsewhere. The discussion here considers only the portion of the drainage labeled M28 in the map book.

Map book page:	E3
Photographs:	n/a – see Photo 21, which is representative of M28
Project Component:	Gen-tie
Feature Type:	Non-RPW (ephemeral desert wash)

M28 is a large, braided, ephemeral desert wash (non-RPW) and is considered potentially jurisdictional. It shows OHWMs including presence of bed and bank; sediment sorting and deposition; scouring; destruction of terrestrial vegetation, and collection of litter and debris. No riparian vegetation is present. The active floodplain, which was defined based on changes in sediment texture, changes in vegetation cover, and the break in bank slope, varies from four to 24 feet wide, with an average width of about 10 feet.

Downstream of the gen-tie corridor, M28 runs generally south, intersecting a drainage that includes M11, M19, and M27. Collectively, this drainage passes via culvert under Wally Kay Way. The combined drainage then skirts the east edge of the Reid Gardner Generating Station in a constructed ditch before connecting with the Muddy River about 0.7 miles downstream of the project area.

Impacts to Potentially Jurisdictional Waters

Table 1 presents the estimated impact acreages for potentially jurisdictional waters for both the solar site and the gen-tie. The expectation is these two primary project components would be covered by Nationwide Permits (NWP). The solar site would be covered under NWP 51 – Land-Based Renewable Energy Generation Facilities. The gen-tie line and associated facilities (access road, pads, etc.) would be covered under NWP 12 – Utility Line Activities. Each separate distinct crossing of a waterbody for the gen-tie would be treated as a separate and complete project under NWP 12.

Nationwide Permit 51 has a limit of 0.5 acres of impacts to jurisdictional waters. As shown in **Table 1**, the Proposed Project would impact approximately 0.27 acres, well under the limit.

Nationwide Permit 12 limits impacts to jurisdictional waters to 0.5 acres for each separate and distinct project. As shown in **Table 2**, each gen-tie crossing associated with the Proposed Project would impact less than 0.05 acres, well under the limit.

Table 1 – Summary of Impacts to Potentially Jurisdictional Waters

Drainage ID	*Area of Impact (acres)*
Aiya Solar Facility	
M01	0.02
M02	0.12
M03	0.03
M04	0.10
Total	**0.27**
Aiya Gen-tie Line[1]	
M11	0.01
M12	0.02
M13	<0.01
M16	<0.01
M17	0.04
M18	0.01
M24	0.01
M25	<0.01
M27	0.01
M28	<0.01

[1] Assumes 20-foot disturbance area for access road within gen-tie corridor where an access road would be needed.

References

Environmental Protection Agency and U. S. Army Corps of Engineers. 2007. U. S Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook. Dated May 30, 2007.

Environmental Protection Agency and U. S. Army Corps of Engineers. 2008. Clean Water Act Jurisdiction Following the U. S. Supreme Court's Decision in Rapanos v. United States and Carabell v. United States. Memo dated December 2, 2008.

National Weather Service. 2015. The Climate of Las Vegas. Chris Stachelski and Andy Gorelow. Last Updated January 8, 2015. Retrieved from http://www.wrh.noaa.gov/vef/climateLasVegasClimateBook/ClimateofLasVegas.pdf on January 27, 2015.

Natural Resource Conservation Service. 2014. National Hydric Soils List. March 2014. Retrieved from http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/ on January 27, 2015.

Natural Resource Conservation Service. 2015. Custom Soil Resource Report for Virgin River Area, Nevada and Arizona, Aiya Solar Project. Retrieved from http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm on Accessed January 27, 2015.

Paddock, M., J. Pullin, and C. Steele. 2015. Southern Nevada Impacts Associated with Tropical Moisture from Hurricane Norbert. Retrieved from on January 26, 2015.

U. S. Army Corps of Engineers. 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States – A Delineation Manual. Robert W. Lichvar and Shawn M. McColley. August 2008.

U. S. Army Corps of Engineers. 2010. Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. Katherine E. Curtis and Robert W. Lichvar. July 2010.

U. S. Fish and Wildlife Service. 1996. Recovery Plan for the Rare Aquatic Species of the Muddy River Ecosystem. U. S. Fish and Wildlife Service, Region 1. Portland Oregon.

U. S. Fish and Wildlife Service. 2015. National Wetlands Inventory Wetlands Mapper. Retrieved from http://www.fws.gov/wetlands on January 28, 2015.

Usufzy, P., and K. Visconti. 2014. Flooding forces several-day closure of Interstate 15 north of Las Vegas. Las Vegas Sun, September 8, 2014. Retrieved from http://www.lasvegassun.com/news/2014/sep/08/heavy-rain-hits-valley-flooding-roads-and-snarling/ on January 26, 2015.

Appendix A
Photographs

Photo 1. M01. A swale in the upper reaches of this drainage.

Photo 2. M01. Potentially jurisdictional lower reach of this drainage, showing presence of bed and bank, sediment sorting and deposition, and destruction of terrestrial vegetation.

Photo 3. M02. Erosional gully in the upper reaches of this drainage.

Note: this photograph is also representative of the upper reaches of M03, M24, M25, and M26.

Photo 4. M02. Potentially jurisdictional lower reach of this drainage, showing presence of bed and bank, sediment sorting and deposition, and destruction of terrestrial vegetation.

Note: this photograph is also representative of the potentially jurisdictional lower reaches of M03 and M04.

Photo 5. M04. A swale in the upper reaches of this drainage, showing some movement of fine sediment and accumulation of drift from recent flood event.

Photo 6. M05. A swale in the northeast corner of the project site showing movement of fine sediment during the recent precipitation event.

Photo 7. M05. A swale showing sediment deposits on vegetation (right side of photograph) indicate water was as much as six inches deep during the recent precipitation event. This photograph was taken three days after the event.

Photo 8. M06, Section A. A swale with damp soil from recent precipitation event.

Photo 9. M06A swale with continuous vegetation from uplands in center background. Small area of scouring and gravel sorting in center foreground caused by recent flooding and narrowing of swale by vegetation.

Photo 10. M06 Channel scour caused by runoff from SH 168 (background).

Photo 11. M06. Potentially jurisdictional section of this drainage showing presence of bed and bank, scouring by floodwaters, and sediment sorting.

Photo 12. M06. A swale in the northeast corner of the project site showing movement of fine sediment during the recent precipitation event. Note no change in vegetation from surrounding uplands.

Photo 13. M06. A swale on the east boundary of the project site showing movement of fine sediment during the recent precipitation event. Note no change in vegetation from surrounding uplands.

Photo 14. M06. Potentially jurisdictional section of this drainage, near the upper end of this section, showing presence of bed and bank, accumulation of drift, sediment sorting, and scouring.

Photo 15. M06. Potentially jurisdictional section of this drainage, near the middle of this section. This reach shows evidence of recent water movement, such as damp soil, sediment staining on vegetation (right foreground), and movement of fine sediment.

Photo 16. M06. Potentially jurisdictional section of this drainage, downstream of project site, near the lower end of this section, showing presence of bed and bank, sediment sorting, and scouring.

Photo 17. M07. Gully (under shrub, center) at the higher reaches of the drainage, no OHWMs.

Photo 18. M07. Potentially jurisdictional drainage (center of photo), with presence of distinct bed and bank, sediment sorting, and scouring.

Note: this photograph is also representative of M08.

Photo 19. M11. Non-jurisdictional south branch in center of photo running back toward hills. Potentially jurisdictional middle branch crossing from right to left in the foreground.

Photo 20. M11. Potentially jurisdictional middle branch looking upstream.

Photo 21. M12. Potentially jurisdictional main channel showing extensive scouring and shelving from recent flood event.

Note: this photograph is also representative of M28.

Photo 22. M13. Potentially jurisdictional drainage showing scouring, accumulation of litter and debris, vegetation matted down and sediment sorting.

Photo 23. M15. Potentially jurisdictional main channel showing presence of bed and bank, sediment sorting, drift accumulation, and scouring from recent flood event.

Photo 24. M15. A swale in the higher reaches of the drainage lacks OHWMs, but shows damp soil, cracking of dried soil, and minor movement of fine sediment from the recent precipitation event.

Note: this photograph is also representative of the non-jurisdictional branches of M16.

Photo 25. M16. Potentially jurisdictional section downstream of existing road, showing presence of bed and bank, sediment sorting and deposition, and presence of litter and debris.

Photo 26. M17. Potentially jurisdictional wash showing presence of bed and bank, sediment sorting and deposition, presence of litter and debris, destruction of terrestrial vegetation and scouring.

Photo 27. M18. Potentially jurisdictional wash showing presence of bed and bank, sediment sorting and deposition, and presence of litter and debris.

Photo 28. M19. Potentially jurisdictional wash showing presence of bed and bank, sediment sorting and deposition, and presence of litter and debris.

Photo 29. M24. Potentially jurisdictional wash showing presence of bed and bank, sediment sorting and deposition, and presence of litter and debris.

Note: this photograph is also representative of the potentially jurisdictional reaches of M25 and M26.

Appendix B
Drainage Map Book

MAP SHEET INDEX

CACTUS WAY
THOM AVE
OMAR ST
LYTTLE LN
PERKINS WAY
LYTLE RD
Moapa Town
MEADOW VALLEY WASH RD
A1
A2
A3
B1
B2
B3
C1
C2
168
RESERVATION RD
QUAIL DR
HOLMS WAY
CLARK COUNTY
LINCOLN ST
D1
D2
78
RESERVATION RD
Moapa River
Indian Reservation
E1
E2
E3
RESERVATION RD
Potential Collector Station Location
Existing Reid Gardner Substation
Nevada

Legend

- Potential Collector Station Location
- Proposed Gen-Tie Routes
- Proposed Double-Circuit Line
- Water Pipeline
- State Highway
- Railroad
- Aiya Solar Site Waters Survey Area
- Aiya Gen-tie Waters Survey Area
- Pipeline Survey Area
- Potential Disturbance Area
- Existing Substation
- Census Designated Place
- Map Sheet Boundary

Jurisdictional Land Ownership

- Bureau of Land Management Land
- Indian Reservation
- Bureau of Reclamation

Aiya Solar Project
Waters of the U.S. Report

0 0.5
Miles

State Plane Coordinate System
Nevada East, NAD 83
Lambert Conformal Conic Projection
1983 North American Datum
Linear Unit: Foot US

01-22-16

Aiya Solar Project Jurisdictional Waters Report

Legend

- Potential Collector Station Location
- Proposed Gen-Tie Routes
- Potential Access Road
- Water Pipeline
- State Highway
- Railroad
- Aiya Solar Site Waters Survey Area
- Aiya Gen-tie Waters Survey Area
- Pipeline Survey Area
- Potential Disturbance Area
- Existing Substation

Jurisdictional Land Ownership

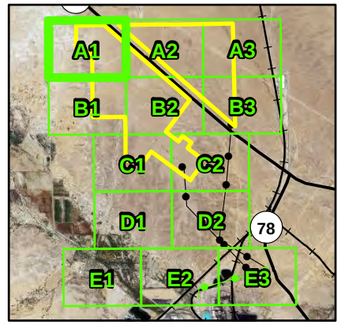
- Bureau of Land Management Land
- Indian Reservation

Potentially Jurisdictional Surface Water Conveyance Feature

- Potential Downstream Connections (unsurveyed)
- Potentially Jurisdictional Waters

0 100 200 300 400 500

Feet



Page: A1

01-22-16

Aiya Solar Project Jurisdictional Waters Report

CLARK COUNTY

Lyttle Ln

168

M06-A

Legend

- Potential Collector Station Location
- Proposed Gen-Tie Routes
- Potential Access Road
- Water Pipeline
- State Highway
- Railroad
- Aiya Solar Site Waters Survey Area
- Aiya Gen-tie Waters Survey Area
- Pipeline Survey Area
- Potential Disturbance Area
- Existing Substation

Jurisdictional Land Ownership

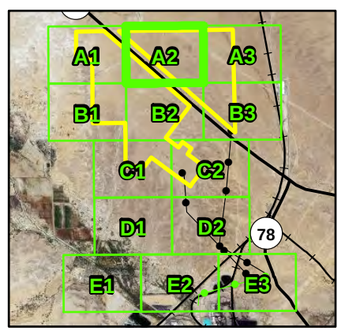
- Bureau of Land Management Land
- Indian Reservation

Potentially Jurisdictional Surface Water Conveyance Feature

- Potential Downstream Connections (unsurveyed)
- Potentially Jurisdictional Waters

0 100 200 300 400 500

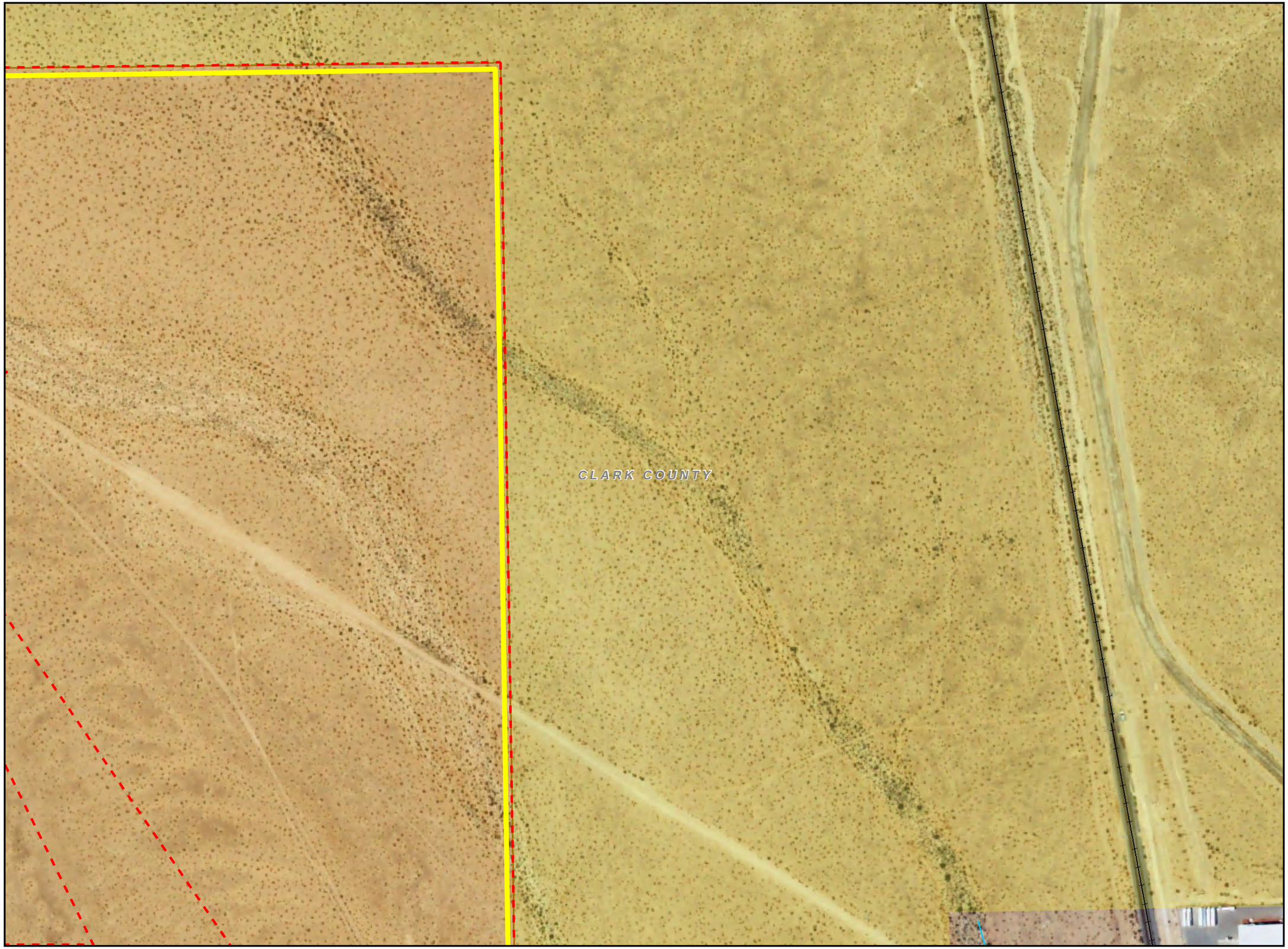
Feet



Page: A2

01-22-16

Aiya Solar Project Jurisdictional Waters Report



Legend

- Potential Collector Station Location
- Proposed Gen-Tie Routes
- Potential Access Road
- Water Pipeline
- State Highway
- Railroad
- Aiya Solar Site Waters Survey Area
- Aiya Gen-tie Waters Survey Area
- Pipeline Survey Area
- Potential Disturbance Area
- Existing Substation

Jurisdictional Land Ownership

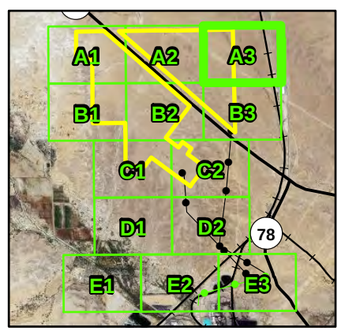
- Bureau of Land Management Land
- Indian Reservation

Potentially Jurisdictional Surface Water Conveyance Feature

- Potential Downstream Connections (unsurveyed)
- Potentially Jurisdictional Waters

0 100 200 300 400 500

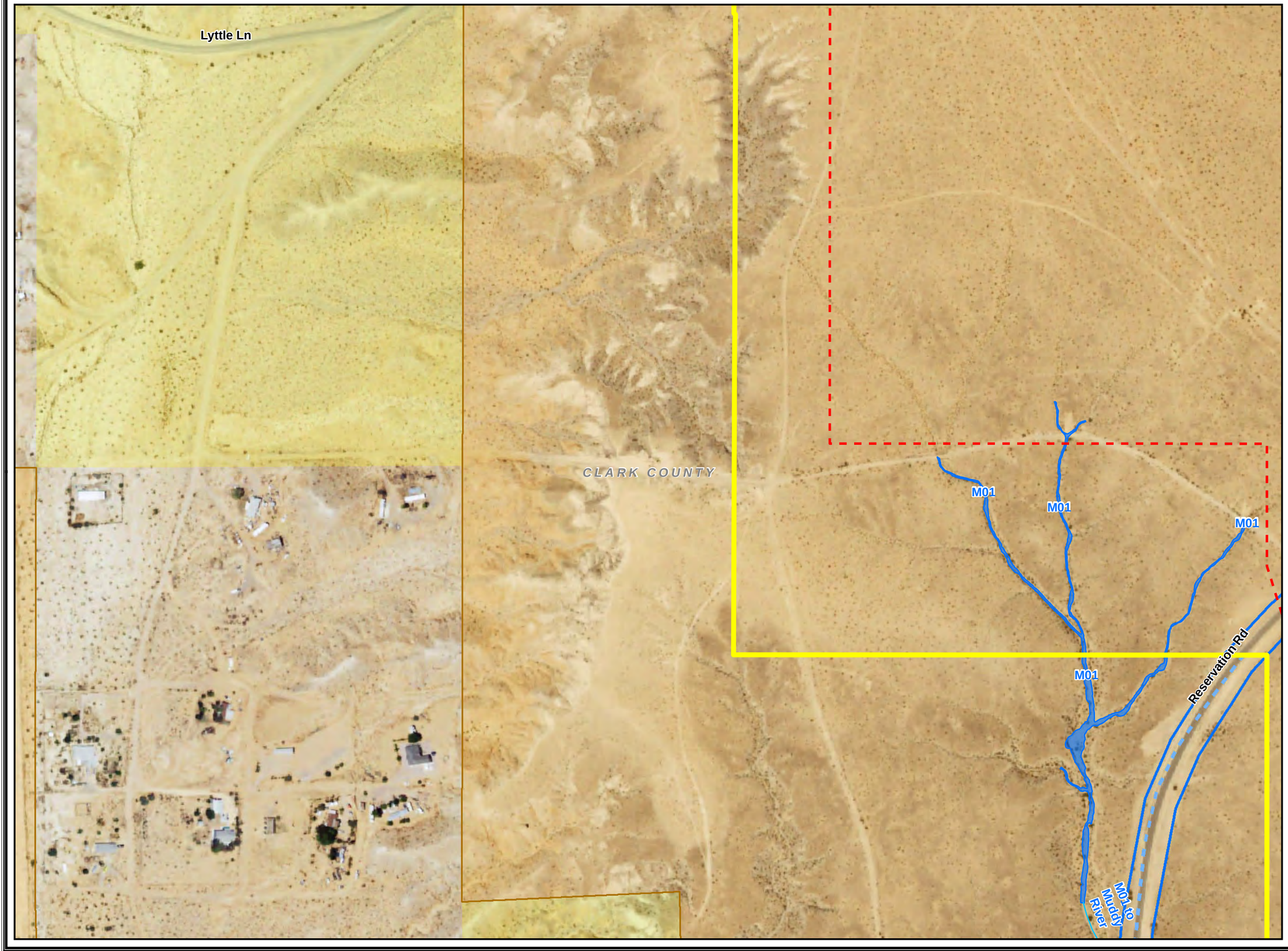
Feet



Page: A3

01-22-16

Aiya Solar Project Jurisdictional Waters Report



Legend

- Potential Collector Station Location
- Proposed Gen-Tie Routes
- Potential Access Road
- Water Pipeline
- State Highway
- Railroad
- Aiya Solar Site Waters Survey Area
- Aiya Gen-tie Waters Survey Area
- Pipeline Survey Area
- Potential Disturbance Area
- Existing Substation

Jurisdictional Land Ownership

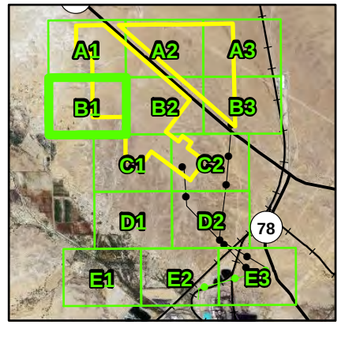
- Bureau of Land Management Land
- Indian Reservation

Potentially Jurisdictional Surface Water Conveyance Feature

- Potential Downstream Connections (unsurveyed)
- Potentially Jurisdictional Waters

0 100 200 300 400 500

Feet



Page: B1

01-22-16

Aiya Solar Project Jurisdictional Waters Report

Legend

- Potential Collector Station Location
- Proposed Gen-Tie Routes
- Potential Access Road
- Water Pipeline
- State Highway
- Railroad
- Aiya Solar Site Waters Survey Area
- Aiya Gen-tie Waters Survey Area
- Pipeline Survey Area
- Potential Disturbance Area
- Existing Substation

Jurisdictional Land Ownership

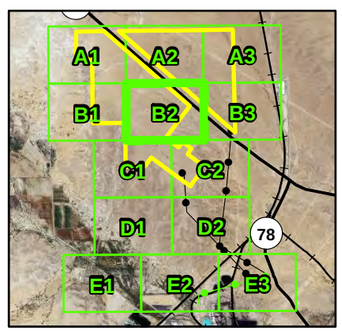
- Bureau of Land Management Land
- Indian Reservation

Potentially Jurisdictional Surface Water Conveyance Feature

- Potential Downstream Connections (unsurveyed)
- Potentially Jurisdictional Waters

0 100 200 300 400 500

Feet



Page: B2

01-22-16

Aiya Solar Project Jurisdictional Waters Report

M06
M06
M06
M05
M05 to Muddy River
M06
M06 to Muddy River
M04 to M17
168
CLARK COUNTY

Legend

- Potential Collector Station Location
- Proposed Gen-Tie Routes
- Potential Access Road
- Water Pipeline
- State Highway
- Railroad
- Aiya Solar Site Waters Survey Area
- Aiya Gen-tie Waters Survey Area
- Pipeline Survey Area
- Potential Disturbance Area
- Existing Substation

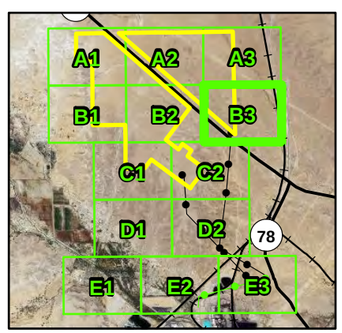
Jurisdictional Land Ownership

- Bureau of Land Management Land
- Indian Reservation

Potentially Jurisdictional Surface Water Conveyance Feature

- Potential Downstream Connections (unsurveyed)
- Potentially Jurisdictional Waters

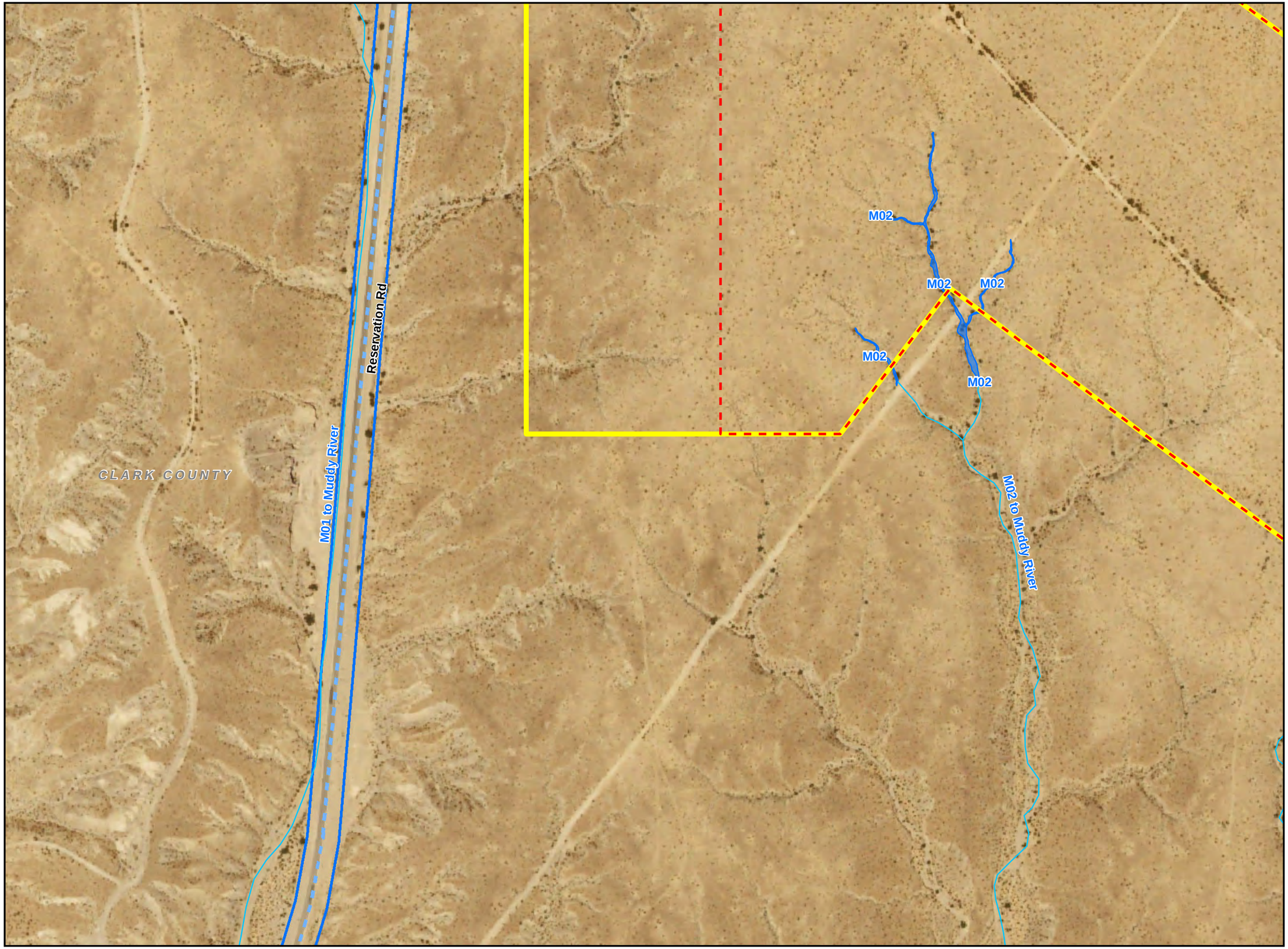
0 100 200 300 400 500
Feet



Page: B3

01-22-16

Aiya Solar Project Jurisdictional Waters Report



Legend

- Potential Collector Station Location
- Proposed Gen-Tie Routes
- Potential Access Road
- Water Pipeline
- State Highway
- Railroad
- Aiya Solar Site Waters Survey Area
- Aiya Gen-tie Waters Survey Area
- Pipeline Survey Area
- Potential Disturbance Area
- Existing Substation

Jurisdictional Land Ownership

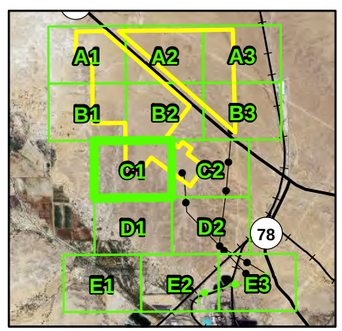
- Bureau of Land Management Land
- Indian Reservation

Potentially Jurisdictional Surface Water Conveyance Feature

- Potential Downstream Connections (unsurveyed)
- Potentially Jurisdictional Waters

0 100 200 300 400 500

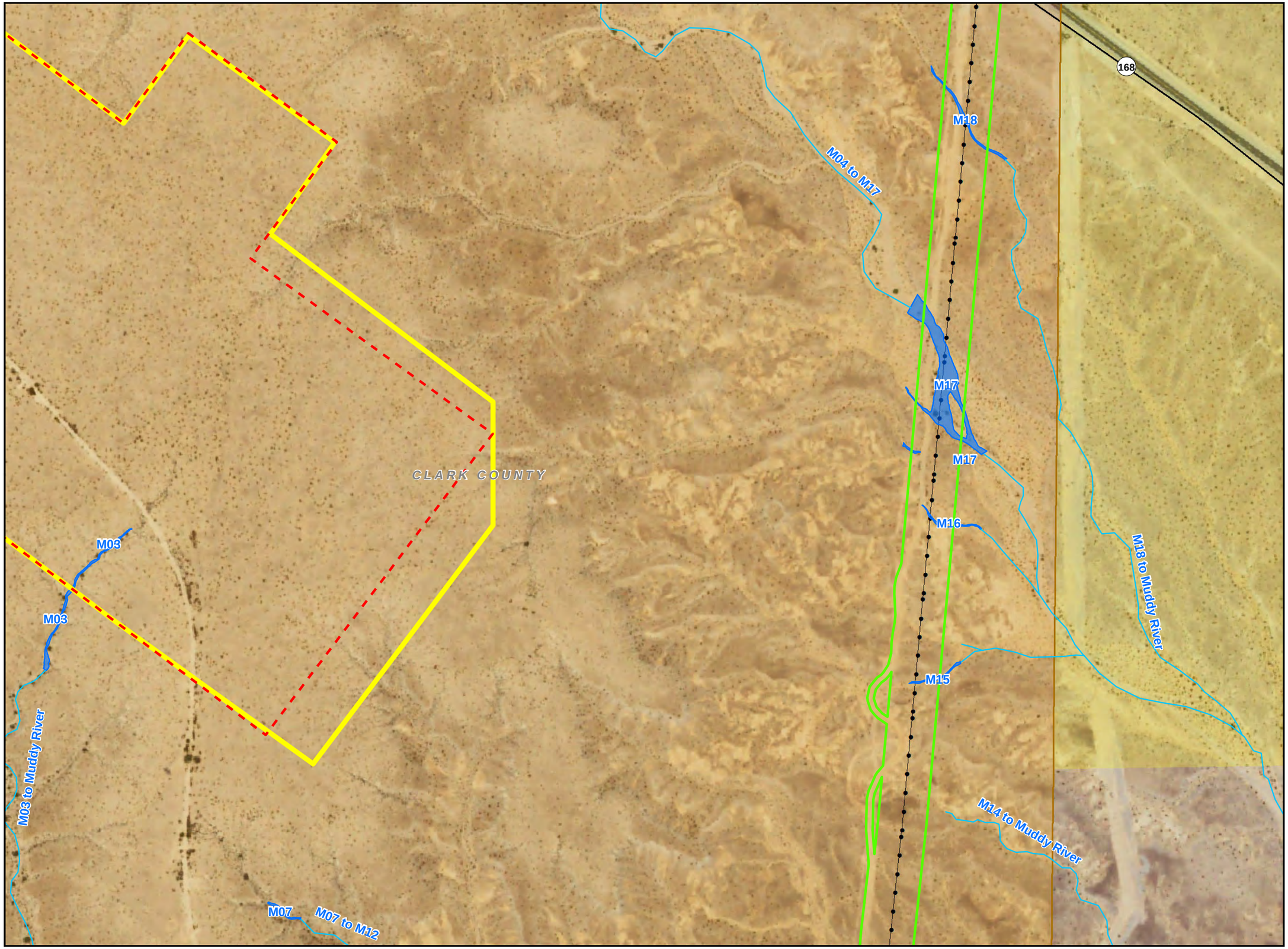
Feet



Page: C1

01-22-16

Aiya Solar Project Jurisdictional Waters Report



Legend

- Potential Collector Station Location
- Proposed Gen-Tie Routes
- Potential Access Road
- Water Pipeline
- State Highway
- Railroad
- Aiya Solar Site Waters Survey Area
- Aiya Gen-tie Waters Survey Area
- Pipeline Survey Area
- Potential Disturbance Area
- Existing Substation

Jurisdictional Land Ownership

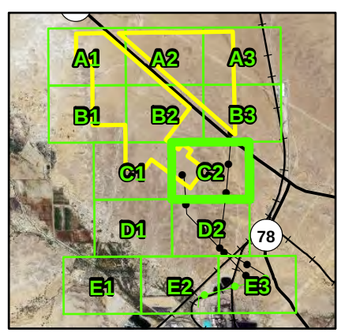
- Bureau of Land Management Land
- Indian Reservation

Potentially Jurisdictional Surface Water Conveyance Feature

- Potential Downstream Connections (unsurveyed)
- Potentially Jurisdictional Waters

0 100 200 300 400 500

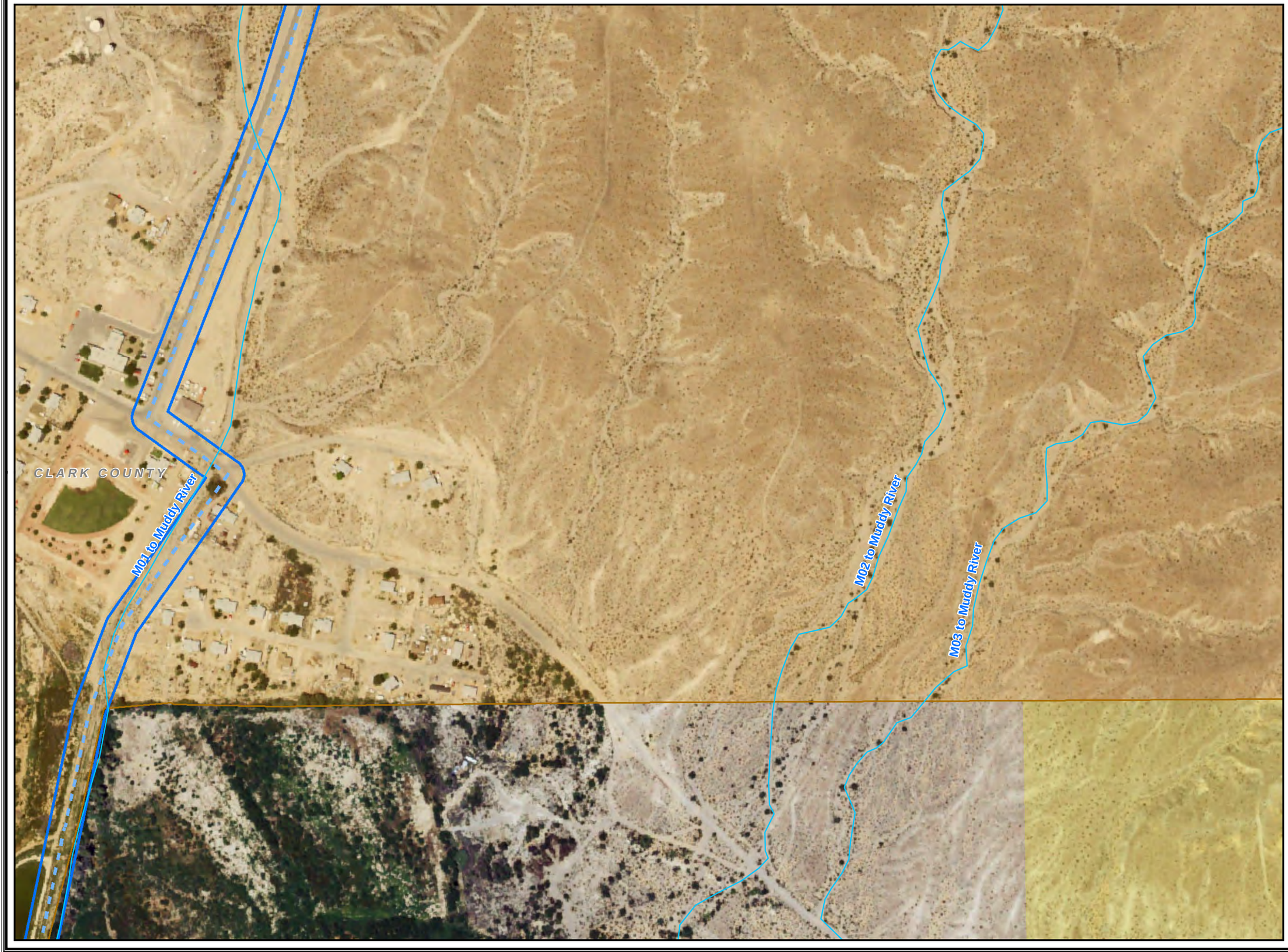
Feet



Page: C2

01-22-16

Aiya Solar Project Jurisdictional Waters Report



Legend

- Potential Collector Station Location
- Proposed Gen-Tie Routes
- Potential Access Road
- Water Pipeline
- State Highway
- Railroad
- Aiya Solar Site Waters Survey Area
- Aiya Gen-tie Waters Survey Area
- Pipeline Survey Area
- Potential Disturbance Area
- Existing Substation

Jurisdictional Land Ownership

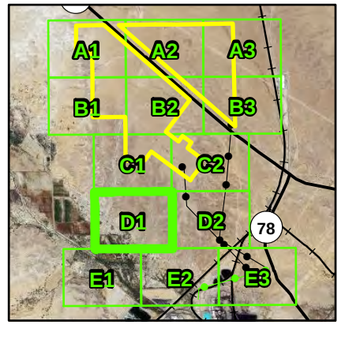
- Bureau of Land Management Land
- Indian Reservation

Potentially Jurisdictional Surface Water Conveyance Feature

- Potential Downstream Connections (unsurveyed)
- Potentially Jurisdictional Waters

0 100 200 300 400 500

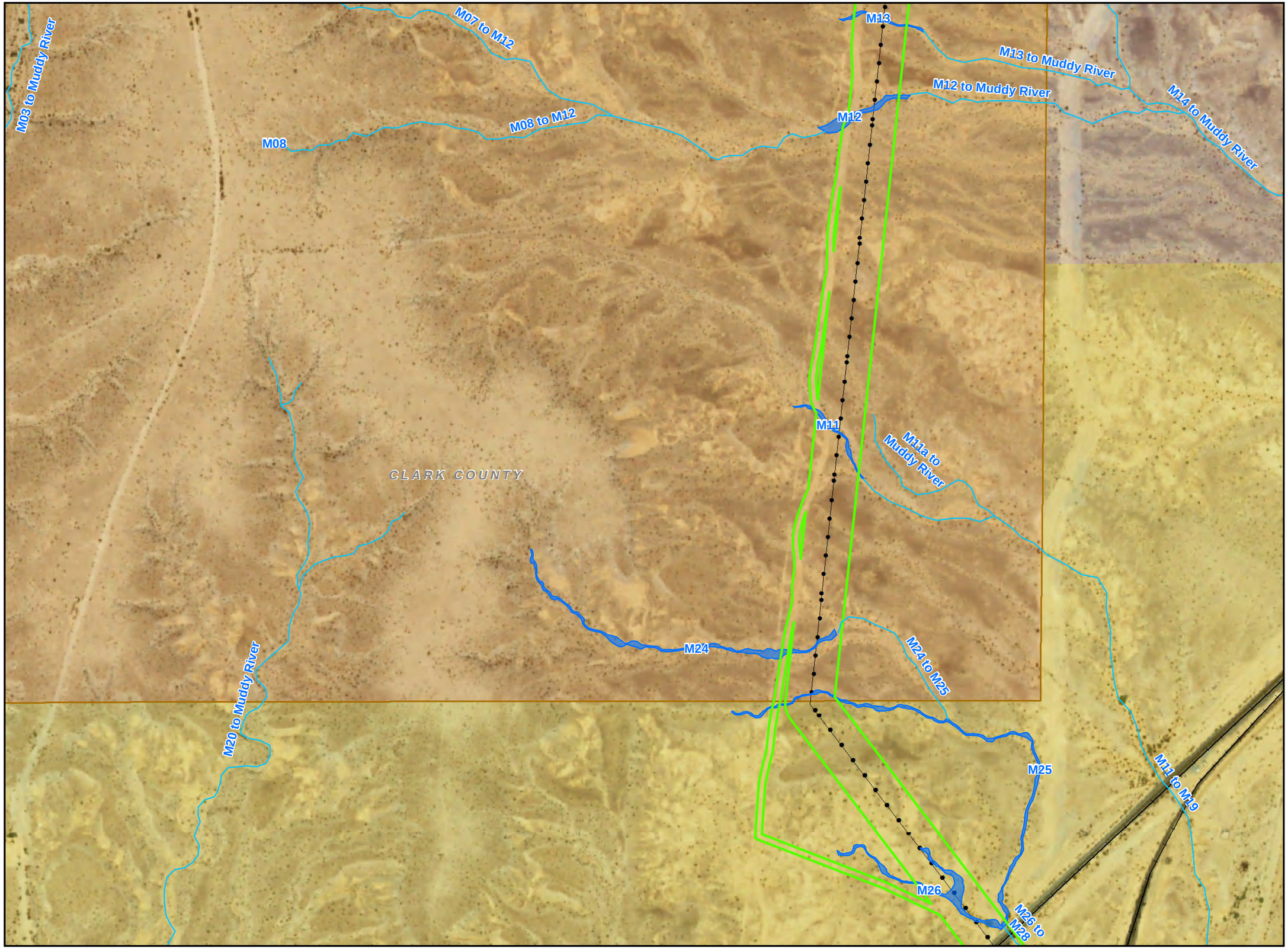
Feet



Page: D1

01-22-16

Aiya Solar Project Jurisdictional Waters Report



Legend

- Potential Collector Station Location
- Proposed Gen-Tie Routes
- Potential Access Road
- Water Pipeline
- State Highway
- Railroad
- Aiya Solar Site Waters Survey Area
- Aiya Gen-tie Waters Survey Area
- Pipeline Survey Area
- Potential Disturbance Area
- Existing Substation

Jurisdictional Land Ownership

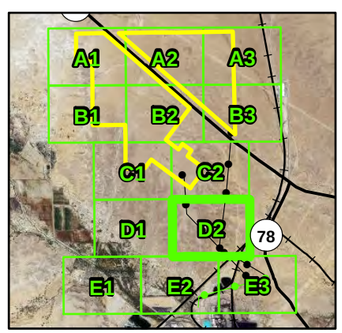
- Bureau of Land Management Land
- Indian Reservation

Potentially Jurisdictional Surface Water Conveyance Feature

- Potential Downstream Connections (unsurveyed)
- Potentially Jurisdictional Waters

0 100 200 300 400 500

Feet



Page: D2

01-22-16

Aiya Solar Project Jurisdictional Waters Report

Legend

- Potential Collector Station Location
- Proposed Gen-Tie Routes
- Potential Access Road
- Water Pipeline
- State Highway
- Railroad
- Aiya Solar Site Waters Survey Area
- Aiya Gen-tie Waters Survey Area
- Pipeline Survey Area
- Potential Disturbance Area
- Existing Substation

Jurisdictional Land Ownership

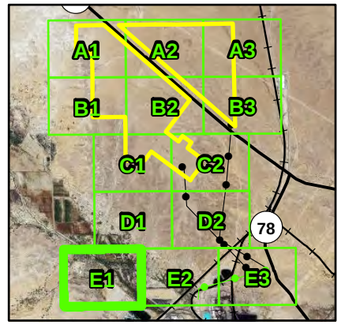
- Bureau of Land Management Land
- Indian Reservation

Potentially Jurisdictional Surface Water Conveyance Feature

- Potential Downstream Connections (unsurveyed)
- Potentially Jurisdictional Waters

0 100 200 300 400 500

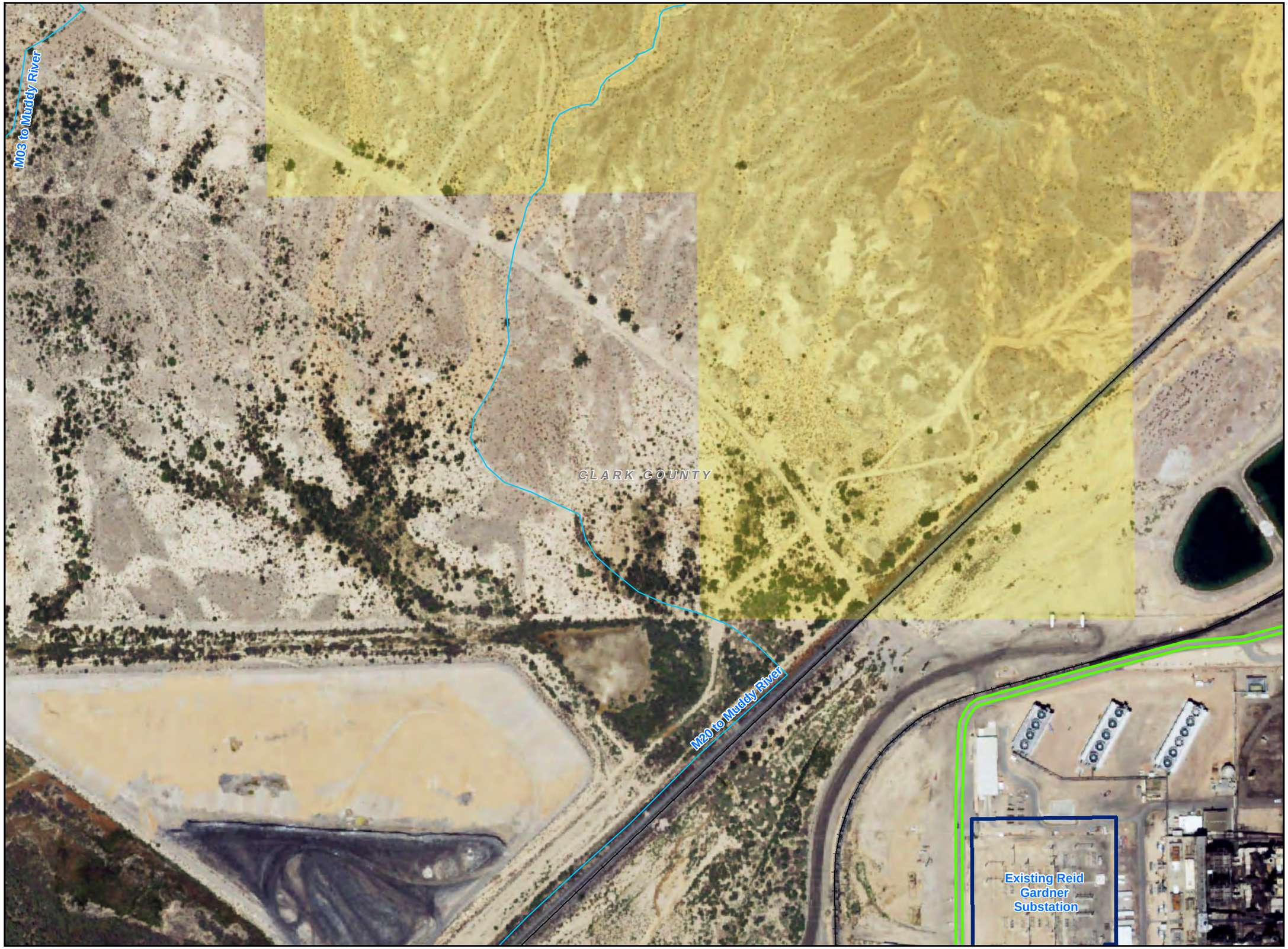
Feet



Page: E1

01-22-16

Aiya Solar Project Jurisdictional Waters Report



Legend

- Potential Collector Station Location
- Proposed Gen-Tie Routes
- Potential Access Road
- Water Pipeline
- State Highway
- Railroad
- Aiya Solar Site Waters Survey Area
- Aiya Gen-tie Waters Survey Area
- Pipeline Survey Area
- Potential Disturbance Area
- Existing Substation

Jurisdictional Land Ownership

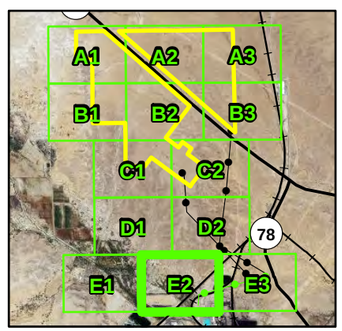
- Bureau of Land Management Land
- Indian Reservation

Potentially Jurisdictional Surface Water Conveyance Feature

- Potential Downstream Connections (unsurveyed)
- Potentially Jurisdictional Waters

0 100 200 300 400 500

Feet



Page: E2

01-22-16

Aiya Solar Project Jurisdictional Waters Report

Legend

- Potential Collector Station Location
- Proposed Gen-Tie Routes
- Potential Access Road
- Water Pipeline
- State Highway
- Railroad
- Aiya Solar Site Waters Survey Area
- Aiya Gen-tie Waters Survey Area
- Pipeline Survey Area
- Potential Disturbance Area
- Existing Substation

Jurisdictional Land Ownership

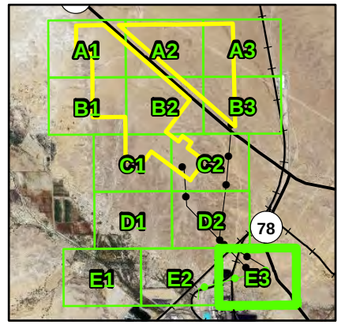
- Bureau of Land Management Land
- Indian Reservation

Potentially Jurisdictional Surface Water Conveyance Feature

- Potential Downstream Connections (unsurveyed)
- Potentially Jurisdictional Waters

0 100 200 300 400 500

Feet



Page: E3

01-22-16

Appendix C
OHWM Data Sheets

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M01
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: 2 **Photo end file#:** 2

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

Potential anthropogenic influences on the channel system:
An unnamed native surface road crosses each of the three main branches of this drainage. This road may have contributed to increased erosion or development of nick points, as the transition from upland swale/gully to non-RPW occurs close to the road on all three branches.

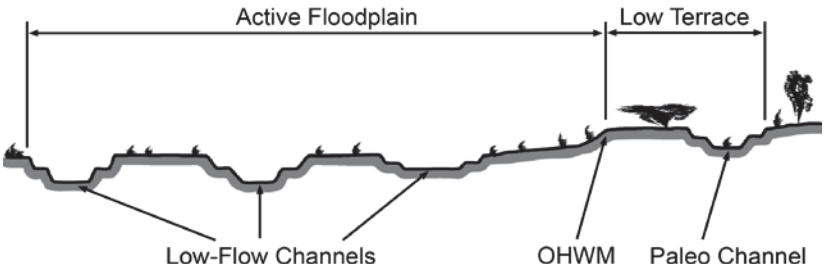
Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

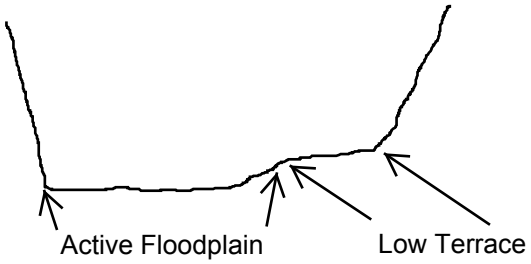


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M01 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [X] Other: Accumulation of drift
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit: [ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand to gravel

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [X] Mudcracks
- [X] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting, gravel bars
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event.

Project ID: Aiya Solar **Cross section ID:** M01 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 20% Tree: 0% Shrub: 15% Herb: 5%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include cat claw, boxthorn. Riparian vegetation not present.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M02
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: 4 **Photo end file#:** 4

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

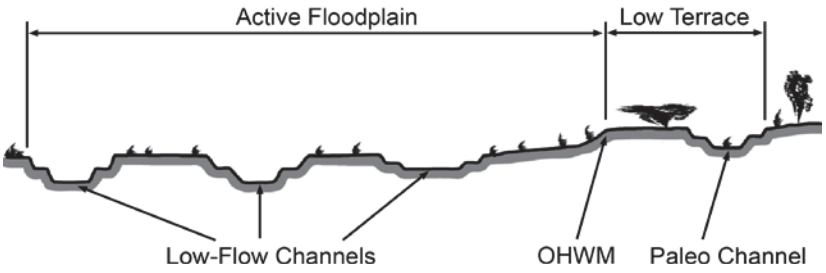
Potential anthropogenic influences on the channel system:
An electrical distribution line and associated native surface road cross two of the three branches of this drainage. The mapped portion of the third branch may originate in runoff from this road.

Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

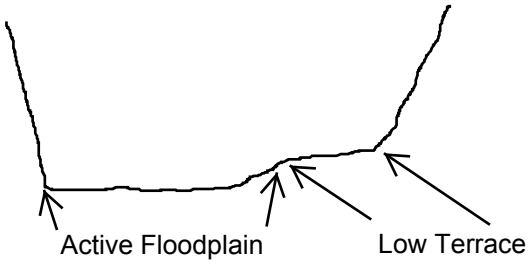


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M02 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [X] Other: Exposed roots
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit:

[ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand to gravel

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [X] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting, gravel bars
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event.

Project ID: Aiya Solar **Cross section ID:** M02 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Gravel to cobble

Total veg cover: 50% Tree: 0% Shrub: 35% Herb: 15%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include cat claw, boxthorn.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M03
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: n/a **Photo end file#:** n/a

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

Potential anthropogenic influences on the channel system:
A native surface road cross an upper non-jurisdictional branch of this drainage.

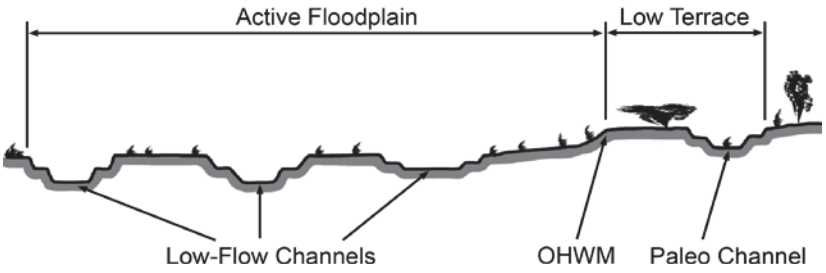
Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

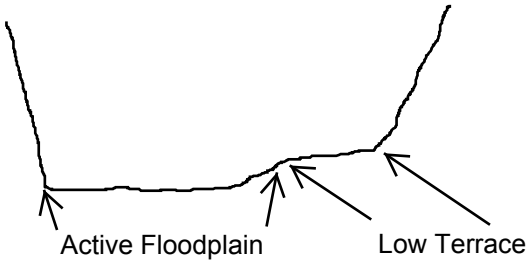


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M03 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit: [ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand to gravel

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [X] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting, gravel bars
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event.

Project ID: Aiya Solar **Cross section ID:** M03 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Gravel to cobble

Total veg cover: 35% Tree: 0% Shrub: 25% Herb: 10%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include cat claw, boxthorn.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M04
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: n/a **Photo end file#:** n/a

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

Potential anthropogenic influences on the channel system:
A native surface road associated with an electrical distribution line crosses each of the three main branches of this drainage. This road may have contributed to increased erosion or development of nick points.

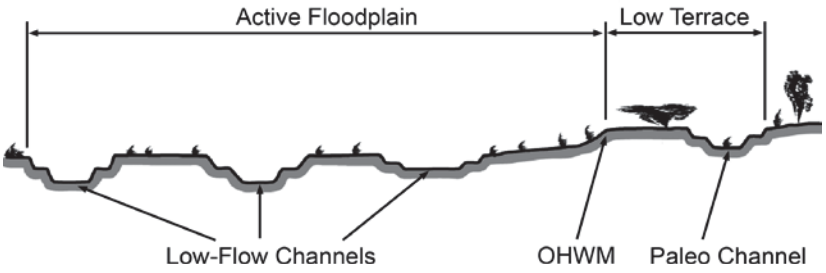
Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

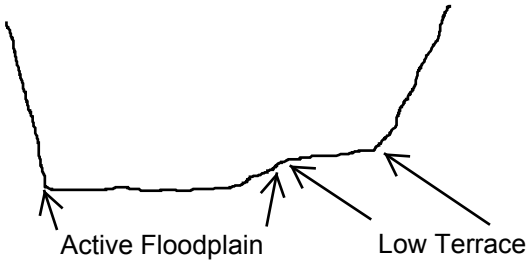


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M04 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit: [ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand to gravel

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [X] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting, gravel bars
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event.

Project ID: Aiya Solar **Cross section ID:** M04 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Gravel to cobble

Total veg cover: 35% Tree: 0% Shrub: 25% Herb: 10%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include cat claw, boxthorn.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M06
Investigator(s): S. Yanco, M.Schweich

Date: 11 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: 10 **Photo end file#:** 16

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

Potential anthropogenic influences on the channel system:
State Highway 168 crosses the upper end of this drainage - the potentially jurisdictional portion of the drainage begins immediately downstream of the highway - runoff from the highway may contribute to flows in this drainage.

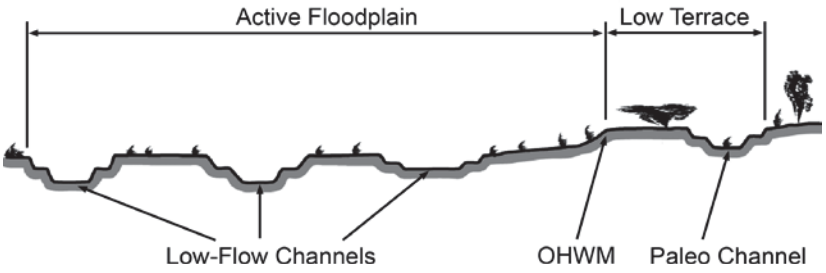
Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

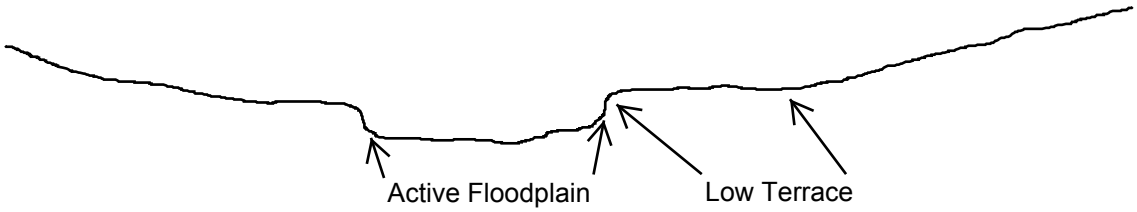


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M06 **Date:** 11 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit: [ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand to gravel

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [X] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting, gravel bars
- [X] Other: Scouring of vegetation
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event.

Project ID: Aiya Solar **Cross section ID:** M06 **Date:** 11 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 35% Tree: 0% Shrub: 25% Herb: 10%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Vegetation cover highly variable, as little as 10% in some areas such as the upper end of Section B, to over 50% in parts of Section D, rough averages are reported above. Typical shrubs include cat claw, bursage, boxthorn, brittle bush.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M07
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: 18 **Photo end file#:** 18

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

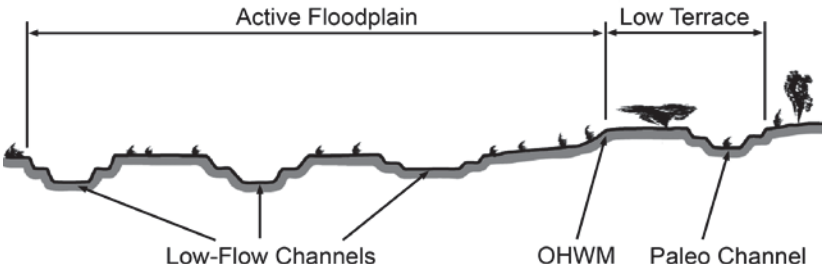
Potential anthropogenic influences on the channel system:
n/a

Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

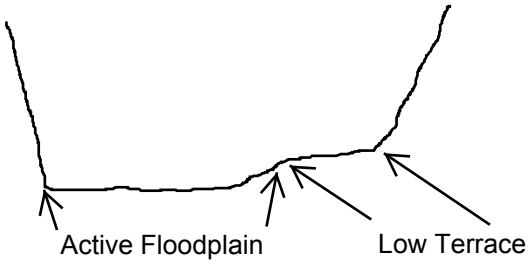


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M07 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit: [ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Gravel to cobble

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting, gravel bars
- [X] Other: Scouring of vegetation
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event.

Project ID: Aiya Solar **Cross section ID:** M07 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand to gravel

Total veg cover: 20% Tree: 0% Shrub: 15% Herb: 5%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M07
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: n/a **Photo end file#:** n/a

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

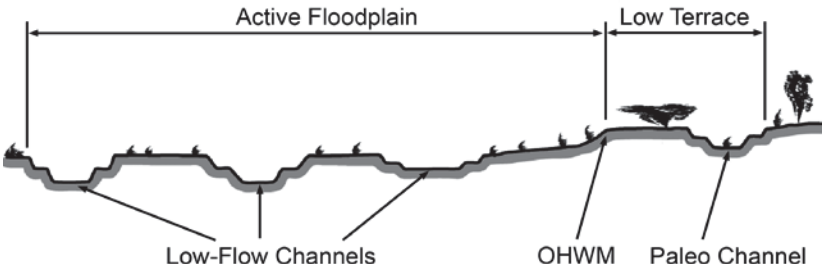
Potential anthropogenic influences on the channel system:
n/a

Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

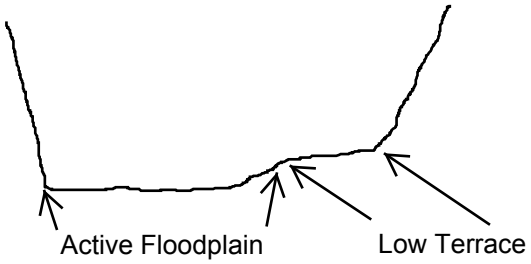


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M08 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit: [ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Gravel to cobble

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting, gravel bars
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event.

Project ID: Aiya Solar **Cross section ID:** M08 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand to gravel

Total veg cover: 20% Tree: 0% Shrub: 15% Herb: 5%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M11
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: 21 **Photo end file#:** 21

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

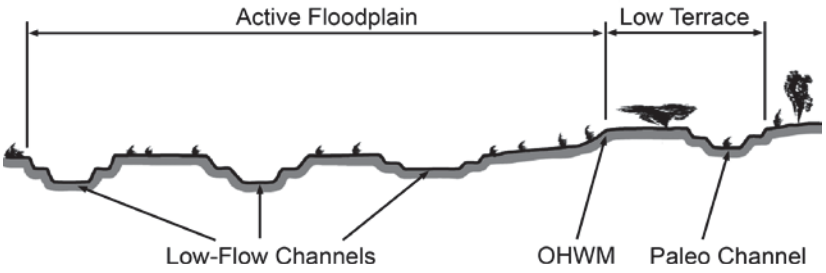
Potential anthropogenic influences on the channel system: A native surface road associated with an electrical distribution line crosses this drainage and may contribute to increased flows.

Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

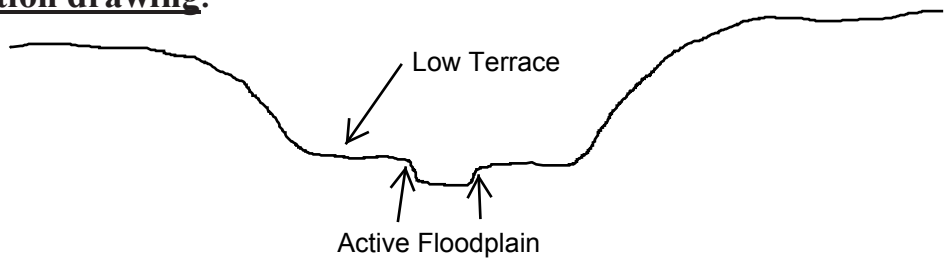


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M11 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit: [ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Gravel to cobble

Total veg cover: 5% Tree: 0% Shrub: 5% Herb: 0%

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting, gravel bars
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event. Some shrubs remain in floodplain, though many were scoured and accumulated large amounts of drift and debris.

Project ID: Aiya Solar **Cross section ID:** M11 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 12% Tree: 0% Shrub: 10% Herb: 2%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M12
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: 22 **Photo end file#:** 22

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

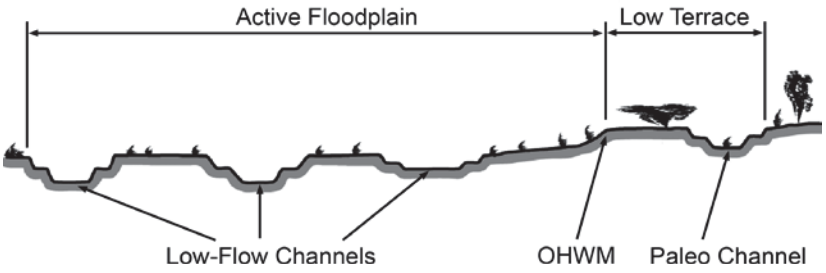
Potential anthropogenic influences on the channel system: A native surface road associated with an electrical distribution line crosses this drainage and may contribute to increased flows.

Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

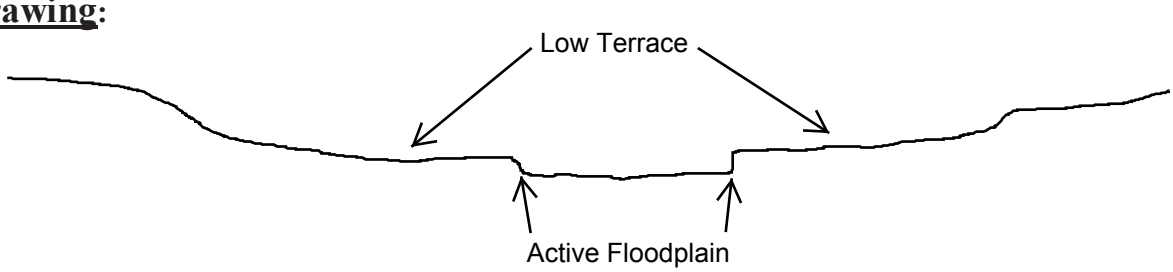


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M12 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit:

[ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Gravel to cobble

Total veg cover: 0% Tree: 0% Shrub: 0% Herb: 0%

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting, gravel bars
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event.

Project ID: Aiya Solar **Cross section ID:** M12 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 15% Tree: 0% Shrub: 10% Herb: 5%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M13
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: 23 **Photo end file#:** 23

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

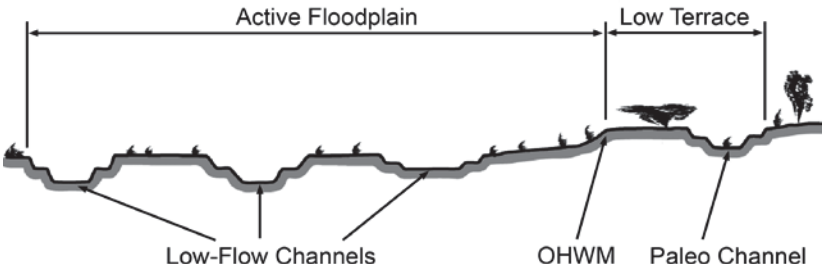
Potential anthropogenic influences on the channel system: A native surface road associated with an electrical distribution line crosses this drainage and may contribute to increased flows.

Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

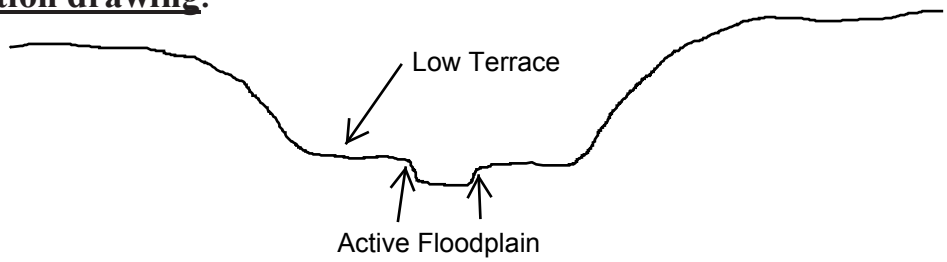


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M13 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit:

[ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Gravel to cobble

Total veg cover: 5% Tree: 0% Shrub: 5% Herb: 0%

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting, gravel bars
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event. Some shrubs remain in floodplain, though many were scoured and accumulated large amounts of drift and debris.

Project ID: Aiya Solar **Cross section ID:** M13 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 20% Tree: 0% Shrub: 15% Herb: 5%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M15
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: 25 **Photo end file#:** 25

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

Potential anthropogenic influences on the channel system: A native surface road associated with an electrical distribution line crosses the upper, non-jurisdictional reaches of this drainage and may contribute to increased flows.

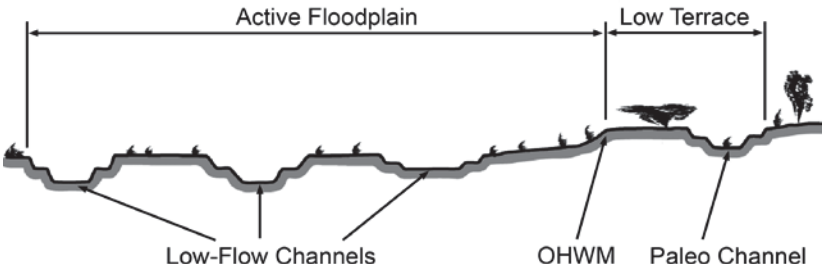
Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

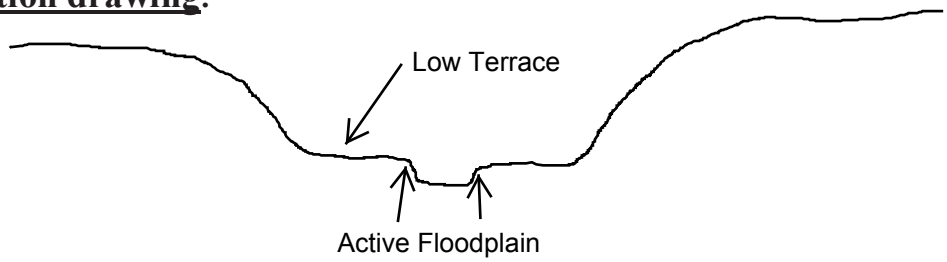


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M15 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit:

[ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Gravel to cobble

Total veg cover: 10% Tree: 0% Shrub: 5% Herb: 5%

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting, gravel bars
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event. Some shrubs and galleta grass remain in floodplain, though many were scoured and accumulated large amounts of drift and debris.

Project ID: Aiya Solar **Cross section ID:** M15 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 20% Tree: 0% Shrub: 15% Herb: 5%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage, spiny hopsage.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M16
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: 27 **Photo end file#:** 27

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

Potential anthropogenic influences on the channel system: A native surface road associated with an electrical distribution line was constructed through a portion of this drainage. OHWM indicators are not present in this area, although the active floodplain was mapped above and below the road. The recent flood event flowed along the road, but not with sufficient volume to re-establish clear indicators.

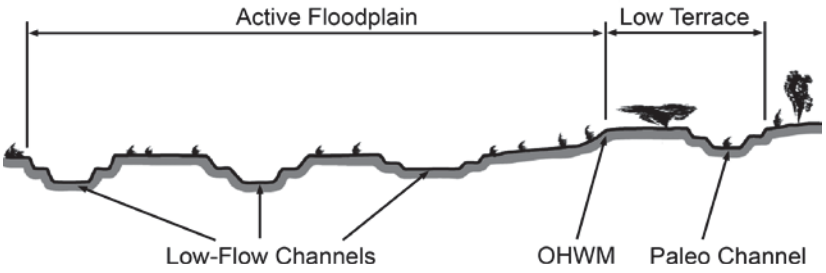
Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 2013
- ☒ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

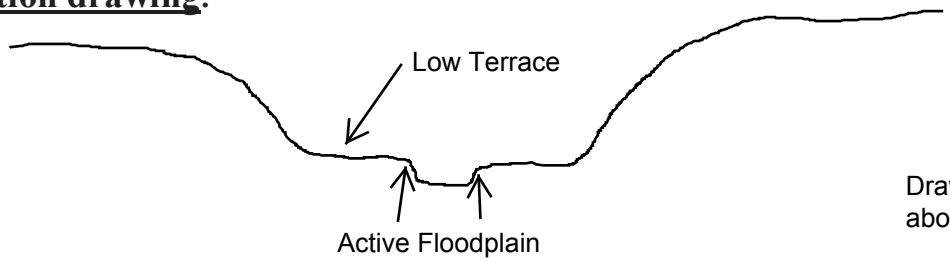


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☒ GPS
   - ☐ Digitized on computer
   - ☐ Other:

Project ID: Aiya Solar **Cross section ID:** M16 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



Drawing is of typical channel above and below the road.

OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit: [ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand to cobble

Total veg cover: 5% Tree: 0% Shrub: 5% Herb: 0%

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [X] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting, gravel bars
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event. Some shrubs remain in floodplain, though many were scoured and accumulated large amounts of drift and debris.

Project ID: Aiya Solar **Cross section ID:** M16 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 12% Tree: 0% Shrub: 10% Herb: 2%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage, spiny hopsage.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M17
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: 28 **Photo end file#:** 28

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

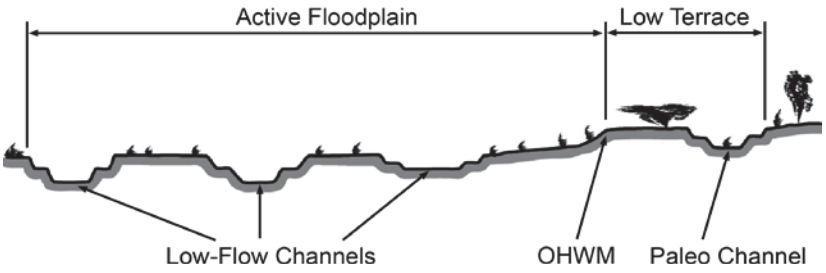
Potential anthropogenic influences on the channel system: A native surface road associated with an electrical distribution line crosses this drainage and may contribute to increased flows.

Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

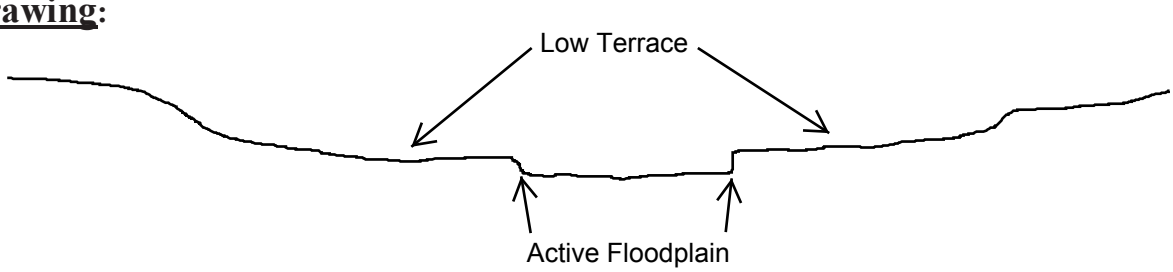


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M17 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit:

[ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Gravel to cobble

Total veg cover: 0% Tree: 0% Shrub: 0% Herb: 0%

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting, gravel bars
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event.

Project ID: Aiya Solar **Cross section ID:** M17 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 25% Tree: 0% Shrub: 15% Herb: 10%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M18
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: 29 **Photo end file#:** 29

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

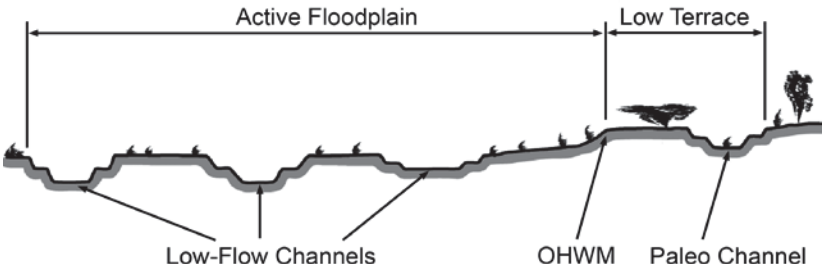
Potential anthropogenic influences on the channel system: A native surface road associated with an electrical distribution line crosses this drainage and may contribute to increased flows.

Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

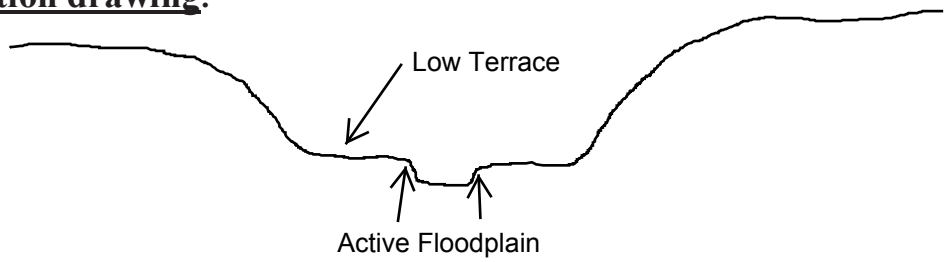


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M18 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit: [ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Gravel to cobble

Total veg cover: 5% Tree: 0% Shrub: 5% Herb: 0%

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting, gravel bars
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event. Some shrubs remain in floodplain, though many were scoured and accumulated large amounts of drift and debris.

Project ID: Aiya Solar **Cross section ID:** M18 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 25% Tree: 0% Shrub: 20% Herb: 5%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage, spiny hopsage, brittlebush.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M19
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: 30 **Photo end file#:** 30

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

Potential anthropogenic influences on the channel system: Upstream of the mapped section, this drainage is crossed by several native surface roads and flows under two railroad lines by culvert. No direct anthropogenic influences were observed in the mapped section.

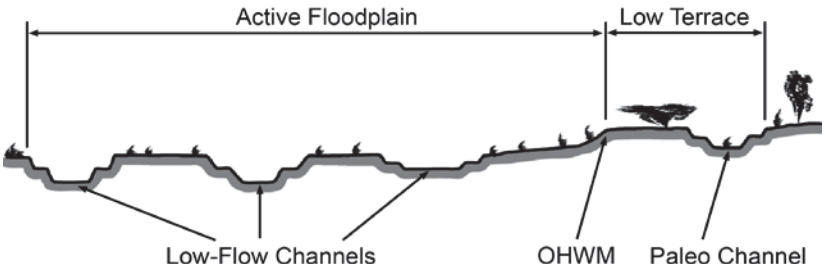
Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

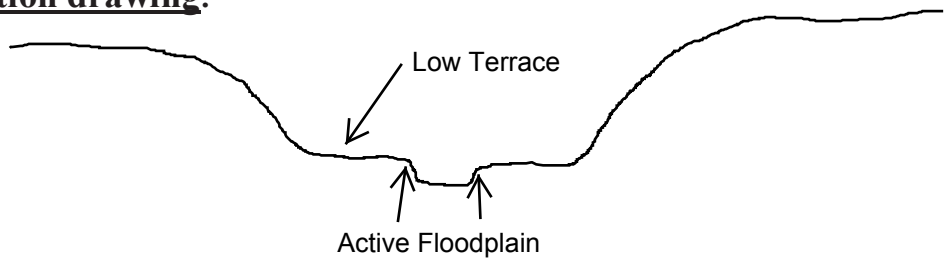


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M19 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit:

[ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Gravel

Total veg cover: 10% Tree: 0% Shrub: 10% Herb: 0%

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event. Some shrubs remain in floodplain, though many were scoured and accumulated drift and debris.

Project ID: Aiya Solar **Cross section ID:** M19 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 15% Tree: 0% Shrub: 10% Herb: 5%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M24
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: 31 **Photo end file#:** 31

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

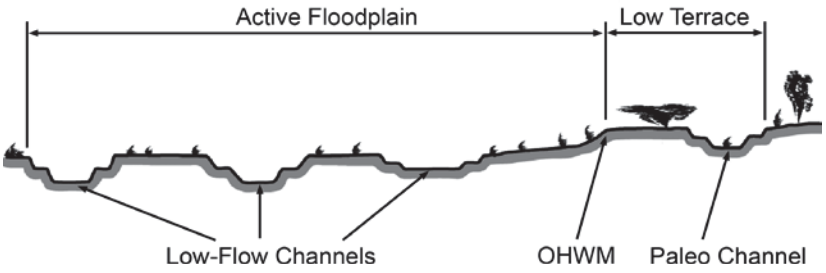
Potential anthropogenic influences on the channel system: This drainage is crossed by a native surface road associated with an electrical distribution line.

Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

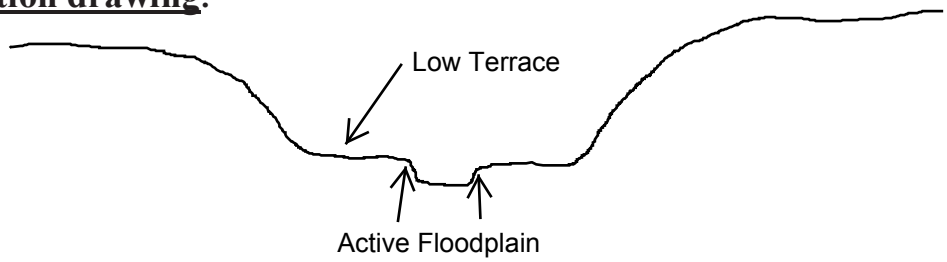


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M24 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit:

[ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand to cobble

Total veg cover: 10% Tree: 0% Shrub: 10% Herb: 0%

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event. Some shrubs remain in floodplain, though many were scoured and accumulated drift and debris.

Project ID: Aiya Solar **Cross section ID:** M24 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 25% Tree: 0% Shrub: 20% Herb: 5%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M25
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: n/a **Photo end file#:** n/a

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

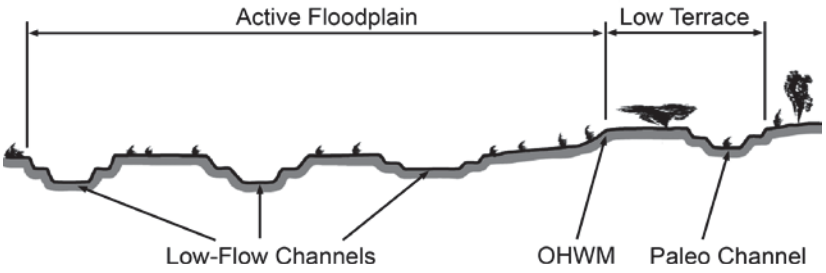
Potential anthropogenic influences on the channel system: This drainage is crossed by a native surface road associated with an electrical distribution line. The mapped section ends at a railroad grade, which causes ponding of water and has created a small basin filled with fine sediment. The drainage passes under the railroad grade via culvert.

Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

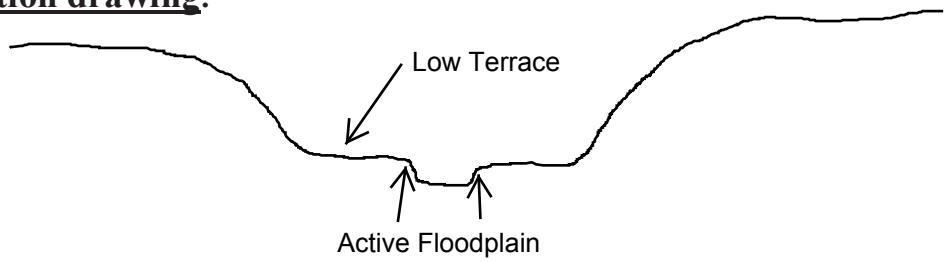


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M25 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit:

[ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand to cobble

Total veg cover: 10% Tree: 0% Shrub: 10% Herb: 0%

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event. Some shrubs remain in floodplain, though many were scoured and accumulated drift and debris.

Project ID: Aiya Solar **Cross section ID:** M25 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 20% Tree: 0% Shrub: 15% Herb: 5%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M26
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: n/a **Photo end file#:** n/a

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

Potential anthropogenic influences on the channel system: A non-jurisdictional upper reach of this drainage (above the mapped, potentially jurisdictional reach) is crossed by a native surface road associated with an electrical distribution line. The mapped section ends at a railroad grade, which causes ponding of water and has created a small basin filled with fine sediment. The drainage passes under the railroad grade via culvert.

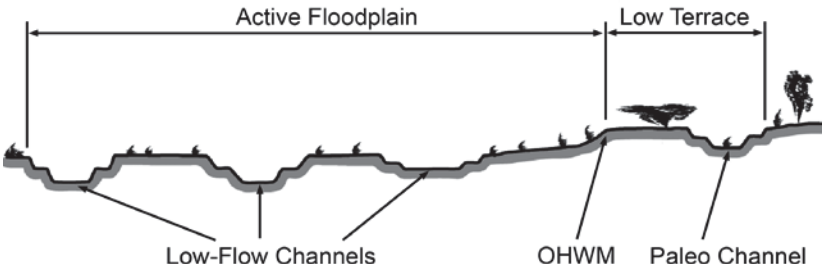
Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

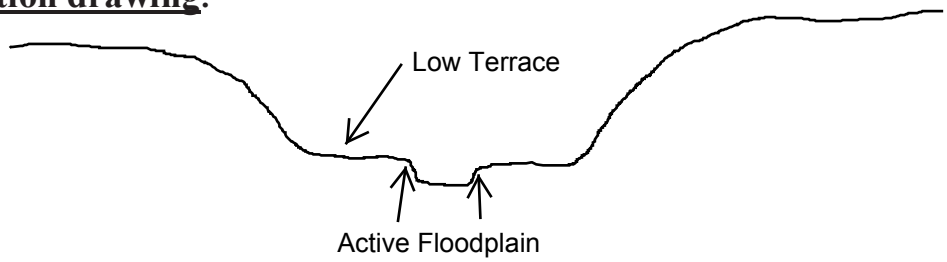


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M26 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit: [ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand to cobble

Total veg cover: 5% Tree: 0% Shrub: 5% Herb: 0%

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event. Some shrubs remain in floodplain, though many were scoured and accumulated drift and debris.

Project ID: Aiya Solar **Cross section ID:** M26 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 20% Tree: 0% Shrub: 15% Herb: 5%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M27
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: n/a **Photo end file#:** n/a

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

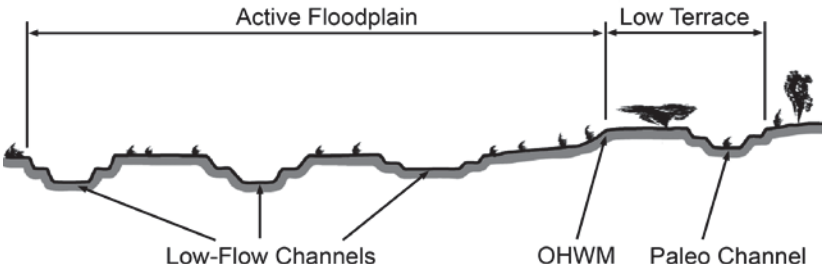
Potential anthropogenic influences on the channel system: Upstream of the mapped section, this drainage is crossed by several native surface roads and flows under two railroad lines by culvert. The upper end of the mapped section is crossed by a native surface road, and another native surface road crosses the middle of the mapped section.

Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

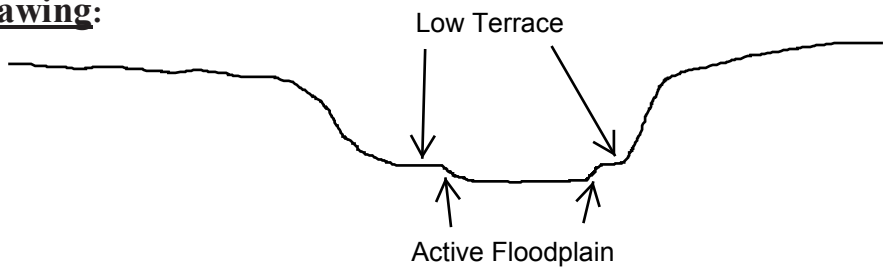


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M27 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit:

[ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand to gravel

Total veg cover: 10% Tree: 0% Shrub: 10% Herb: 0%

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event. Some shrubs remain in floodplain, though many were scoured and accumulated drift and debris.

Project ID: Aiya Solar **Cross section ID:** M27 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 15% Tree: 0% Shrub: 10% Herb: 5%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Aiya Solar Project
Project Number:
Stream: M28
Investigator(s): S. Yanco, M.Schweich

Date: 13 September 2014 **Time:**
Town: Moapa **State:** Nevada
Photo begin file#: n/a **Photo end file#:** n/a

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details:

Projection: UTM Zone 11 **Datum:** NAD83
Coordinates:

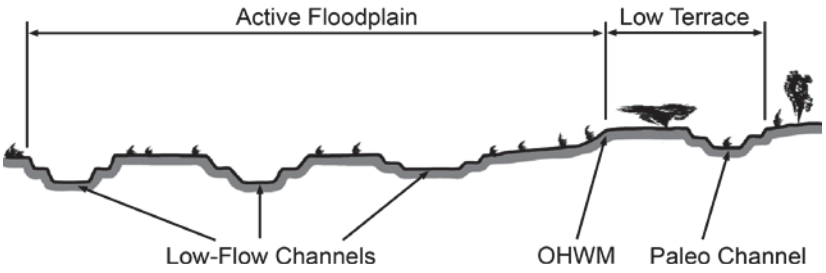
Potential anthropogenic influences on the channel system: Upstream of the mapped section, this drainage is crossed by several native surface roads and flows under two railroad lines by culvert. The upper end of the mapped section is crossed by a native surface road, and another native surface road crosses the middle of the mapped section. A large area of disturbed ground associated with the railroad lies to the west of the mapped drainage.

Brief site description: The project site consists of flat to rolling upland. Along the western and southern margins, the upland gives way to steeper, dissected badlands that drop toward the Muddy River. Elevation ranges from 1,600 to 1,850 feet. Soils are shallow alluvium with a distinct caliche layer. Vegetation is dominated by creosote bush, with white bursage, hop sage, boxthorn, and other typical Mojave Desert species.

Checklist of resources (if available):

- [X] Aerial photography
  Dates: 2013
- [X] Topographic maps
- [ ] Geologic maps
- [ ] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineation(s) for site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

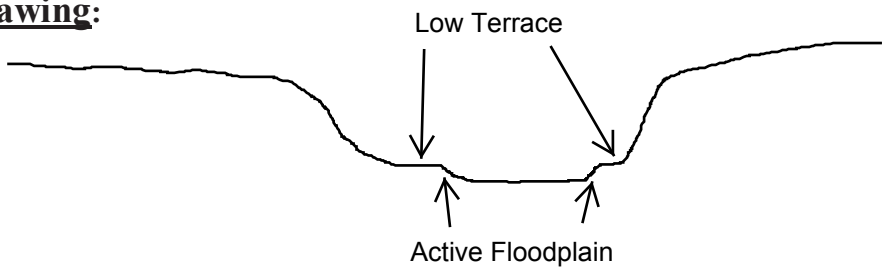


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [X] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: Aiya Solar **Cross section ID:** M28 **Date:** 13 Sept 2014 **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments: OHWM heavily influenced by recent (8 September 2014) high-intensity precipitation event and subsequent flooding.

Floodplain unit:

[ ] Low-Flow Channel [X] Active Floodplain [ ] Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand to gravel

Total veg cover: 15% Tree: 0% Shrub: 15% Herb: 0%

Community successional stage:

- [X] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [X] Drift and/or debris
- [X] Presence of bed and bank
- [X] Benches
- [ ] Soil development
- [ ] Surface relief
- [X] Other: Sediment sorting
- [ ] Other: _____
- [ ] Other: _____

Comments: Active floodplain shows evidence of recent flood flows from 8 September 2014 high-intensity precipitation event. Some shrubs remain in floodplain, though many were scoured and accumulated drift and debris.

Project ID: Aiya Solar **Cross section ID:** M28 **Date:** 13 Sept 2014 **Time:**

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: No distinction possible between active floodplain and low flow channel because of the recent high-intensity precipitation event and subsequent flood flows in this wash.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Silt to sand

Total veg cover: 15% Tree: 0% Shrub: 10% Herb: 5%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments: Typical shrubs include creosote bush, white bursage.

Appendix G

Cultural Resource Consultation

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008

TAKE PRIDE IN AMERICA

IN REPLY REFER TO
Environmental Quality Services
MS620-EQS

FEB 12 2015

Honorable Edward D. Smith
Chairman, Chemehuevi Tribal Council
P.O. Box 1976
Havasu Lake, California 92362

Dear Chairman Smith:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Chemehuevi Indian Tribe (CIT) about the proposed project: **approval of a lease and rights-of-way for the Aiya Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2014-219)**. As noted in the enclosed Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) and maps of the project area, the undertaking can be characterized as construction of a 100 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 1,000 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking may further require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, Aiya Solar Project, LLC (project proponent), BLM Las Vegas Field Office, and National Park Service. A cultural resource inventory report will be prepared for the proposed area of potential effects (APE). We note that an ethnographic study conducted for a previously proposed project in vicinity of the present project area revealed no traditional cultural properties.

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advise on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the Chemehuevi Indian Tribe attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256.

Sincerely,

Deputy Regional Director - Trust Services

Enclosures

cc: Superintendent, Southern Paiute Agency (w/enc)
Attn: Environmental Coordinator
Superintendent, Colorado River Agency (w/enc)
Chairman, Moapa Business Council (w/enc)
Chairperson, Moapa Cultural Committee (w/enc)
Field Manager, Las Vegas Field Office, BLM (w/enc)
Renewable Energy Specialist, Lake Meade, NPS (w/enc)
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Reg., NPS (w/enc)
Manager, Siting and Permitting, First Solar (w/enc)
Acting Federal Preservation Officer, CO (w/enc)
Director of Cultural Resources, CIT (w/enc)

Directions for Submitting Public Comments

Please include your name, return address, and the caption "Programmatic EIS, Colville Reservation IRMP" on the first page of any written comments you submit. You may also submit comments at the public scoping meetings.

The public scoping meetings will be held to seek comments from the Tribal Business Council, resource managers, agency representatives, and community members concerning the planning and environmental issues surrounding the use of natural resources of the Colville Reservation. The meetings will be held at various Colville Reservation communities and notices will be published in Omak-Okanogan County Chronicle, the Statesman Examiner, the Star, and the Tribal Tribune. Additional information will also be posted at the Tribe's Web site: *www.colvilletribes.com.*

Public Availability of Comments

Comments, including names and addresses of respondents, will be available for public review at the BIA address shown in the **ADDRESSES** section of this notice, during regular business hours, Monday through Friday, except holidays. Before including your address, phone 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 sections 1503.1 of the Council on Environmental Quality Regulations (40 CFR parts 1500 through 1508) and Sec. 46.305 of the Department of the Interior Regulations (43 CFR Part 46), implementing the procedural requirements of NEPA, 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.

Dated: November 10, 2014.

Kevin Washburn,

Assistant Secretary—Indian Affairs.

[FR Doc. 2014-27682 Filed 11-20-14; 8:45 am]

BILLING CODE 4310-W7-P

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

[AAK6006201 145A2100DD AOR3030.999900]

Notice of Intent To Prepare an Environmental Impact Statement for Aiya Solar Project on the Moapa River Indian Reservation, Clark County, NV

AGENCY: Bureau of Indian Affairs, Interior.

ACTION: Notice.

SUMMARY: In order to comply with the National Environmental Policy Act (NEPA), the Bureau of Indian Affairs (BIA), as lead agency in cooperation with the Moapa Band of Paiute Indians (Moapa Band), the Bureau of Land Management (BLM), and other Federal agencies, intend to prepare an environmental impact statement (EIS) that will evaluate a photovoltaic solar energy generation project on the Moapa River Indian Reservation and a transmission line located on tribal lands, private lands and Federal lands administered and managed by BLM in Clark County, Nevada.

This notice announces the beginning of the scoping process to solicit public comments and identify potential issues related to the EIS. It also announces that two public scoping meetings will be held in Nevada to identify potential issues, alternatives, and mitigation to be considered in the EIS.

DATES: The dates and locations of the public scoping meetings will be published in the Las Vegas Sun, Las Vegas Review-Journal, and Moapa Valley Progress 15 days before the scoping meetings. Written comments on the scope of the EIS or implementation of the proposal must arrive by December 22, 2014.

ADDRESSES: You may mail, email, or hand carry written comments to either Mr. Paul Schlafly, Natural Resource Specialist, Bureau of Indian Affairs, Southern Paiute Agency, 180 North 200 East Suite 111, P.O. Box 720, St. George, Utah 84770; telephone: (435) 674-9720; email: *paul.schlafly@bia.gov,* or Mr. Chip Lewis, Acting Regional Environmental Compliance Officer, BIA Western Regional Office, 2600 North Central Avenue, 4th Floor Mailroom, Phoenix, Arizona 85004; telephone: (602) 379-6782; email: *chip.lewis@bia.gov.*

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 Moapa Band with a 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 Moapa River Indian Reservation and specifically on lands held in trust by BIA for the Moapa Band. The proposed 230 kilovolt (kV) generation-tie transmission line required for interconnection may be located on Tribal lands, private lands and/or Federal lands administered and managed by BLM. First Solar has accordingly requested that the 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 will make up the proposed Moapa River 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 First Solar's 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 either NV Energy's Reid-Gardner 230kV substation or the proposed Reid Gardner Collector Substation, which is under development by NV Energy.

Construction of the Project is expected to take approximately 12 to 15 months. First Solar 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 Moapa Tribe and First Solar. The Project is expected to be built in one phase of up to 100 MW, per the demand of potential off-takers or utilities. 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 the Project would be leased from the

Moapa Band and the EIS will consider the impacts of alternative sources and delivery methods.

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

The BIA will prepare the EIS in cooperation with the Moapa Band, BLM, and possibly the Army Corps of Engineers, Environmental Protection Agency, and National Park Service. In addition, the U.S. Fish and Wildlife Service (USFWS) will provide input on the analysis. The resulting EIS will aim to: (1) Provide agency decision makers, the Moapa Band, and the general public with a comprehensive understanding of the impacts of the proposed Project and alternatives on the Reservation; (2) describe the cumulative impacts of increased development on the Reservation; and (3) identify and propose mitigation measures that would minimize or prevent significant adverse impacts. Consistent with these objectives, the EIS will analyze the proposed Project and appurtenant features, viable alternatives including other interconnection options, modified footprint alternatives, alternate routing for Project ROWs, and the No Action alternative. Other alternatives may be identified in response to issues raised during the scoping process.

The EIS will provide a framework for BIA and BLM to make determinations and to decide whether to take the aforementioned Federal actions. In addition, BIA will use and coordinate the NEPA commenting process to satisfy its obligations under Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) as provided for in 36 CFR 800.2(d)(3). Tribal consultations will be conducted in accordance with policy, and tribal concerns will be given due consideration, including impacts on Indian trust assets. Other Federal agencies may rely on the EIS to make decisions under their authority and the Moapa Band may also use the EIS to make decisions under their Tribal Environmental Policy Ordinance. The USFWS will review the EIS for consistency with the Endangered Species Act, as amended, and other implementing acts, and may rely on the EIS to support its decisions and opinions regarding the Project.

Issues to be covered during the scoping process may include, but would not be limited to, Project impacts on: Air quality, geology and soils, surface and groundwater resources, biological resources, threatened and endangered species, cultural resources, socioeconomic conditions, land use, aesthetics, environmental justice, and Indian trust resources. In addition to those already identified above, Federal, State, and local agencies, along with other stakeholders that may be interested or affected by the BIA's decision on the proposed Project, are invited to participate in the scoping process.

Directions for Submitting Comments

Please include your name, return address, and the caption "EIS, First Solar Solar Project," on the first page of any written comments. You may also submit comments at the public scoping meetings.

The public scoping meetings will be held to further describe the Project and identify potential issues and alternatives to be considered in the EIS. The first public scoping meeting will be held on the Reservation and the other public scoping meeting will be held in Las Vegas, Nevada. The dates of the public scoping meetings will be included in notices to be posted in the Las Vegas Sun, Las Vegas Review-Journal, and Moapa Valley Progress 15 days before the meetings.

Public Comment Availability

Comments, including names and addresses of respondents, will be available for public review at the mailing address 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, phone 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.

Authority

This notice is published in accordance with 40 CFR 1501.7 of the Council of Environmental Quality regulations and 43 CFR 46.235 of the Department of the Interior Regulations implementing the procedural requirements of the NEPA (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: November 14, 2014.

Kevin K. Washburn,

Assistant Secretary—Indian Affairs.

[FR Doc. 2014–27642 Filed 11–20–14; 8:45 am]

BILLING CODE 4310–W7–P

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[LLNVS00560.L58530000.EU0000.241A.XXX; MO# 4500068492]

Notice of Realty Action: Non-Competitive Direct Sale of the Reversionary Interest in a Recreation and Public Purpose Act (R&PP) Patent, in Clark County, NV (N–90426)

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice.

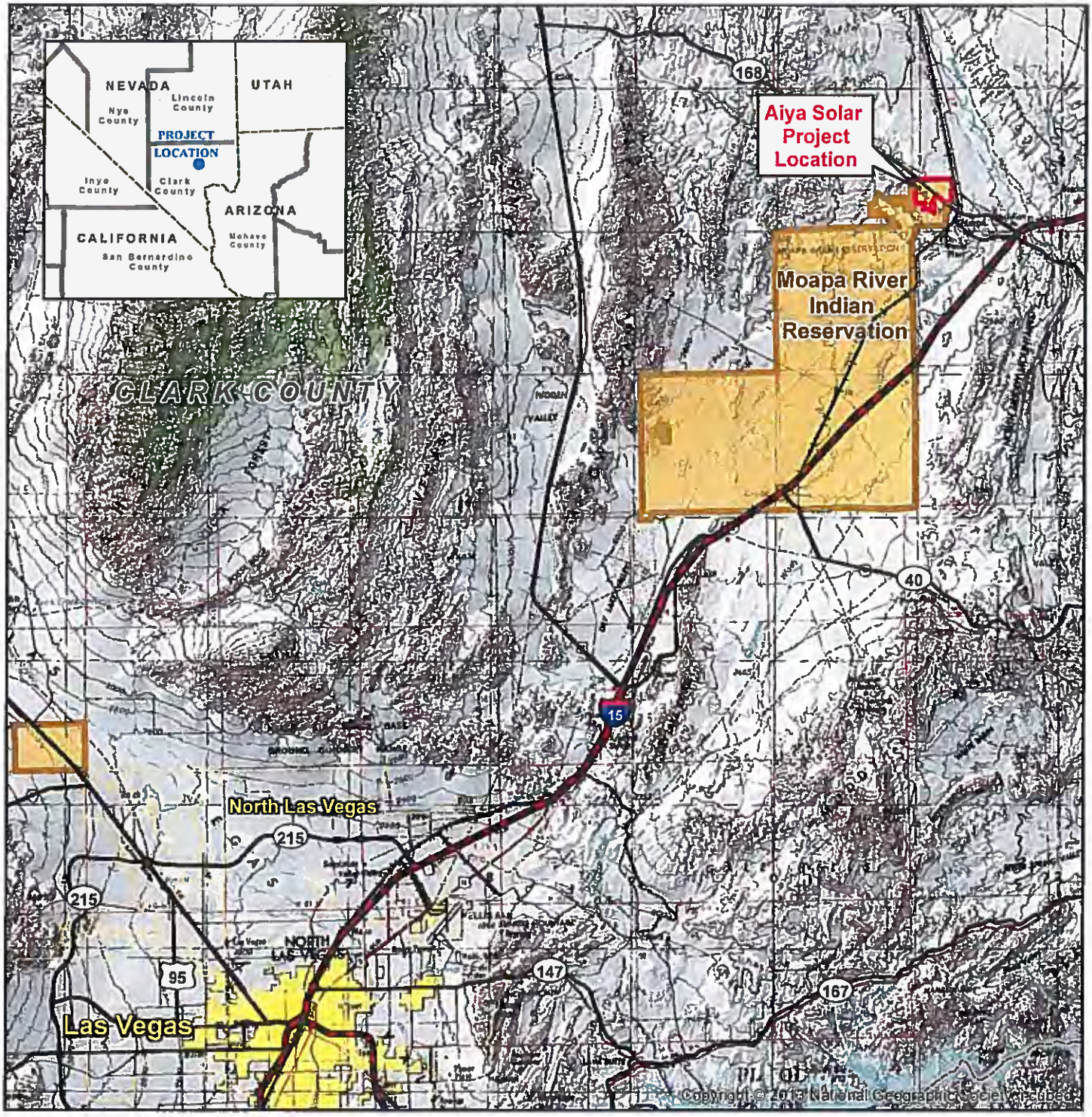
SUMMARY: The reversionary interest held by the United States in a 5.22-acre parcel of public land is determined suitable for direct sale and release to the Paradise Bible Baptist Church, under the authority of the Federal Land Policy and Management Act, as amended. The purpose of the direct sale is to dispose of the reversionary interest clause in the patented lands, which represents certain restrictions and conditions that prevents the Paradise Bible Baptist Church from using the land for other purposes.

DATES: Interested parties may submit written comments regarding the direct sale and release of reversionary interest until January 5, 2015.

ADDRESSES: Send written comments to the Bureau of Land Management (BLM), Las Vegas Field Manager, 4701 N. Torrey Pines Drive, Las Vegas, Nevada 89130, or email: *ddickey@blm.gov.*

FOR FURTHER INFORMATION CONTACT: Dorothy Jean Dickey, 702–515–5119, or *ddickey@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: On February 5, 1998, a 5.22-acre parcel was patented (patent number 27–98–0017) to the Paradise Bible Baptist Church under the authority of the R&PP Act of June 14, 1926, as amended, 43 U.S.C. 869 *et seq.* The purpose for which the land can be used is restricted by a reversionary clause in the patent, which returns title to the United States if the tract is used for other purposes not provided for in



Legend

- Interstate
- US/ State Highway
- Railroad
- Solar Project Location
- Municipal Boundary
- Jurisdictional Land Ownership
- Indian Reservation

0 2 4 6 8 10

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

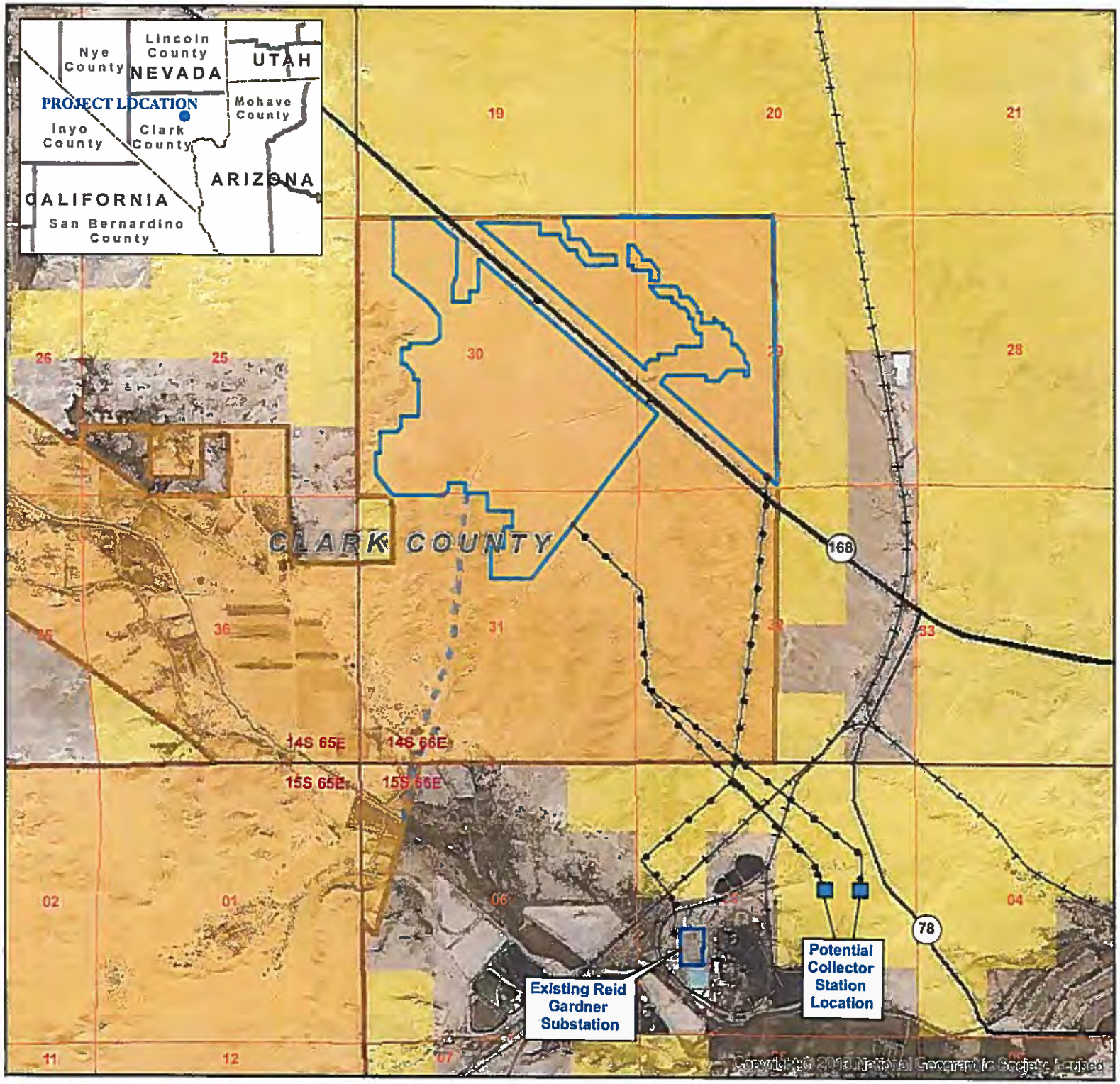
Aiya Solar Project

FIGURE 1
PROJECT LOCATION

Map Extent: Clark County, Nevada

Date: 09-29-14		Author: mc

G:\Aiya Solar Project\MXD's\Project Location 8.5x11 092914.mxd



Legend

- Potential Collector Station Location
- Gen-Tie Routes
- Water Pipeline
- State Highway
- Railroad
- Project Area
- Existing Substation
- County Boundary
- Township / Range Boundary
- Section Boundary

Jurisdictional Land Ownership

- Bureau of Land Management Land
- Tribal Land

0 0.25 0.5 0.75 1

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Aiya Solar Project

Figure 2
Project Area

Map Extent: Clark County, Nevada

Date: 12-05-14		Author: mc

I:\Solar Project\MXD's\Project Area

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008

TAKE PRIDE IN AMERICA

IN REPLY REFER TO
Environmental Quality Services
MS620-EQS

FEB 1 2 2015

Honorable Dennis Patch
Chairman, Colorado River Tribal Council
26600 Mohave Road
Parker, Arizona 85344-7737

Dear Chairman Patch:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Colorado River Indian Tribes (CRIT) about the proposed project: **approval of a lease and rights-of-way for the Aiya Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2014-219).** As noted in the enclosed Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) and maps of the project area, the undertaking can be characterized as construction of a 100 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 1,000 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking may further require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, Aiya Solar Project, LLC (project proponent), BLM Las Vegas Field Office, and National Park Service. A cultural resource inventory report will be prepared for the proposed area of potential effects (APE). We note that an ethnographic study conducted for a previously proposed project in vicinity of the present project area revealed no traditional cultural properties.

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advise on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if CRIT attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256.

Sincerely,

Deputy Regional Director - Trust Services

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Superintendent, Colorado River Agency
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Renewable Energy Specialist, Lake Meade, NPS
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Reg., NPS
Manager, Siting and Permitting, First Solar
Director, Colorado River Indian Tribes Museum (w/enc)

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008

TAKE PRIDE IN AMERICA

IN REPLY REFER TO
Environmental Quality Services
MS620-EQS

FEB 1 2 2015

Honorable Timothy Williams
Chairman, Fort Mojave Tribal Council
500 Merriman Avenue
Needles, California 92363

Dear Chairman Williams:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Fort Mojave Indian Tribe (FMIT) about the proposed project: **approval of a lease and rights-of-way for the Aiya Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2014-219).** As noted in the enclosed Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) and maps of the project area, the undertaking can be characterized as construction of a 100 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 1,000 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking may further require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, Aiya Solar Project, LLC (project proponent), BLM Las Vegas Field Office, and National Park Service. A cultural resource inventory report will be prepared for the proposed area of potential effects (APE). We note that an ethnographic study conducted for a previously proposed project in vicinity of the present project area revealed no traditional cultural properties.

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advise on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the FMIT attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256.

Sincerely,

Deputy Regional Director - Trust Services

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Superintendent, Colorado River Agency
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Renewable Energy Specialist, Lake Meade, NPS
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Reg., NPS
Manager, Siting and Permitting, First Solar
Director, Aha Makav Cultural Society, FMIT (w/enc)

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008

TAKE PRIDE IN AMERICA

IN REPLY REFER TO
Environmental Quality Services
MS620-EQS

FEB 1 2 2015

Honorable Herman Honanie, Jr.
Chairman, Hopi Tribal Council
P.O. Box 123
Kykotsmovi, Arizona 86039

Dear Chairman Honanie:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Hopi Tribe about the proposed project: **approval of a lease and rights-of-way for the Aiya Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2014-219)**. As noted in the enclosed Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) and maps of the project area, the undertaking can be characterized as construction of a 100 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 1,000 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking may further require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, Aiya Solar Project, LLC (project proponent), BLM Las Vegas Field Office, and National Park Service. A cultural resource inventory report will be prepared for the proposed area of potential effects (APE). We note that an ethnographic study conducted for a previously proposed project in vicinity of the present project area revealed no traditional cultural properties.

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advise on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the Hopi Tribe attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256.

Sincerely,

Deputy Regional Director - Trust Services

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Superintendent, Hopi Agency (w/enc)
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Renewable Energy Specialist, Lake Meade, NPS
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Reg., NPS
Manager, Siting and Permitting, First Solar
Director, Cultural Preservation Office, Hopi Tribe (w/enc)

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
Environmental Quality Services
MS620-EQS

FEB 1 2 2015

Honorable Sherry J. Counts
Chairwoman, Hualapai Tribal Council
P.O. Box 179
Peach Springs, Arizona 86434

Dear Chairwoman Counts:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Hualapai Indian Tribe about the proposed project: **approval of a lease and rights-of-way for the Aiya Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2014-219).** As noted in the enclosed Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) and maps of the project area, the undertaking can be characterized as construction of a 100 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 1,000 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking may further require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, Aiya Solar Project, LLC (project proponent), BLM Las Vegas Field Office, and National Park Service. A cultural resource inventory report will be prepared for the proposed area of potential effects (APE). We note that an ethnographic study conducted for a previously proposed project in vicinity of the present project area revealed no traditional cultural properties.

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advise on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the Hualapai Indian Tribe attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256.

Sincerely,

Deputy Regional Director - Trust Services

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Superintendent, Truxton Canon Agency
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Renewable Energy Specialist, Lake Meade, NPS
Cultural Resource Specialist, Nat'l Trails System-Itermtn. Reg., NPS
Manager, Siting and Permitting, First Solar
Tribal Historic Preservation Officer, Hualapai Indian Tribe (w/enc)

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008

TAKE PRIDE IN AMERICA

IN REPLY REFER TO
Environmental Quality Services
MS620-EQS

FEB 1 2 2015

Honorable Roland Maldonado
Chairman, Kaibab Paiute Tribal Council
HC65 Box 2
Fredonia, Arizona 86022

Dear Chairman Maldonado:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Kaibab Band of Paiute Indians about the proposed project: **approval of a lease and rights-of-way for the Aiya Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2014-219)**. As noted in the enclosed Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) and maps of the project area, the undertaking can be characterized as construction of a 100 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 1,000 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking may further require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, Aiya Solar Project, LLC (project proponent), BLM Las Vegas Field Office, and National Park Service. A cultural resource inventory report will be prepared for the proposed area of potential effects (APE). We note that an ethnographic study conducted for a previously proposed project in vicinity of the present project area revealed no traditional cultural properties.

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advise on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the Kaibab Band of Paiute Indians attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256.

Sincerely,

Deputy Regional Director - Trust Services

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Renewable Energy Specialist, Lake Meade, NPS
Cultural Resource Specialist, Nati'l Trails System-Intermtn. Reg., NPS
Manager, Siting and Permitting, First Solar
Cultural Resources Director, Kaibab (w/enc)

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008

TAKE PRIDE IN AMERICA

IN REPLY REFER TO
Environmental Quality Services
MS620-EQS

FEB 12 2015

Honorable Bennie Tso
Chairman, Las Vegas Paiute Tribe
One Paiute Drive
Las Vegas, Nevada 89106

Dear Chairman Tso:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Las Vegas Paiute Tribe (LVPT) about the proposed project: **approval of a lease and rights-of-way for the Aiya Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2014-219).** As noted in the enclosed Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) and maps of the project area, the undertaking can be characterized as construction of a 100 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 1,000 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking may further require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, Aiya Solar Project, LLC (project proponent), BLM Las Vegas Field Office, and National Park Service. A cultural resource inventory report will be prepared for the proposed area of potential effects (APE). We note that an ethnographic study conducted for a previously proposed project in vicinity of the present project area revealed no traditional cultural properties.

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advise on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the Las Vegas Paiute Tribe attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256.

Sincerely,

Deputy Regional Director - Trust Services

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Renewable Energy Specialist, Lake Meade, NPS
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Reg., NPS
Manager, Siting and Permitting, First Solar
Manager, Environmental Programs, LVPT (w/enc)

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
Environmental Quality Services
MS620-EQS

FEB 1 2 2015

Honorable Gari Lafferty
Chairwoman, Paiute Indian Tribe of Utah Tribal Council
440 North Paiute Drive
Cedar City, Utah 84720-2613

Dear Chairwoman Lafferty:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Paiute Indian Tribe of Utah (PITU) about the proposed project: **approval of a lease and rights-of-way for the Aiya Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2014-219).** As noted in the enclosed Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) and maps of the project area, the undertaking can be characterized as construction of a 100 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 1,000 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking may further require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, Aiya Solar Project, LLC (project proponent), BLM Las Vegas Field Office, and National Park Service. A cultural resource inventory report will be prepared for the proposed area of potential effects (APE). We note that an ethnographic study conducted for a previously proposed project in vicinity of the present project area revealed no traditional cultural properties.

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advise on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the PITU attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256.

Sincerely,

Deputy Regional Director - Trust Services

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Renewable Energy Specialist, Lake Meade, NPS
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Reg., NPS
Manager, Siting and Permitting, First Solar
Cultural Resource Director, PITU (w/enc)

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
Environmental Quality Services
MS620-EQS

FEB 1 2 2015

Ms. Rebecca L. Palmer
State Historic Preservation Officer
Nevada State Historic Preservation Office
901 South Stewart Street, Suite 5004
Carson City, Nevada 89701-5248

Dear Ms. Palmer:

This letter and the enclosures constitute initiation of the process prescribed by Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), and codified at 36 CFR 800. As Lead Agency Official at 36 CFR 800.2(a)(2), the Bureau of Indian Affairs (BIA) has determined that the proposed project constitutes a federal undertaking: **approval of a lease and rights-of-way for the Aiya Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2014-219)**. As noted in the enclosed Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) and maps of the project area, the undertaking can be characterized as construction of a 100 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 1,000 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking may further require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

Pursuant to 36 CFR 800.3, we wish to initiate the consultation process for the undertaking with the Nevada State Historic Preservation Office (SHPO). We are writing to request your views and consult regarding the following prescribed steps:

Involving the public pursuant to 36 CFR 800.3(e): We plan to continue to involve the public while developing the EIS under the National Environmental Policy Act (NEPA). As part of the NEPA review process, we will employ BIA, BLM, and Tribal notification procedures for addressing our responsibilities as defined at 36 CFR 800.2(d).

Identifying other consulting parties pursuant to 36 CFR 800.3(f): Besides your office, the consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians as identified at 36 CFR 800.3(d), Aiya Solar Project, LLC (project proponent), BLM Las Vegas Field Office, and National Park Service. Pursuant to 36 CFR 800.2(c)(2)(ii), we presently are approaching Tribes in the region that may attach religious and cultural significance to historic properties that may be affected by the undertaking. Pursuant to 36 CFR 800.2(c)(5), we also are approaching the Old Spanish Trail Association.

Determining the Area of Potential Effects (APE) pursuant to 36 CFR 800.4(a)(1): We presently consider the APE to include the parcel of approximately 1,000 contiguous acres for the solar energy center lease and all associated facilities, including a water line, alternative transmission routes, and associated access roads. We propose the indirect APE for the undertaking to extend from the lease area a radius of five miles or the visual horizon, whichever is closer.

Any additional efforts that may be necessary to identify historic properties in the APE pursuant to 36 CFR 800.4(b): As we follow subsequent steps in the consultation process, we will submit an archeological survey report for your review that covers the proposed lease area, transmission line alignment(s), and any other associated facilities. We note that an ethnographic study conducted for a previously proposed project in vicinity of the present project area revealed no traditional cultural properties. We anticipate a viewshed analysis will be used to identify areas in the indirect APE from which the undertaking may be visible.

We look forward to your views on these steps and additional efforts we may employ to satisfy our responsibilities as prescribed by the NHPA. If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256.

Sincerely,

Deputy Regional Director - Trust Services

Enclosures

cc: Superintendent, Southern Paiute Agency (w/enc)
Attn: Environmental Coordinator
Chairman, Moapa Business Council (w/enc)
Chairperson, Moapa Cultural Committee (w/enc)
Field Manager, Las Vegas Field Office, BLM (w/enc)
Renewable Energy Specialist, Pacific West Region, NPS (w/enc)
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Reg., NPS (w/enc)
Environmental Review Office, Region 9, EPA (w/enc)
Biologist, Southern Nevada Field Office, USFWS (w/enc)
Manager, Siting and Permitting, First Solar (w/enc)
Regional Realty Officer, WRO (w/enc)
Acting Federal Preservation Officer, CO (w/enc)

Directions for Submitting Public Comments

Please include your name, return address, and the caption "Programmatic EIS, Colville Reservation IRMP" on the first page of any written comments you submit. You may also submit comments at the public scoping meetings.

The public scoping meetings will be held to seek comments from the Tribal Business Council, resource managers, agency representatives, and community members concerning the planning and environmental issues surrounding the use of natural resources of the Colville Reservation. The meetings will be held at various Colville Reservation communities and notices will be published in Omak-Okanogan County Chronicle, the Statesman Examiner, the Star, and the Tribal Tribune. Additional information will also be posted at the Tribe's Web site: *www.colvilletribes.com.*

Public Availability of Comments

Comments, including names and addresses of respondents, will be available for public review at the BIA address shown in the **ADDRESSES** section of this notice, during regular business hours, Monday through Friday, except holidays. Before including your address, phone 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 sections 1503.1 of the Council on Environmental Quality Regulations (40 CFR parts 1500 through 1508) and Sec. 46.305 of the Department of the Interior Regulations (43 CFR Part 46), implementing the procedural requirements of NEPA, 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.

Dated: November 10, 2014.

Kevin Washburn,

Assistant Secretary—Indian Affairs.

[FR Doc. 2014–27682 Filed 11–20–14; 8:45 am]

BILLING CODE 4310–W7–P

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

[AAK6006201 145A2100DD AOR3030.999900]

Notice of Intent To Prepare an Environmental Impact Statement for Alya Solar Project on the Moapa River Indian Reservation, Clark County, NV

AGENCY: Bureau of Indian Affairs, Interior.

ACTION: Notice.

SUMMARY: In order to comply with the National Environmental Policy Act (NEPA), the Bureau of Indian Affairs (BIA), as lead agency in cooperation with the Moapa Band of Paiute Indians (Moapa Band), the Bureau of Land Management (BLM), and other Federal agencies, intend to prepare an environmental impact statement (EIS) that will evaluate a photovoltaic solar energy generation project on the Moapa River Indian Reservation and a transmission line located on tribal lands, private lands and Federal lands administered and managed by BLM in Clark County, Nevada.

This notice announces the beginning of the scoping process to solicit public comments and identify potential issues related to the EIS. It also announces that two public scoping meetings will be held in Nevada to identify potential issues, alternatives, and mitigation to be considered in the EIS.

DATES: The dates and locations of the public scoping meetings will be published in the Las Vegas Sun, Las Vegas Review-Journal, and Moapa Valley Progress 15 days before the scoping meetings. Written comments on the scope of the EIS or implementation of the proposal must arrive by December 22, 2014.

ADDRESSES: You may mail, email, or hand carry written comments to either Mr. Paul Schlafly, Natural Resource Specialist, Bureau of Indian Affairs, Southern Paiute Agency, 180 North 200 East Suite 111, P.O. Box 720, St. George, Utah 84770; telephone: (435) 674–9720; email: *paul.schlafly@bia.gov,* or Mr. Chip Lewis, Acting Regional Environmental Compliance Officer, BIA Western Regional Office, 2600 North Central Avenue, 4th Floor Mailroom, Phoenix, Arizona 85004; telephone: (602) 379–6782; email: *chip.lewis@bia.gov.*

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 Moapa Band with a 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 Moapa River Indian Reservation and specifically on lands held in trust by BIA for the Moapa Band. The proposed 230 kilovolt (kV) generation-tie transmission line required for interconnection may be located on Tribal lands, private lands and/or Federal lands administered and managed by BLM. First Solar has accordingly requested that the 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 will make up the proposed Moapa River 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 First Solar's 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 either NV Energy's Reid-Gardner 230kV substation or the proposed Reid Gardner Collector Substation, which is under development by NV Energy.

Construction of the Project is expected to take approximately 12 to 15 months. First Solar 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 Moapa Tribe and First Solar. The Project is expected to be built in one phase of up to 100 MW, per the demand of potential off-takers or utilities. 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 the Project would be leased from the

Moapa Band and the EIS will consider the impacts of alternative sources and delivery methods.

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

The BIA will prepare the EIS in cooperation with the Moapa Band, BLM, and possibly the Army Corps of Engineers, Environmental Protection Agency, and National Park Service. In addition, the U.S. Fish and Wildlife Service (USFWS) will provide input on the analysis. The resulting EIS will aim to: (1) Provide agency decision makers, the Moapa Band, and the general public with a comprehensive understanding of the impacts of the proposed Project and alternatives on the Reservation; (2) describe the cumulative impacts of increased development on the Reservation; and (3) identify and propose mitigation measures that would minimize or prevent significant adverse impacts. Consistent with these objectives, the EIS will analyze the proposed Project and appurtenant features, viable alternatives including other interconnection options, modified footprint alternatives, alternate routing for Project ROWs, and the No Action alternative. Other alternatives may be identified in response to issues raised during the scoping process.

The EIS will provide a framework for BIA and BLM to make determinations and to decide whether to take the aforementioned Federal actions. In addition, BIA will use and coordinate the NEPA commenting process to satisfy its obligations under Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) as provided for in 36 CFR 800.2(d)(3). Tribal consultations will be conducted in accordance with policy, and tribal concerns will be given due consideration, including impacts on Indian trust assets. Other Federal agencies may rely on the EIS to make decisions under their authority and the Moapa Band may also use the EIS to make decisions under their Tribal Environmental Policy Ordinance. The USFWS will review the EIS for consistency with the Endangered Species Act, as amended, and other implementing acts, and may rely on the EIS to support its decisions and opinions regarding the Project.

Issues to be covered during the scoping process may include, but would not be limited to, Project impacts on: Air quality, geology and soils, surface and groundwater resources, biological resources, threatened and endangered species, cultural resources, socioeconomic conditions, land use, aesthetics, environmental justice, and Indian trust resources. In addition to those already identified above, Federal, State, and local agencies, along with other stakeholders that may be interested or affected by the BIA's decision on the proposed Project, are invited to participate in the scoping process.

Directions for Submitting Comments

Please include your name, return address, and the caption "EIS, First Solar Solar Project," on the first page of any written comments. You may also submit comments at the public scoping meetings.

The public scoping meetings will be held to further describe the Project and identify potential issues and alternatives to be considered in the EIS. The first public scoping meeting will be held on the Reservation and the other public scoping meeting will be held in Las Vegas, Nevada. The dates of the public scoping meetings will be included in notices to be posted in the Las Vegas Sun, Las Vegas Review-Journal, and Moapa Valley Progress 15 days before the meetings.

Public Comment Availability

Comments, including names and addresses of respondents, will be available for public review at the mailing address 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, phone 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.

Authority

This notice is published in accordance with 40 CFR 1501.7 of the Council of Environmental Quality regulations and 43 CFR 46.235 of the Department of the Interior Regulations implementing the procedural requirements of the NEPA (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: November 14, 2014.

Kevin K. Washburn,

Assistant Secretary—Indian Affairs.

[FR Doc. 2014–27642 Filed 11–20–14; 8:45 am]

BILLING CODE 4310–W7–P

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[LLNVS00560.L58530000.EU0000.241A.XXX; MO# 4500068492]

Notice of Realty Action: Non-Competitive Direct Sale of the Reversionary Interest in a Recreation and Public Purpose Act (R&PP) Patent, in Clark County, NV (N–90426)

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice.

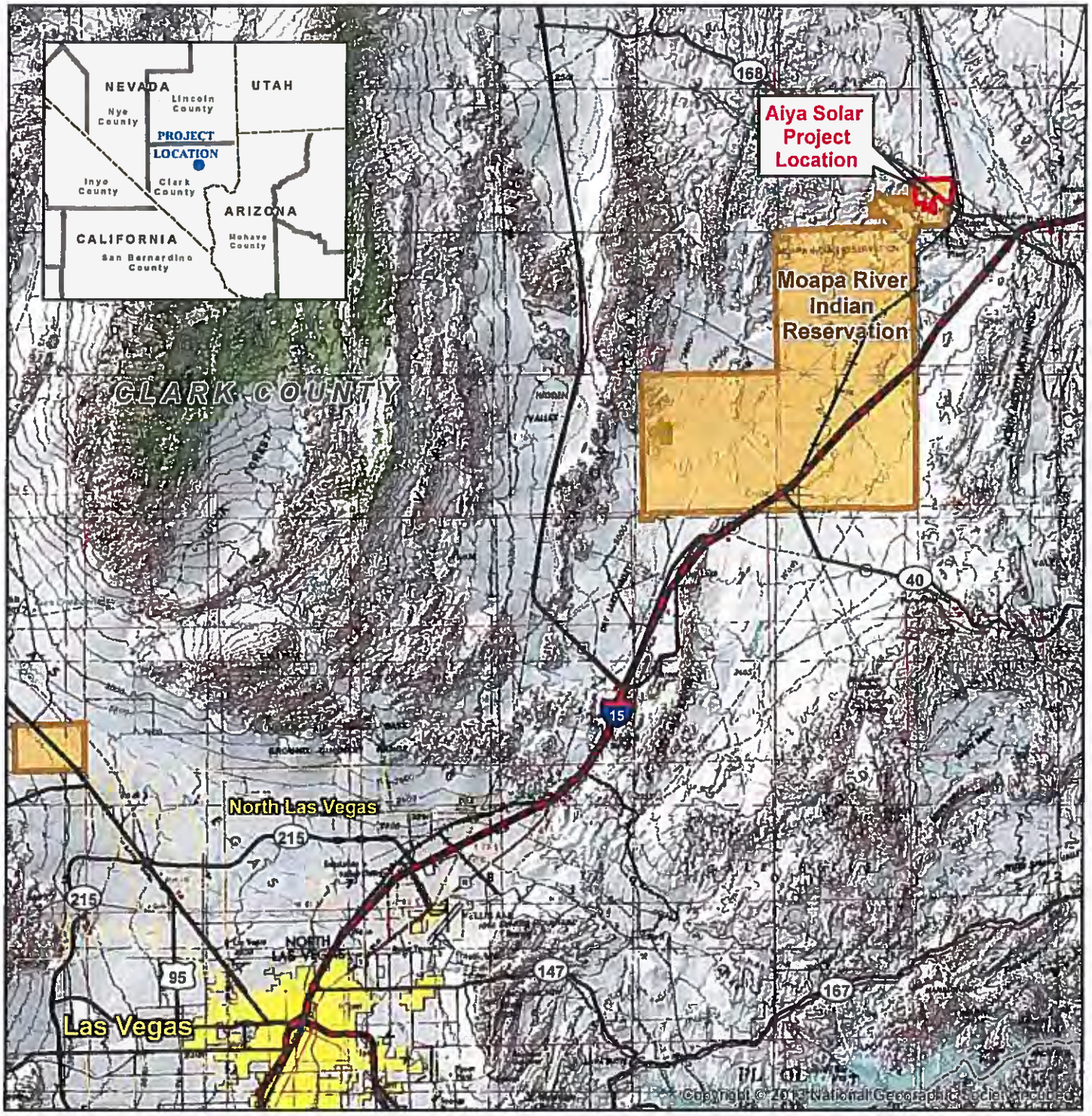
SUMMARY: The reversionary interest held by the United States in a 5.22-acre parcel of public land is determined suitable for direct sale and release to the Paradise Bible Baptist Church, under the authority of the Federal Land Policy and Management Act, as amended. The purpose of the direct sale is to dispose of the reversionary interest clause in the patented lands, which represents certain restrictions and conditions that prevents the Paradise Bible Baptist Church from using the land for other purposes.

DATES: Interested parties may submit written comments regarding the direct sale and release of reversionary interest until January 5, 2015.

ADDRESSES: Send written comments to the Bureau of Land Management (BLM), Las Vegas Field Manager, 4701 N. Torrey Pines Drive, Las Vegas, Nevada 89130, or email: *ddickey@blm.gov.*

FOR FURTHER INFORMATION CONTACT: Dorothy Jean Dickey, 702–515–5119, or *ddickey@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: On February 5, 1998, a 5.22-acre parcel was patented (patent number 27–98–0017) to the Paradise Bible Baptist Church under the authority of the R&PP Act of June 14, 1926, as amended, 43 U.S.C. 869 *et seq.* The purpose for which the land can be used is restricted by a reversionary clause in the patent, which returns title to the United States if the tract is used for other purposes not provided for in



Legend

- Interstate
- US/ State Highway
- Railroad
- Solar Project Location
- Municipal Boundary

Jurisdictional Land Ownership

- Indian Reservation

0 2 4 6 8 10

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

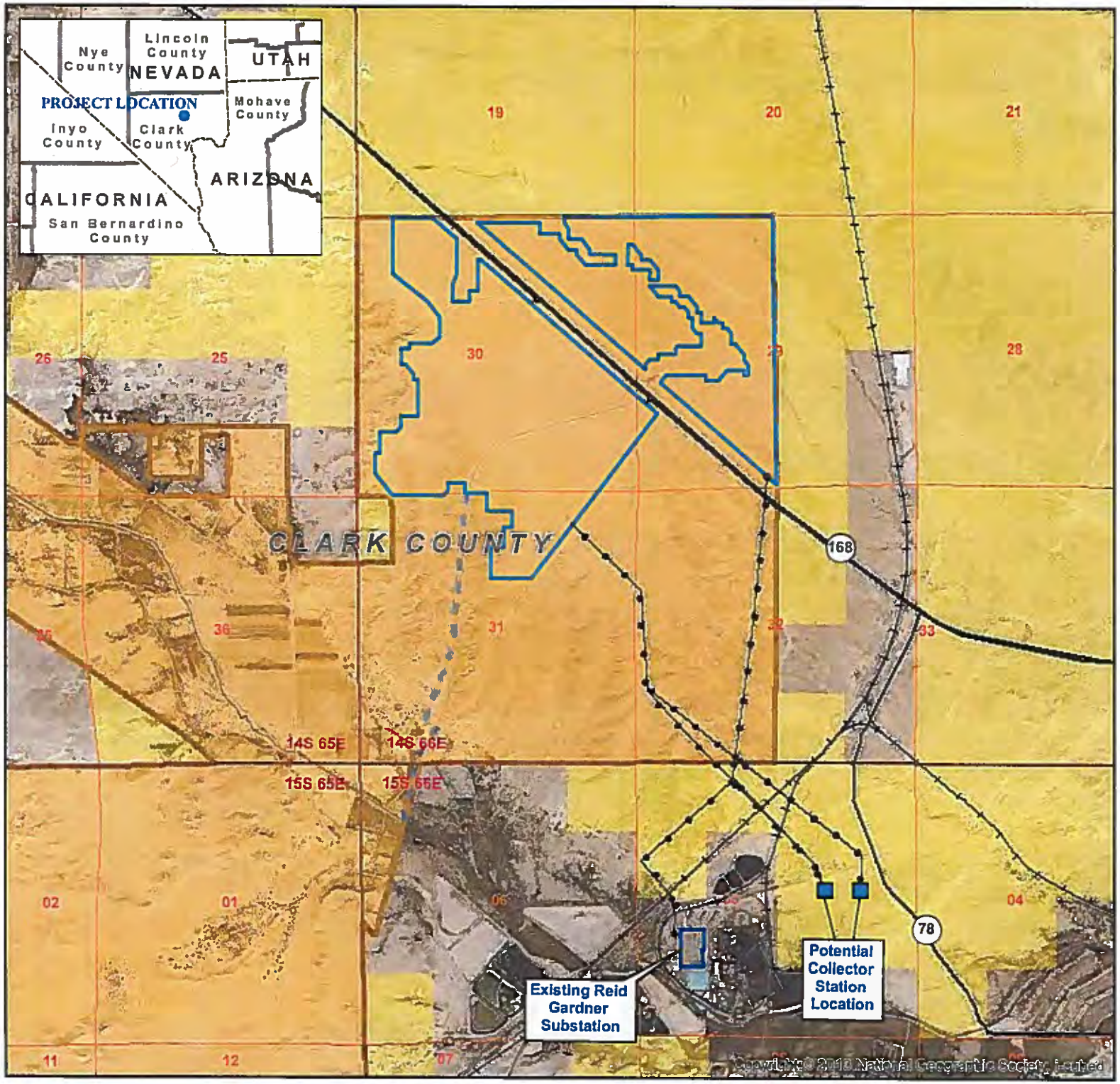
Aiya Solar Project

FIGURE 1
PROJECT LOCATION

Map Extent: Clark County, Nevada

Date 09-29-14		Author: mc

G:\Aiya Solar Project\MXD's\Project Location 8.5x11 092914.mxd



Legend

- Potential Collector Station Location
- Gen-Tie Routes
- Water Pipeline
- State Highway
- Railroad
- Project Area
- Existing Substation
- County Boundary
- Township / Range Boundary
- Section Boundary

Jurisdictional Land Ownership

- Bureau of Land Management Land
- Tribal Land

0 0.25 0.5 0.75 1

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Aiya Solar Project

Figure 2
Project Area

Map Extent: Clark County, Nevada

Date: 12-05-14		Author: rnc

I:\Solar Project\MXD's\Project Area

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008

TAKE PRIDE IN AMERICA

IN REPLY REFER TO
Environmental Quality Services
MS620-EQS

FEB 1 2 2015

Mr. Dennis Ditmanson
Association Manager
Old Spanish Trail Association
P.O. Box 909
Las Vegas, New Mexico 87701

Dear Mr. Ditmanson:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Old Spanish Trail Association (OSTA) about the proposed project: **approval of a lease and rights-of-way for the Aiya Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2014-219)**. As noted in the enclosed Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) and maps of the project area, the undertaking can be characterized as construction of a 100 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 1,000 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking may further require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, Aiya Solar Project, LLC (project proponent), BLM Las Vegas Field Office, and National Park Service. A cultural resource inventory report will be prepared for the proposed area of potential effects (APE). We anticipate a viewshed analysis will be used to identify areas in the indirect area of potential effect from which the undertaking may be visible.

Following provisions of the NHPA, we are seeking counsel with the OSTA regarding the proposed undertaking to identify any concerns about historic properties; advise on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the OSTA has any concerns about the effects of the project on the Old Spanish Trail Corridor and any related trail segments. We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256.

Sincerely,

Deputy Regional Director - Trust Services

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Renewable Energy Specialist, Lake Meade, NPS
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Reg., NPS
Manager, Siting and Permitting, First Solar
Nevada Director, Board of Directors, OSTA (w/enc)
President, Nevada Chapter, OSTA(w/enc)
President, Board of Directors OSTA(w/enc)

THE HOPI TRIBE

Herman G. Honanie
CHAIRMAN

Alfred Lomahquahu Jr.
VICE-CHAIRMAN

400 R
620 EM JK
620 EQS

February 23, 2015

Rodney McVey, Deputy Director – Trust Services
Attention: Gary J. Cantley, Archaeologist
Bureau of Indian Affairs, Western Regional Office
2600 North Central Avenue
Phoenix, Arizona 85004-3008

Re: Aiya Solar Project

Dear Mr. McVey,

Thank you for your correspondence dated February 12, 2015, regarding the Bureau of Indian Affairs preparing an Environmental Impact Statement for the proposed lease and rights-of-way for the 1,000 acre Aiya Solar Project and associated infrastructure on the Moapa River Indian Reservation in Clark County, Nevada. The Hopi Tribe claims cultural affiliation to earlier identifiable cultural groups in the Southwest. The Hopi Cultural Preservation Office supports the identification and avoidance of our ancestral sites, and we consider the prehistoric archaeological sites of our ancestors to be "footprints" and Traditional Cultural Properties. Therefore, we appreciate the Bureau of Indian Affairs' continuing solicitation of our input and your efforts to address our concerns.

The Hopi Cultural Preservation Office requests consultation on any proposal that has the potential to effect prehistoric sites. We are not aware of any Hopi Traditional Cultural Properties in this project area. However, if the cultural resources survey report of the area of potential effect identifies prehistoric sites that will be adversely affected by project activities, we request to be provided with copies of the survey report and any proposed draft treatment plans for review and comment.

In addition, we recommend that if any cultural features or deposits are encountered during project activities, these activities must be discontinued in the immediate area of the remains, and the Historic Preservation Office must be consulted to evaluate their nature and significance. If any Native American human remains or funerary objects are discovered during construction they shall be immediately reported as required by law.

If you have any questions or need additional information, please contact Terry Morgart at the Hopi Cultural Preservation Office at 928-734-3619 or tmorgart@hopi.nsn.us. Thank you again for your consideration.

Respectfully,

Leigh J. Kuwanwisiwma, Director
Hopi Cultural Preservation Office

xc: Nevada State Historic Preservation Office

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
Environmental Quality Services
MS620-EQS

AUG 25 2015

Ms. Rebecca L. Palmer
State Historic Preservation Officer
Nevada State Historic Preservation Office
901 South Stewart Street, Suite 5004
Carson City, Nevada 89701-5248

Dear Ms. Palmer:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA) and codified at Title 36 Code of Federal Regulations Part 800 (36 CFR 800), the Bureau of Indian Affairs (BIA) wishes to consult with you about the proposed undertaking, **approval of a lease and rights-of-way for the Aiya Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2014-219)**.

As noted in our initiation letter to your office dated February 12, 2015, the undertaking can be characterized as construction of a 100 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 1,000 acres on land of the Moapa Band of Paiute Indians (Tribe). The proposed undertaking may further require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road that would encumber up to an additional 200 acres. We are in the process of completing an Environmental Impact Statement (EIS) to analyze impacts to the human and natural environment in advance of the proposed project.

Besides our respective offices, the Consulting Parties for the undertaking have been identified as the BLM Southern Nevada District Office, National Park Service (NPS), the project proponent Aiya Solar Project, LLC, and the Tribe as identified at 36 CFR 800.3(d). In consultation with these parties, we have made a reasonable and good faith effort to carry out appropriate identification efforts as prescribed at 36 CFR 800.4. We have gathered sufficient information to evaluate the eligibility of the identified properties for the National Register of Historic Places (National Register) and make a determination of effect. Documentation of this finding is provided in the enclosed report titled *A Class III Cultural Resource Survey of Approximately 1,200 Acres for a Solar Facility on the Moapa Band of Paiutes Land, Clark County, Nevada* (Cole et al. July, 2015).

The results of our identification efforts are summarized below in Table 1. Our application of the NHPA regulations regarding effects of the undertaking on historic properties is formally presented in the enclosed Table 2. Although we consider the survey report to be an outstanding document, please note we do not uniformly follow the authors' recommendations of effects.

Pursuant to 36 CFR 800.5(a), we have applied the criteria of adverse effect and have arrived at a **Finding of Adverse Effect** for the undertaking as described at 36 CFR 800.5(a)(2)(i).

Area of Potential Effect	Eligible	Not Eligible	Unevaluated	No Effect	No Adverse Effect	Adverse Effect
Indirect	43	172	258	464	9	0
Direct	14	75	1	82	5	3

Table 1. Summary of findings, Aiya Solar Project.

We consider the direct area of potential effects (APE) to include the parcel of approximately 1,000 contiguous acres for the solar energy center lease and all associated facilities, including a water line, alternative transmission routes, and associated access roads on and off the reservation. We consider the indirect APE for the undertaking to extend from the lease area a radius of five miles or the visual horizon, whichever is closer.

Out of the 473 sites recorded as being in the indirect APE, 43 have been determined eligible for the National Register by previous undertakings. Please note, however, that we have established that two of the eligible sites have been misplotted in the available records and are located well outside the indirect APE (26CK12 and 26CK1697). An additional 172 sites previously were determined not eligible (or individually not a contributing element to an associated historic property). In light of the passage of time, or the possibility of the changing perceptions of the sites' significance, we have reevaluated these previous determinations of eligibility. Upon review of available documentation, we find no reason to change these earlier eligibility determinations. For the remaining 258 sites recorded in the indirect APE, we have elected not to formally evaluate them for this undertaking. For present purposes, we are treating the unevaluated resources as eligible under all four criteria listed at 36 CFR 64.

We conclude that the undertaking will have no effect on any properties in the indirect APE with exception of nine properties listed as follows: Historic Muddy River Bridge, Historic Arrowhead Overpass, Historic Moapa Interchange, Historic Glendale Interchange, Historic Hidden Valley Interchange, West Point Settlement (26CK3658), Historic Moapa (26CK3660), Old US 91/Arrowhead Highway (26CK4958), and Historic Overton Powerline (26CK9508). For these we arrive at a determination of No Adverse Effect pursuant to 36 CFR 800.5(a)(1). The Consulting Parties together have considered the proposed undertaking's potential indirect effects, including visual, auditory, and atmospheric. We conclude that the undertaking will not alter the characteristics of these historic properties that make them eligible for the National Register. This conclusion is based foremost on our simulations from numerous key observations points (KOP) of what the facility would look like before and after construction of the solar facility. As can be judged by the simulations from various and multiple perspectives provided in the enclosed report, we have determined that the indirect effects will be negligible and cause no adverse effects to historic properties.

Regarding the fourteen sites in the direct APE that we hereby formally determine to be eligible for the National Register, we shall avoid seven prehistoric sites by configuration of project design. We have arrived at a determination of No Adverse Effect for four additional properties:

Historic Communications Site (26CK10103), School Trail (26CK10119), Post Office Trail (26CK10160), and Moapa Trail (26CK10159). The undertaking will not alter those characteristics of the historic properties that make them eligible for the National Register. This determination also applies to the historic ammunition dump (26CK1147), the only unevaluated sited in the direct APE, as we could not gain access.

We are unable to avoid the remaining three properties by project design. Our application of the criteria leads us to conclude that the undertaking will have an adverse effect pursuant to 36 CFR 800.5(a)(2)(i). Two of these properties are identified as prehistoric lithic scatters with rock rings (26CK10094 and 26CK10095). The other is referred to as the North/South Road (26CK10165), a historic road that possibly is an offshoot of the Old Spanish Trail/Old Mormon Road (26CK3848).

Pursuant to 36 CFR 800.6, we wish to consult with you to develop and evaluate a means to resolve the adverse effects of this undertaking. Toward that end, and upon your concurrence and acceptance of the documentation transmitted herein, we shall submit for your review and comment a draft Memorandum of Agreement (MOA) that we will employ in our efforts to resolve the adverse effects. We anticipate that a stipulation of the MOA will be the creation and implementation of a Historic Properties Treatment Plan (HPTP), which will be developed in full consultation with the Consulting Parties.

By letter dated February 12, 2015, we contacted multiple offices of the Old Spanish Trail Association (OSTA) to inquire about any concerns that organization might have about project effects. Our correspondence and follow-up communication have not prompted any expressed concerns from the OSTA about the project.

By letters dated February 12, 2015, the BIA approached eight Tribes in the region inquiring if there were any concerns about the effects of the proposed project on historic properties or areas of traditional or cultural importance. These Tribes include the Chemehuevi Indian Tribe, Colorado River Indian Tribes, Fort Mojave Indian Tribe, Hualapai Indian Tribe, Hopi Tribe, Kaibab Band of Paiute Indians, Las Vegas Paiute Tribe, and Paiute Indian Tribe of Utah. The Hopi Tribe responded that they were unaware of any traditional cultural properties in the APE, but would be interested in further consultation if the proposed undertaking would have an adverse effect on prehistoric sites. Accordingly, we shall approach the Hopi Tribe with our results and a draft HPTP for their review and comment.

Our determination of "Adverse Effect" to historic properties will be included as part of the EIS documentation being prepared for the proposed undertaking. As part of the National Environmental Policy Act (NEPA) review process, we are employing corresponding federal and tribal notification procedures for addressing our responsibilities as defined at 36 CFR 800.2(d). On January 14 and 15, 2015, we held two public scoping meetings for the project, one on the Moapa River Indian Reservation and the other at the BLM Southern Nevada District Office in Las Vegas. Two additional public meetings were held on June 17 and 18, 2015, at the same locations upon publication of the Draft EIS. To date we have not received any comments from the public regarding the undertaking's effects on historic properties.

As required at 36 CFR 800.5(c), we are submitting documentation of this finding and await your response within thirty days of receipt. We ask for your concurrence with our determinations of eligibility and effect. We also look forward to further consultation with your office as we seek to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256 or by email at garry.cantley@bia.gov.

Sincerely,

Deputy Regional Director - Trust Services

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee (Table 2)
Field Manager, Las Vegas Field Office, BLM (Table 2)
Attn: Archeologist
Renewable Energy Specialist, Pacific West Region, NPS
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Reg., NPS (Table 2)
Manager, Siting and Permitting, First Solar (Table 2)
Regional Realty Officer, WRO
Acting Federal Preservation Officer, CO (Table 2)

NEVADA
STATE HISTORIC PRESERVATION OFFICE

Department of Conservation and Natural Resources

Brian Sandoval, Governor
Leo M. Drozdoff, P.E., Director
Rebecca L. Palmer, SHPO

February 11, 2016

Mr. Rodney McVey
Deputy Regional Director – Trust Services
Bureau of Indian Affairs
Western Regional Office
2600 North Central Avenue
Phoenix, Arizona 85004-3008

Re: *Approval of a Lease and Rights-of-Way for the Aiya Solar Project and Associated Infrastructure, Clark County, Nevada.*
Environmental Quality Services/MS620-EQS/Project #2014-219/Undertaking #2015-3616

Dear Mr. McVey:

The Nevada State Historic Preservation Office (SHPO) has reviewed the subject undertaking in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

Area of Potential Effect (APE)
The SHPO notes that consultation on the establishment of the area of potential effect (APE) has been concluded in keeping with 36 CFR §800.4(a)(1) and 36 CFR §800.16(d).

Identification of Historic Properties
The direct APE, approximately 1,200 acres, was intensively surveyed for cultural resources. Additional identification efforts for historic properties were completed for the indirect APE via an intensive review of existing literature (e.g., historical maps, historical documents, previously cultural resources survey reports, etc.).

Determinations of National Register Eligibility
Archaeology:
The BIA is deferring a determination of National Register eligibility under any of the Secretary's Significance Criteria for the 246 cultural resources located in the indirect APE and identified in Attachment 1.

The SHPO notes that the BIA has made a determination of National Register eligibility for the 211 cultural resources located in the indirect APE and identified in Attachment 1. The SHPO cannot concur with the BIA's determinations as the BIA has not included any documentation to support its determinations in keeping with 6 CFR §800.4(c).

Architecture:
The following 11 architectural resources are, for purposes of this undertaking, being treated as eligible for listing in the National Register of Historic Places under all four Significance Criteria and the seven aspects of integrity:

- SHPO Resource Numbers S559 and S560 (Historic Muddy River Bridge),
- SHPO Resource Numbers S605 and S606 (Historic Arrowhead Overpass),

- SHPO Resource Numbers S687 and S688 (Historic Moapa Interchange),
- SHPO Resource Numbers S689 and S690 (Historic Glendale Interchange),
- SHPO Resource Numbers S709 and S710 (Historic Hidden Valley Interchange), and
- SHPO Resource Number B11545 (Historic Marvin H. Hughes Property).

The SHPO notes that SHPO Resource Number S1461 (Reid Gardner Generating Station) has been also left unevaluated. As noted in this most recent submission, the eventual demolition of three portions of this resource is not part of the current undertaking. Instead, the proposed undertaking is limited to the construction of a transmission line from the Aiya Solar Project to the existing newest (1983) portion of the Reid Gardner Generating Station.

Finding of Effect
The SHPO concurs with the BIA's finding of Adverse Effect to historic properties for this undertaking.

The SHPO would concur with the BIA determination that, regardless of National Register eligibility, none of the identified cultural resources within the indirect APE meeting the following provisions will experience an adverse effect as a result of this undertaking:

- the prehistoric era cultural resources identified in the BIA enclosure titled "Aiya Solar Project, Historic Property Determinations of Eligibility and Effect," dated January 5, 2016,
- unassociated historic era trash scatters/dumps,
- isolated artifacts,
- instances where the location of a previously identified resource is unknown and/or uncertain, and
- based upon the visual effects analysis map, resources located outside areas determined visible to or from the undertaking.

The SHPO notes that the following cultural resources located within the indirect APE do not meet the above-noted parameters. Thus, before negotiation of the terms of a MOA can commence, the BIA needs to provide adequate documentation that demonstrates how this undertaking will not result in an adverse effect to the following resources:

- 26CK4619 (prehistoric lithics and historic small railroad construction camp),
- 26CK6408 (historic trash and tent pad and prehistoric lithic scatter),
- 26CK7785 (historic cattle ranch),
- 26CK8471 (historic corral, trash, and prehistoric lithic scatter),
- 26CK1203/26CK1502/26CK1503 (historic railroad camp and prehistoric rockshelter),
- 26CK1359 (historic railroad construction and loading camp),
- 26CK3661 (historic modified rockshelter/maybe St. Thomas Branch RR related 1911-1912),
- 26CK3685 (Historic Power's Saloon),
- 26CK3717 (prehistoric and historic trail),
- 26CK6425 (historic railroad grading camp),
- 26CK6585 (historic gypsum mine),
- 26CK7814 (historic industrial structural vestiges), and
- 26CK6392 (historic railroad camp with trash and prehistoric lithic scatter).

The following table lists the architectural resources that the BIA has identified within the indirect APE for the proposed undertaking. (These appeared as Table 2 in the previous submission.) The SHPO notes that no clarification has been provided to present the basis for the BIA's determinations of eligibility and finding of effect as relate to these resources. Specifically, on a prior conference call it was noted that "relying on what is in NVCRIS" will not suffice as it presumes that that information is complete, accurate, and has received prior SHPO concurrence--none of which has been confirmed by the BIA. It was noted that IMACS forms must be supplied, details provided, and the specific rationale for the BIA's determinations and findings provided.

SHPO Resource Number or Smithsonian Trinomial	**Historic Name**	**BIA - NRHP Eligibility Determination**	**SHPO Concurrence (Yes/No)**	**BIA Visual Effect Determinations**
26CK3658 26CK3659	Historic Anglo Settlement (West Point) and Ranch Artifacts	Eligible - How was this determination made?	No	No Adverse Effect- how was this effect determined?
S1460 ARA 26CK1147	Historic Ammunitions dump (?)	Unevaluated/Eligible under all four NRHP significance criteria for this undertaking	Yes	No Effect- how was this effect determined?
S1459 ARA 26CK1147	Historic Ammunitions Dump (?)	Unevaluated/Eligible under all four NRHP significance criteria for this undertaking	Yes	No Effect- how was this effect determined?
26CK9508	Historic Overton Powerline	Eligible- How was this determination made?	?	No Adverse Effect- how was this effect determined?

Native American Consultation:
The SHPO notes that consultation with the affected Native American tribes has been initiated. If this consultation results in the identification of properties of religious or cultural significance that could be affected by the undertaking, the BIA must consult with this office concerning the National Register eligibility and possible effects of the undertaking. Regardless of the results of this consultation, the SHPO requests that the BIA submit a summary statement after its completion.

Consultation with Interested Parties:
The SHPO acknowledges receipt of documentation that consultation with the affected members of the public and representatives of organizations (i.e., the Old Spanish Trail Association) that have a demonstrated interest in historic properties that could be affected by the undertaking has been concluded per 36 CFR §800.3(e).

The SHPO notes that consultation with the affected members of the public and representatives of organizations (i.e., National Park Service – National Trails Intermountain Region) that have a demonstrated interest in historic properties that could be affected by the undertaking has been initiated per 36 CFR §800.3(c)](5). If this consultation results in the identification of historic properties that could be affected by the undertaking, the BIA must consult with this office concerning the National Register eligibility and possible effects of the undertaking. Regardless of the results of this consultation, the SHPO requests that the BIA submit a summary statement after its completion.

Public Consultation
The SHPO notes that the general public has been consulted in parallel with the NEPA compliance for this undertaking in keeping with 36 CFR §800.2(a)(4). The SHPO acknowledges receipt of documentation that consultation with the public has been concluded per 36 CFR §800.3(e).

Should you have any questions concerning this correspondence, please contact Jessica Axsom at (775)684-3445 or by e-mail at jaxsom@shpo.nv.gov or SHPO staff architectural historian Mara Thiessen Jones at (775) 684-3439 or by e-mail at mara.jones@shpo.nv.gov.

Sincerely,

Julie H. Ernstein, Ph.D., RPA
Deputy State Historic Preservation Officer

encl. Attachment 1

Appendix H

Phase 1 ESA Report

ARCADIS
Infrastructure · Water · Environment · Buildings

Imagine the result

First Solar, Inc.

Phase I
Environmental Site Assessment

Aiya Solar Project

Clark County, Nevada

April 22, 2015

Phase I Environmental Site Assessment

Aiya Solar Project
Clark County, Nevada

Prepared for:
First Solar, Inc.

Prepared by:
ARCADIS U.S., Inc.
630 Plaza Drive
Suite 100
Highlands Ranch
Colorado 80129
Tel 720.344.3500
Fax 720.344.3535

Our Ref.:
CO002026.0001

Date:
April 22, 2015

ARCADIS

Table of Contents

Executive Summary

ARCADIS U.S., Inc. (ARCADIS) was retained by First Solar, Inc. (Client) to conduct a Phase I Environmental Site Assessment (ESA) for the proposed Aiya Solar Project located on the Moapa River Indian Reservation, Clark County, Nevada (Subject Property). The Subject Property, which First Solar has an option to lease for solar energy generation, is approximately 1,006 acres of undeveloped desert land and is comprised of seven parcels where solar panels and other associated infrastructure would be constructed. There is no physical address associated with the Subject Property. A vicinity map is depicted in **Figure 1**. The Subject Property is defined as the areas described above and as depicted in **Figure 2**.

This Phase I ESA was conducted in accordance with the ASTM International *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process ASTM 1527-13* (ASTM Practice E 1527-13).

Summary of Phase I ESA Findings

Summary Information – Non Recognized Environmental Conditions (RECs)

- The Subject Property includes approximately 1,006 acres of land entirely located on the Moapa River Indian Reservation that will be the site of the proposed Aiya Solar Project. Seven parcels have been contracted with an option to lease where solar panels and other associated infrastructure are planned to be located.
- Based on the historical research and interviews completed for this Phase I ESA, the Subject Property is currently and has historically been undeveloped desert land.
- The limited existing infrastructure on the Subject Property includes three existing transmission lines, county and access roads, and a water pipeline. No buildings are located on the Subject Property.

REC, Historical REC (HREC), and Controlled REC (CREC) Findings

ARCADIS performed a Phase I ESA of the Subject Property in conformance with the scope and limitations of ASTM Practice E 1527-13. Any exceptions to, or deviations from this practice are described in Section 1 of this Report. This assessment has revealed no evidence of RECs, HRECs or CRECs at the Subject Property, as defined under ASTM Practice E 1527-13.

***De Minimis* Conditions**

No *de minimis* conditions were identified for the Subject Property.

Conclusions

Based on a review of the information obtained from interviews of the property owner representatives, landowner, and other people knowledgeable of the Subject Property, historical topographical maps and aerial photographs, environmental regulatory and other databases, and a site reconnaissance, no RECs, HRECs or CRECs were identified in association with the Subject Property.

1. Introduction

ARCADIS U.S., Inc. (ARCADIS) was retained by First Solar, Inc. (Client) to conduct a Phase I Environmental Site Assessment (ESA) for the proposed Aiya Solar Project located on the Moapa River Indian Reservation, Clark County, Nevada (Subject Property). The Subject Property, which First Solar has an option to lease for solar energy generation, is approximately 1,006 acres of undeveloped desert land and is comprised of seven parcels where solar panels and other associated infrastructure would be constructed. There is no physical address associated with the Subject Property. A vicinity map is depicted in **Figure 1**. The Subject Property is defined as the areas described above and as depicted in **Figure 2.**

This Phase I ESA was conducted in general accordance with the ASTM International *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process E 1527-13* (ASTM Practice E 1527-13, 2013). Any exceptions to or deviations from this standard practice have been noted in the report. The Phase I ESA investigation included a detailed review of aerial photography, visual reconnaissance of the property, observation of adjacent properties, environmental regulatory agency records review, review of existing environmental reports (where applicable), and interviews with personnel knowledgeable about the property.

The assessment included the following components:

1) A drive-through reconnaissance of the Subject Property on access roads and county roads;
2) A walk-through reconnaissance of Subject Property wherever possible;
3) Interviews with the Subject Property landowners;
4) A review of readily available historical site information, including topographic maps and aerial photographs;
5) A review of Federal and State environmental regulatory agency databases; and
6) Report preparation.

There are no buildings on the Subject Property. No sampling was conducted to assess soil or groundwater impacts, suspected asbestos-containing materials, lead based paint, polychlorinated biphenyls (PCBs), or radon. Sampling is considered beyond the requirements of ASTM E 1527-13.

1.1 Purpose

The Client requested that ARCADIS conduct a Phase I ESA of the Subject Property as part of standard due diligence.

The purpose of this assessment was to identify Recognized Environmental Conditions (RECs) in connection with the Subject Property to the extent feasible pursuant to the processes prescribed in ASTM E 1527-13 and 40 CFR Part 312, "Standards and Practices for All Appropriate Inquires: Final Rule," which became effective on November 1, 2006.

The goal of the Phase I ESA was to identify recognized environmental conditions (RECs), controlled recognized environmental conditions (CRECs), and historical recognized environmental conditions (HRECs) associated with the property in conformance with ASTM E 1527-13.

A REC is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: 1) due to release to the environment; 2) under conditions indicative of a release to the environment; or 3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not RECs.

A CREC is defined as a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls.

An HREC is defined as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

1.2 Detailed Scope of Services

ARCADIS' authorized scope of work specified that the Phase I ESA would be conducted in accordance with ASTM E 1527-13 *Standard Practice for Environmental Site Assessments:*

Phase I Environmental Site Assessment Process and included the following specific elements:

- Agency records review;
- Historical records review;
- Interviews with Subject Property user representatives and landowner;
- Subject Property site reconnaissance and observation of adjoining properties; and
- Report preparation.

The historical records review included a review of:

- Historical aerial photographs and topographic maps to evaluate historical uses of the Subject Property and surrounding properties; and
- Regulatory databases that could indicate current or historical environmental conditions.

The site reconnaissance included a visual assessment of the Subject Property with the objective of obtaining information indicating the presence of a REC by identifying existing and past releases or a material threat of releases of hazardous substances or petroleum products (or evidence of such) at the Subject Property. The site reconnaissance focused on, but was not limited to, the following items:

1. Indications of spills or releases;
2. Evidence of on-site disposal practices;
3. Observation of chemical, solid waste, and other environmental management practices;
4. Presence of, and current or past usage of, underground storage tanks (USTs) and aboveground storage tanks (ASTs);
5. Identification of adjacent land uses;
6. Identification of physiographic features;
7. Observation of water, wastewater, or waste treatment;
8. Evidence of standing surface water;
9. Observation of sources of drinking water;
10. Visual indications of equipment that may contain PCBs, if applicable; and

11. Evidence of potential sources of contamination or other environmental concerns.

1.3 Significant Assumptions

ARCADIS assumes that the information sources used for this assessment provided complete and accurate information. Evaluations presented in this Phase I ESA Report are based exclusively on information provided by the Client; available public records; interviews with landowners and persons familiar with the Subject Property or adjacent properties; and observations made during the site reconnaissance. ARCADIS assumes that the information provided by the Client, the regulatory database provider, and the regulatory agencies is correct, true, and reliable. No invasive field activities were conducted and no laboratory analyses were performed during this phase of the investigation.

The Client provided the boundaries of the Subject Property for this assessment and ARCADIS accepted these as true representations of the Subject Property boundaries.

1.4 Limitations and Exceptions

The opinions and recommendations presented in this Report are based upon the scope of services, information obtained through the performance of the services, and the schedule as agreed upon by ARCADIS and the party for whom this Report was originally prepared. This Report is an instrument of professional service and was prepared in accordance with the generally accepted standards and level of skill and care under similar conditions and circumstances established by the environmental consulting industry. No representation, warranty, or guarantee, express or implied, is intended or given. To the extent that ARCADIS relied upon any information prepared by other parties not under contract to ARCADIS, ARCADIS makes no representation as to the accuracy or completeness of such information.

This Report is expressly for the sole and exclusive use of the parties for which this Report was originally prepared for its specified purpose. Only the parties for which this Report was originally prepared and/or other specifically named parties, may make use of and rely upon the information in this Report, in its entirety, for a period not to exceed 180 days in accordance with ASTM's “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process” ASTM Designation E 1527-13 dated November 1, 2013, and/or 40 CFR Part 312 “Standards and Practices for All Appropriate Inquiries: Final Rule” which became effective November 1, 2006. After 180 days, and prior to using the information contained herein, the Report should be updated in accordance with ASTM standards and federal regulations. Reuse of this Report or any portion thereof for other than

its intended purpose, or if modified, or if used by third parties without proper authorization, shall be at the user's sole risk.

The findings presented in this Report apply solely to site conditions existing at the time when ARCADIS' assessment was performed (April 8, 2015). It must be recognized, however, that a Phase I ESA is conducted for the purpose of evaluating the potential for contamination through limited research and investigative activities and in no way represents a conclusive or complete site characterization. Conditions in other parts of the Site may vary from those at the locations where data were collected. ARCADIS' ability to interpret investigation results is related to the availability of the data and the extent of the investigation activities. As such, 100 percent confidence in Phase I ESA conclusions cannot reasonably be achieved.

It is understood that the services performed and any professional judgments expressed by ARCADIS in the report are based upon the limits of the investigation as described above. It is understood that ARCADIS has relied upon the accuracy of documents, oral information, and other material and information provided by Client and others, and ARCADIS assumes no liability for the accuracy of such data. Similarly, past and present activities on the Site indicating the potential for the existence of environmental concerns may not be discovered by ARCADIS' inquiries. ARCADIS can offer no assurances and assumes no responsibility for Site conditions or Site activities that are outside the scope of the services as described above, or for changes to Site conditions or regulatory requirements which may apply after completion of the services by ARCADIS. It is understood that such changes can lead to liability in connection with the Site which will not be identified in this Report. ARCADIS reviewed the information obtained in connection with the performance of the services as described above, in keeping with existing applicable environmental consulting standards and enforcement practices, but cannot predict what actions any given agency may take or what standards and practices may apply in the future.

ARCADIS, therefore, does not provide any guarantees, certifications, or warranties that a property is free from environmental contamination. Furthermore, nothing contained in this document shall relieve any other party of its responsibility to abide by contract documents and applicable laws, codes, regulations, or standards.

1.5 Special Terms and Conditions

The scope of work for this Phase I ESA was presented in ARCADIS' *Proposal to Complete a Phase I Environmental Site Assessment for the Aiya Solar Site in Clark County, Nevada* dated March 23, 2015.

The scope of work for this Phase I ESA did not include testing of electrical equipment for the potential presence of PCBs or the assessment of natural hazards such as naturally occurring asbestos, radon gas, or methane gas, assessment of the potential presence of radionuclides, or assessment of non-chemical hazards such as the potential for damage from earthquakes or floods. This Phase I ESA also did not include an assessment of the environmental compliance status of the Site or a health-based risk assessment.

1.6 User Reliance

This Report is expressly for the sole and exclusive use of First Solar, Inc. and its parents and subsidiaries. Only the Permitted Users may rely upon the information in this report, in its entirety, for a period not to exceed 180 days in accordance with ASTM's "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" ASTM Designation E 1527-13 dated November 1, 2013, and/or 40 CFR Part 312 "Standards and Practices for All Appropriate Inquiries: Final Rule" (which became effective November 1, 2006), provided that the Permitted Users may disclose this report to their counsel and consultants in connection with its review and evaluation of the Report. After 180 days, and prior to using the information contained herein, the report should be updated in accordance with ASTM standards and federal regulations. Reuse of this report or any portion thereof for other than its intended purpose, or if modified, or if used by third parties without proper authorization, shall be at the user's sole risk.

1.7 Qualifications

A summary of the ARCADIS personnel who worked on this project follows:

- Ms. Dori Arbour, Project Scientist, has over 10 years of experience providing site assessment services. This has included evaluating potential property impacts from historical on- and off-site operations. Her areas of expertise include Phase I and II ESAs; environmental sampling (asbestos, lead, radon, and mold); soil and groundwater sampling, regulatory compliance evaluation; permitting, and tenant auditing.

- Ms. Jennifer Hinman, Environmental Scientist, has 15 years of experience in the areas of Phase I Environmental Site Assessments, Phase II Environmental Site Assessments, asbestos surveys, and mold investigations. She has managed large-scale Phase I portfolios involving up to 100 sites throughout Arizona, California, and Texas. Project sites have included gas stations, drycleaners, industrial facilities, commercial sites, and former agricultural land. Ms. Hinman also provides project support including task management, data analysis, groundwater monitoring, subcontractor coordination,

laboratory data review, report writing, and proposal preparation at several petroleum hydrocarbon and mining corrective action sites.

- Ms. Tara Corbett is a Senior Environmental Planner and has over 14 years of experience in coordinating and managing multidisciplinary environmental projects. Ms. Corbett is experienced in environmental permitting, environmental compliance, and due diligence and is a qualified project manager for supporting coordination of engineering, regulatory permitting and construction planning for energy and industrial projects. Ms. Corbett has coordinated the preparation of over 40 Phase I ESAs for renewable energy projects in the past 3 years.

2. Subject Property Description

2.1 Property Location

The Subject Property is not identified with a physical address. The Subject Property is located in southern Nevada and entirely located on the Moapa River Indian Reservation approximately 45 miles northeast of Las Vegas, in Clark County, Nevada. The Subject Property is accessed from Highway 168 and Interstate 15 is located approximately 3.5 miles southeast of the Site. Refer to **Figure 1**, Site Location Map, for the location of the Site.

2.2 Physical Site Characteristics

The Subject Property is irregular in shape and is bifurcated by Highway 168. The Subject Property is located within the Moapa Valley, which is a relatively flat-bottomed desert valley. The Site has moderately undulating terrain and consists mostly of exposed surface soil and native vegetation. Photographs of the Subject Property are included in **Appendix A.**

2.3 Site Vicinity General Characteristics

The surrounding properties are comprised of Bureau of Land Management land and terrain of similar type to the Subject Property.

2.4 Current Use of the Subject Property

There are no current uses of the Subject Property.

2.5 Current Uses of the Adjoining Properties

The surrounding area is comprised of undeveloped desert land (**Figure 2**).

Properties adjacent to the Subject Property include the following:

To the North: Undeveloped desert land.

To the East: Undeveloped desert land. Further east approximately 0.40 mile is Union Pacific Railroad tracks.

To the South: Undeveloped desert land. Further south approximately 0.5 mile is the Reid Gardner Generating Station.

To the West: Undeveloped desert land.

Current activities at the adjacent properties do not appear to be of environmental concern to the Site based on visual observations.

3. User Provided Information

On behalf of the Users of this Report, Mr. Kevin Peters, First Solar, Inc. completed an ASTM-standard User Questionnaire (**Appendix B**). The contents of the answered questionnaire are incorporated below.

3.1 Title Records

No chain-of-title documents were provided by the Client. Acquisition and review of chain-of-title records was not within ARCADIS' scope of work.

3.2 Environmental Liens and Activity Use Limitations

No agreements with any third parties or regulatory agencies with jurisdiction over the Subject Property and concerning environmental commitments were identified by the property owners nor were any discovered by ARCADIS during the Phase I ESA site reconnaissance visit, telephone interviews, or record review activities.

Mr. Peters stated that he is not aware of any environmental liens, or any activity and land use limitations against the Subject Property that were filed with any official governing agency.

3.3 Specialized Knowledge

Mr. Peters stated he did not have any specialized knowledge of any material information, consent orders or other environmental enforcement actions against the Subject Property, or any specialized knowledge or experience related to the site or nearby properties.

Mr. Peters stated that he was not aware of any spills or chemical releases that have taken place at the Subject Property.

3.4 Commonly Known or Reasonably Ascertainable Information

Mr. Peters stated that he was not aware of any commonly known or reasonably ascertainable information that would help the Environmental Professional identify conditions indicative of a release or threatened release.

3.5 Valuation Reduction for Environmental Issues

The Client did not provide any information of any valuation reduction of the Subject Property resulting from any current or historical environmental issues.

3.6 Owner, Property Manager, and Occupant Information

According to the Clark County Assessor's Office, the Subject Property is owned by USA Moapa Indian Reservation. The Moapa Band of Paiute Indians manages the Subject Property. The Site is undeveloped and not occupied.

3.7 Reason for Performing Phase I ESA

The Client requested a Phase I ESA for due diligence purposes. The ASTM E 1527-13 standard practice defines good commercial and customary practices for conducting a Phase I ESA with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), in addition to petroleum. As such, this practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner defense to CERCLA liability ("appropriate inquiry into previous ownership and uses of the property consistent with good commercial and customary practice").

4. Records Review

The following records review is limited in scope to databases and resources that are readily available. The records review did not include an audit of the Subject Property's permits. The review focused on readily available historical and regulatory database information to obtain a historical perspective of the Subject Property, the regulatory status of the Subject Property, and the regulatory status of the neighboring properties. Historical topographical maps and aerial photographs have been reviewed and a summary of findings are included in this section of this report.

4.1 Standard Environmental Record Sources

As part of this Phase I ESA, a review of applicable federal and state environmental regulatory databases was conducted. This entailed a review of Subject Property listings available through the appropriate agency databases. The database search was obtained through EDR. An EDR Radius Map™ with GeoCheck® Report (EDR Report) was requested which due to the size of the Site, EDR extended the standard one-mile radius search to three-miles from the approximate center of the Site. ARCADIS reviewed all listings; however, those beyond the one-mile radius were typically excluded as an environmental concern to the Site based on distance. A copy of the complete regulatory database report obtained from EDR is provided in **Appendix C**. The following is a description of the review of regulatory records and information provided as it pertains to the Subject Property.

Regulatory Agency Databases/Lists Reviewed

earch Radius	Agency	Database	Type of Records in Database
1 mile	U.S. EPA	NPL	Sites designated for Superfund cleanup by the U.S. EPA
	U.S. EPA	CORRACTS	RCRA facilities undergoing "corrective actions"
	DCNR	SHWS	Active, non-UST hazardous waste and regulated substance correction actions
0.5 mile	U.S. EPA	CERCLIS	Sites under review by the U.S. EPA
	U.S. EPA	TSD	Facilities that treat, store, and/or dispose of hazardous waste
	RWQCB	LUST	Sites with LUSTs
	DCNR	SWF/LF	Sites permitted as solid waste disposal facilities or landfills
	DCNR	SWRCY	Solid waste and recycling facilities
	U.S. EPA	CERCLIS-NFRAP	CERCLIS sites with no further remedial actions planned.
Site or Adjacent Properties	U.S. EPA	RCRA Generator	Sites that generate large or small quantities of hazardous waste
	U.S. EPA and OES	ERNS	Sites with reported accidental releases of oil and hazardous substances
	DCNR	UST	Sites with registered USTs

Notes:

CERCLIS=Comprehensive Environmental Response, Compensation and Liability Information System
CORRACTS=Corrective Action Report
DCNR=Department of Conservation Natural Resources
ERNS= Emergency Response Notification System
LUST=Leaking Underground Storage Tank
NFRAP=No Further Remedial Action Planned
NPL=National Priorities List
OES=Office of Emergency Services
RCRA=Resource Conservation and Recovery Act
SHWS=State Hazardous Waste Sites
SWF=State Waste Facility
SWRCY=Solid Waste Recycling Facility
SWLF=Solid Waste Landfills
U.S. EPA=U.S. Environmental Protection Agency

4.1.1 Summary of Significance of Regulatory Database Findings

The Subject Property is not listed in any of the databases searched.

According to EDR's report, several properties are listed within the ASTM-search radius. Based on their listing for tracking purposes only, distance from the Site, type of release, groundwater flow pattern, and/or successful remediation with case closure granted by the regulatory oversight agency, none of the off-site properties listed in the EDR database report are likely to represent a concern of environmental impairment to the Site. Off-site property of note is as follows:

Reid Gardner Generation Station located approximately 0.5-mile south of the Site is a coal-fired electric power generation facility that is listed on several databases for soil and groundwater contamination. ARCADIS researched this facility on the Nevada Division of Environmental Protection (NDEP) website to obtain additional information. According to reports reviewed for this facility, groundwater flow direction is to the southeast towards the Muddy River and away from the Subject Property. This facility is currently undergoing investigation and cleanup but the majority of the contamination appears to be within the boundaries of this facility. Therefore, based on the distance from the Subject Property (over 0.5-mile), hydraulically downgradient location of this facility, and defined groundwater contamination, this facility is not is not anticipated to pose a current environmental concern to the Site.

4.1.2 Orphan Sites

EDR identified regulated facilities that could not be located because of insufficient address information. These types of facilities are referred to by EDR as "orphan" facilities. Three orphan sites were listed in the EDR Report. Based on ARCADIS' knowledge of the site vicinity and observations during site reconnaissance, the three listed properties are not located in proximity to the Site and are therefore not considered to represent an environmental concern to the Site.

4.2 Physical Setting Sources

4.2.1 Topography

U.S. Geological Survey (USGS) topographic maps were reviewed to determine the geographical features at and around the Subject Property (**Figure 1**). The maps that were reviewed are identified in Section 4.6.3.

The topography at the Subject Property is fairly flat with some rolling hills. Several ephemeral drainages are located throughout the Subject Property. The land surface elevations within the Subject Property average 1,774 feet above mean sea level.

4.2.2 Geology and Hydrogeology

Site-specific geology information was not identified. According to the soils information provided in the EDR Report, the dominant soil series located within the Subject Property is Bard. The Bard series consists of gravelly fine sandy loam that is well drained, with very slow infiltration rates. Badland soils are also recorded on the Subject Property and are a gravelly fine sandy loam with very slow infiltration rates.

No specific groundwater data was found for the Site. According to well information provided in the EDR Report, depth to groundwater varies from 5 to 150 feet below ground surface throughout the Subject Property. The direction of groundwater flow at the Subject Property can be expected to vary locally, but is generally believed to follow the general slope of the surface topography to the southeast, eventually draining towards the Muddy River.

4.2.3 Watershed

Several ephemeral drainages are located throughout the Subject Property. The Muddy River, a spring-fed perennial stream is located approximately 0.5-miles south of the Site.

4.2.4 Wetlands

The U.S. Fish and Wildlife Service, National Wetland Inventory wetlands would typically be depicted in the Radius Map™ Report with GeoCheck®; however, none were identified within the Subject Property.

4.2.5 Floodplains

Flood zone information from The EDR Radius Map™ Report with GeoCheck® does not indicate that the Subject Property is located within a designated flood zone.

4.2.6 Oil and Gas Production Facilities

The EDR Radius Map™ Report with GeoCheck® provides oil and gas well information. The EDR report indicates that no oil or gas wells have been advanced within the boundaries of the Subject Property or within the one-mile search radius from the property perimeter.

4.3 Historical Use Information on the Subject Property and Adjoining Properties

4.3.1 Fire Insurance Maps

Sanborn™ Fire Insurance Maps are not included in this assessment because the project area is rural and such documents are unlikely to be available.

4.3.2 City Directories

City directories were not requested for the Subject Property since the property is located in a rural area of Nevada.

4.3.3 Historical Topographic Maps

Available historical topographic maps obtained from EDR were reviewed as part of this Phase I ESA, and are available electronically in **Appendix D**. The following topographic maps were obtained and reviewed for the Subject Property and adjacent properties:

- Saint Thomas, Nevada 1886, 60 Minute Series;
- Moapa, Nevada, 1965, 15 Minute Series and;
- Moapa West, Nevada, 1983, 7.5 Minute Series.

The features of the Subject Property observed from the topographic maps are described below. Maps are addressed in chronological order. Unless otherwise noted, progressive descriptions indicate that no changes were observed from the previous year's features other than the new items mentioned.

The following features were observed on the topographic maps within the Subject Property and adjacent properties:

1886 Topographic Map: No features are noted on the Subject Property. Muddy River is depicted further south of the Site.

1965 Topographic Map: The Subject Property is located within the Moapa Valley on the Moapa River Indian Reservation. The present day Reservation Road and Lytle Lane are now depicted onsite. The present day transmission line is depicted in the northern portion of the Subject Property. Highway 168 is depicted running from the southeast towards the northwest of the Subject Property and railroad tracks are depicted further east of the Subject Property.

1983 Topographic Map: No additional features are depicted on this topographic map.

4.3.4 Historical Aerial Photographs

Available aerial photographs available from EDR for the Subject Property and adjacent properties were reviewed and are provided in **Appendix D**. The aerial photographs reviewed by ARCADIS are from the following dates: 1954, 1967, 1973, 1981, 1999, and 2013. A general description of notable features observed on site in each aerial photograph (using current names and identifiers) follows.

1954 EDR Aerial Photograph: The Subject Property and adjacent properties appear to be undeveloped desert land. The present day Reservation Road and Lytle Lane are visible on the Subject Property. Highway 168 is visible running from the southeast towards the northwest of the Subject Property. Railroad tracks are visible further east of the Subject Property and the Muddy River is visible further south of the Subject Property.

1967 EDR Aerial Photograph: There are no discernible changes to the Subject Property from the 1967 aerial photograph. The present day Reid Gardner Generation Station is now visible further south of the Subject Property.

1973 EDR Aerial Photograph: There are no discernible changes to the Subject Property or adjacent properties from the 1973 aerial photograph.

1981 EDR Aerial Photograph: There are no discernible changes to the Subject Property and adjacent properties from the 1981 aerial photograph.

1999 EDR Aerial Photograph: There are no discernible changes to the Subject Property except for the present day transmission line visible along the northern portion of the Subject Property.

2013 EDR Aerial Photograph: There are no discernible changes to the Subject Property and adjacent properties from the 2013 aerial photograph.

4.3.5 Conclusions from Historical Use Information on the Subject Property

Review of historical topographic maps and aerial photographs that cover the Subject Property indicated that the Subject Property was comprised of undeveloped desert land with roads and transmission line development. No RECs were identified from the review of historical data, topographic maps, and aerial photographs of the Subject Property.

4.3.6 Conclusions from Historical Use Information on Adjacent Properties to the Subject Property

The topographic maps and historical aerial photographs indicate that the majority of the surrounding area has been undeveloped desert land. No RECs were identified from the review of historical data, topographic maps, and aerial photographs in connection with lands adjacent to the Subject Property.

5. Other Environmental Reports

ARCADIS was not provided with previous environmental reports for the Subject Property. ARCADIS did not identify any additional information pertinent to this Phase I ESA, other than information sources identified elsewhere in this report.

6. Site Reconnaissance

6.1 Methodologies and Limiting Conditions

Ms. Dori Arbour of ARCADIS conducted a site reconnaissance of the Subject Property on April 8, 2015. Photographs from the site reconnaissance are included as **Appendix A**. Ms. Arbour is an Environmental Professional, qualified to conduct Phase I ESA work. ARCADIS was accompanied by Mr. Dave Sterner with First Solar, Inc. during site reconnaissance activities.

The Subject Property boundaries were based on information provided by First Solar, Inc. During the site reconnaissance, the weather was sunny with an average temperature of 70 degrees Fahrenheit. Visibility was clear to at least one mile.

The Phase I ESA investigation included a detailed review of aerial photography and historical topographical maps prior to the site reconnaissance to identify items to be observed during the site reconnaissance. ARCADIS reviewed the aerial photographs to identify features that were unknown in the photographs, or warranted further investigation based on human construction or usage, and visited each of these areas. The Subject Property and adjacent lands were reviewed via four-wheel drive vehicle on via county and access roads where passable and via foot in areas that were not accessible or readily visible by vehicle.

The purpose of the site reconnaissance was to visually obtain information that would indicate the potential presence of RECs. This included indications of spills, chemical or solid-waste disposal practices, and the observance of ASTs, USTs, and other environmental concerns identified in the ASTM E 1527-13 standard practice. The site reconnaissance did not include sampling of water, soil, air, or materials at the Subject Property. The findings of the site reconnaissance are presented below.

6.2 General Site Setting

Photographs were taken during the site reconnaissance of areas representing common site conditions and other areas of interest. Photographs that provide typical or specific items of interest are included in **Appendix A**.

The Subject Property is currently undeveloped desert land. The limited existing infrastructure on the Subject Property includes three transmission lines, county and access roads, and a water pipeline. No buildings are located on the Subject Property.

6.3 Observations

The following sections summarize observations and findings made during the site reconnaissance.

6.3.1 General Observations of Operations

There are no current onsite operations at the Subject Property.

6.3.2 Solid and Hazardous Waste

No hazardous waste or solid wastes were observed by ARCADIS during the site visit.

6.3.3 Aboveground Storage Tanks

No evidence ASTs were observed on the Subject Property by ARCADIS.

6.3.4 Fuel ASTs

No evidence of fuel ASTs was observed on the Subject Property by ARCADIS.

6.3.5 Underground Storage Tanks

No evidence of any USTs (fill ports, vent pipes, dispensers, or concrete pads) was observed on the Subject Property by ARCADIS, and none were reported to exist by the landowner or Client personnel.

6.3.6 Chemical Storage

No chemicals or evidence of chemical storage was observed on the Subject Property by ARCADIS. Hazardous waste is not generated on the Subject Property.

6.3.7 Utilities

No portions of the Subject Property are served by utilities. However, three existing transmission lines cross the site and a water pipeline traverses the Site.

6.3.8 Air Emissions

No sources of industrial or manufacturing air emissions were observed by ARCADIS during the site reconnaissance.

6.3.9 PCBs

No electrical or hydraulic equipment known to contain PCBs or likely to contain PCBs was identified during this assessment.

6.3.10 Other Conditions Observed during Site Reconnaissance

In addition to the observations discussed in previous sections, none of the following items of potential concern were observed by ARCADIS on the Subject Property during the site reconnaissance:

- Industrial or manufacturing activities;
- Leachate or seeps;
- Drains or sumps;
- Evidence of chemical spills or releases;
- Evidence of monitor wells or remediation equipment;
- Evidence of surface water contamination;
- Pools of liquids;
- Industrial and manufacturing facilities; or
- Discharges, leachate, migration, or runoff of potential contaminants from offsite sources.

6.3.11 Conditions Observed on Adjacent Properties During Site Reconnaissance

In addition to the Subject Property observations discussed above, none of the observed activities on adjacent properties were identified as RECs.

7. Interviews

7.1 Interview with Knight & Leavitt Associates

ARCADIS interviewed Mr. Bryon Cole, Archeologist with Knight & Leavitt Associates, to obtain information on the Subject Property. The interview was conducted during the site reconnaissance visit on April 8, 2015. Mr. Cole has been associated with the Subject Property since February 2015. Mr. Cole was unaware of any environmental concerns associated with the site during his field studies.

7.2 Interview with Nevada Division of Environmental Protection (NDEP)

ARCADIS contacted the NDEP to obtain information about any hazardous materials spills, corrective actions, USTs, and LUSTs. According to the NDEP, no incidents have been recorded on the Subject Property.

7.3 Interview with Current Landowner

The Subject Property is comprised of land contracted with an option to lease by First Solar, Inc. from a single landowner entity, Moapa River Indian Reservation. ARCADIS contacted and interviewed the landowner representative, Mr. Darren Daboda, Moapa Band of Paiutes Environmental Coordinator. Mr. Daboda has been associated with the Subject Property for the past 12 years. Mr. Daboda indicated the Subject Property has always been undeveloped desert land. Mr. Daboda stated that he was not aware of any environmental concerns at the Subject Property.

No hazardous chemicals or petroleum products were reported during the interviews to be used or stored on the Subject Property. No issues were identified to indicate the presence of RECs through the conducted interviews.

8. Phase I ESA Findings, Opinions and Conclusions

The following sections present ARCADIS's Phase I ESA findings, opinions and conclusions.

8.1 Summary Information – Non RECs

- The Subject Property includes approximately 1,006 acres of land entirely located on the Moapa River Indian Reservation that will be the site of the proposed Aiya Solar Project. Seven parcels have been contracted with an option to lease where solar panels and other associated infrastructure are planned to be located.
- Based on the historical research and interviews completed for this Phase I ESA, the Subject Property is currently and has historically been undeveloped desert land.
- The limited existing infrastructure on the Subject Property includes three existing transmission lines, county and access roads, and a water pipeline. No buildings are located on the Subject Property.

8.2 REC, HREC and CREC Findings

ARCADIS performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13 of the Subject Property. Any exceptions to, or deviations from this practice are described in Section 1 of this Report. This assessment has revealed no evidence of RECs, HRECs, and CRECs at the Subject Property, as defined under ASTM Practice E 1527-13.

8.1 *De Minimis* Conditions

No *de minimis* conditions were identified for the Subject Property.

9. Conclusions and Opinions

ARCADIS performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13 of the Subject Property. Any exceptions to, or deviations from this practice are described in Section 1 of this Report.

Based on a review of the information obtained from interviews of the property owner representatives, landowner, and other people knowledgeable of the Subject Property, historical topographical maps and aerial photographs, environmental regulatory and other databases, and a site reconnaissance, no RECs, HRECs and CRECs were identified associated with the Subject Property.

No Phase I ESA can wholly eliminate uncertainty regarding the potential for RECs, HRECs, or CRECs in connection with a property. This evaluation was intended to reduce, but not eliminate uncertainty in RECs, HRECs, or CRECs.

10. Deviations and Data Gaps

The ASTM practice requires environmental professionals to identify data gaps following reasonable inquiry of First Solar, Inc. personnel and ARCADIS' search for "reasonably ascertainable" resources. ASTM E 1527-13 defines a data gap as "a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information". ARCADIS has performed this Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13 and 40 CFR Part 312. Any additions to, or deviations from, this practice are described in Section 2.4.

A 50-year chain-of-title report for the Subject Property was not provided to ARCADIS. In addition, the interval between aerial photographs and topographic maps exceeds 5 years. No other limiting factors were documented during this Phase I ESA. These limiting factors represent data gaps. Based on information obtained by ARCADIS during our review of historical sources, and observation of site conditions during our visit, the lack of the title report, and additional photographs and maps would not appear to be significant and we do not anticipate that the information that could be obtained from these sources would change the conclusions of this report. Pertinent data, if any, obtained by the Client following the issuance of this report should be reviewed by an environmental professional and an addendum prepared presenting an evaluation of the data and any changes to the conclusions of this report, as warranted by the data.

Pertinent data, if any, obtained by the Client following the issuance of this Phase I ESA Report should be reviewed by an environmental professional and an addendum prepared presenting an evaluation of the data and any changes to the conclusions of this Report, as warranted by the data.

11. Additional Services

No additional services were requested or performed.

12. References

ASTM E 1527-13. 2013. "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process"* ASTM International, West Conshohocken, PA.

EDR Radius Map™ Report with GeoCheck®. 2015. Aiya. Inquiry #4249103.2s. March 30.

_____. 2015. EDR - Historical Topographic Map Report. March 30.

_____. 2015. EDR – U.S.G.S. Aerial Photo Package. March 30.

Knight & Leavitt Associates. Personal Interview April 8, 2015 between Mr. Bryon Cole, Archeologist and Ms. Dori Arbour of ARCADIS.

Moapa Band of Paiutes. Telephone interview April 13, 2015 between Mr. Darren Daboda, Landowner Representative and Ms. Dori Arbour of ARCADIS.

Signatures of Environmental Professionals

The environmental assessment described herein was conducted by the undersigned employees of ARCADIS. ARCADIS' assessment consisted solely of the activities described in the Introduction of this Report, and in accordance with the ASTM E 1527-13 guidelines for Phase I Environmental Site Assessments signed prior to initiation of the assessment, as applicable.

We declare that, to the best of our professional knowledge and belief, we meet the definition of environmental professional as defined in §312.10 of 40 Code of Federal Regulations (CFR) 312, and we have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject Property. We have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. *

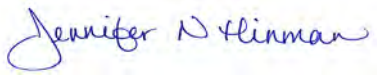
Report Prepared By:

April 22, 2015

Dori Arbour — Date
Project Scientist

Report Reviewed By:
I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and, to the best of my knowledge, comply with all applicable federal, state and local statutes, regulations and ordinances.

Description of Services: Phase I Environmental Site Assessment for Aiya Solar Project Clark County, Nevada.



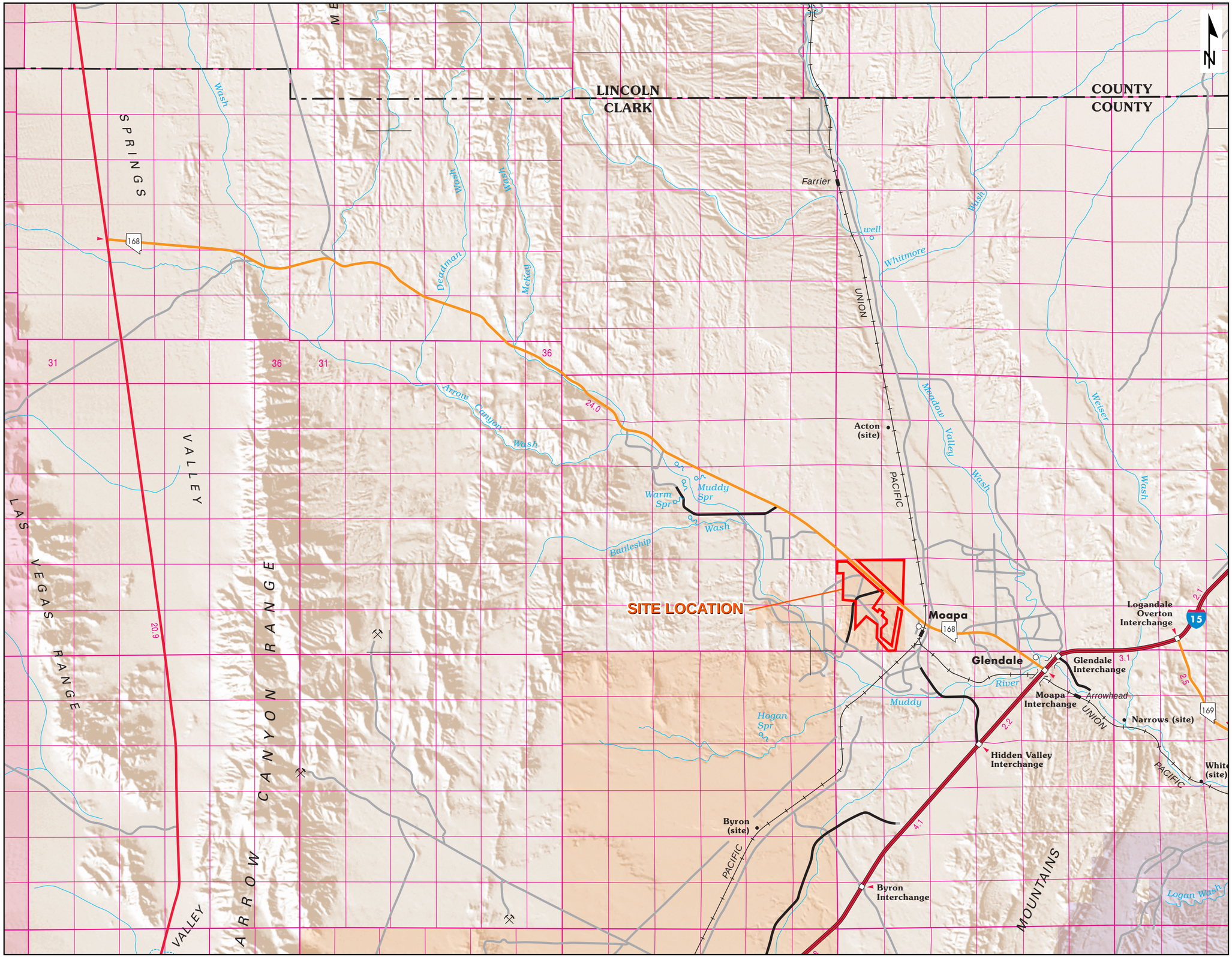
April 22, 2015

Jennifer Hinman — Date
Staff Environmental Scientist
CEM No. 2209 (expires 04/14/17)

*A professional geologist's or registered environmental assessor's certification of conditions comprises a declaration of his or her professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it relieve any other party of its responsibility to abide by contract documents, applicable codes, standards, regulations, and ordinances.

ARCADIS

FIGURES



AIYA, CLARK COUNTY, NEVADA

Legend

Subject Property

Source:
Nevada State Department of Transportation
General Highway Map, 1985, Clark County

Transverse Mercator Projection
Mount Diablo Base and Meridian

50,000 Foot Grid ( ) Based on Nevada
Coordinate System East Zone

20,000 Meter Universal Transverse
Mercator Grid ( ) Zone 11

Horizontal and vertical control data on
file at Carson City, Nevada

Mileage shown between arrowheads

0 3 6
Miles

ARCADIS Exelon Wind

FIRST SOLAR

PHASE I ESA

SITE LOCATION MAP

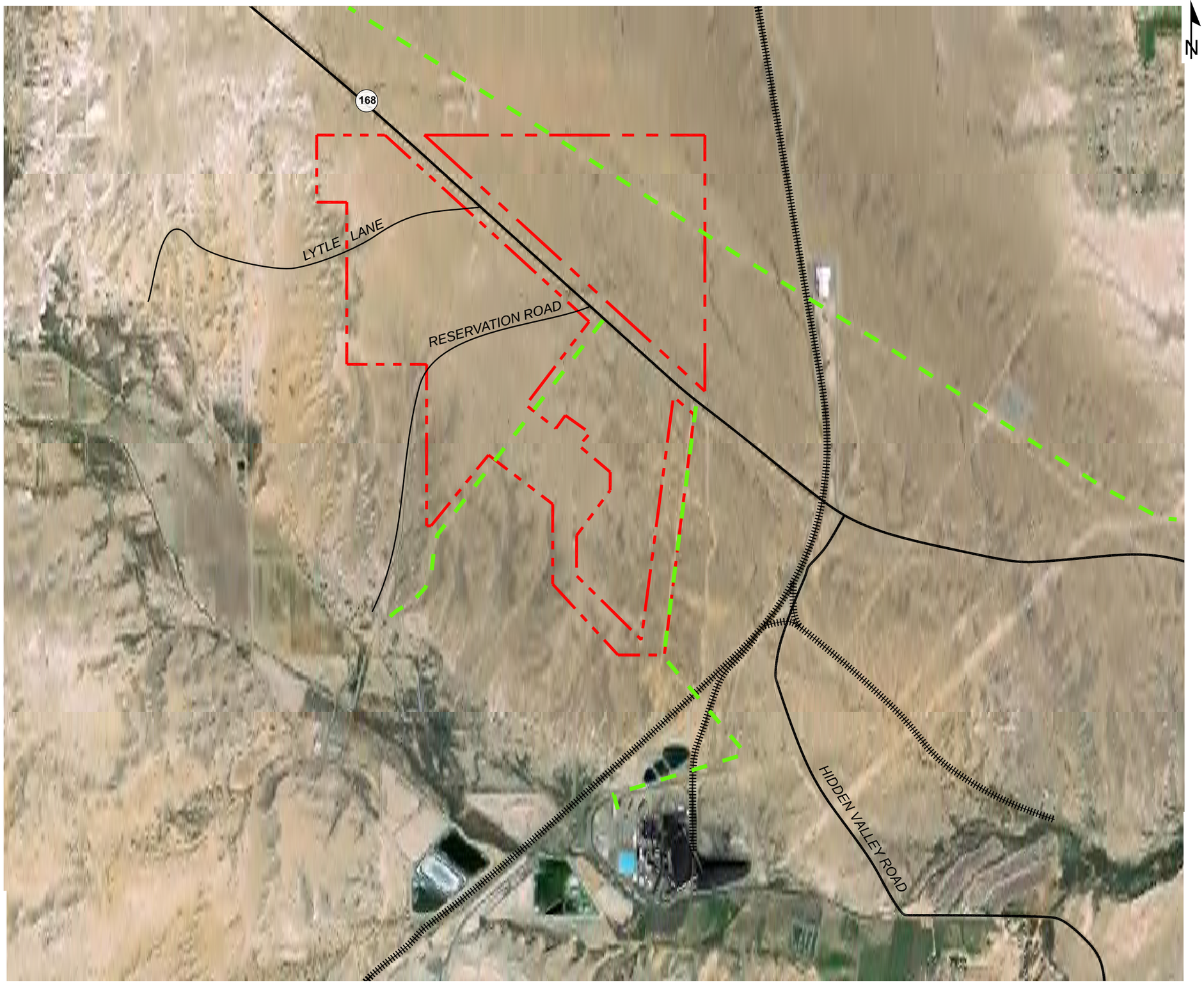
Aiya, Clark County, Nevada

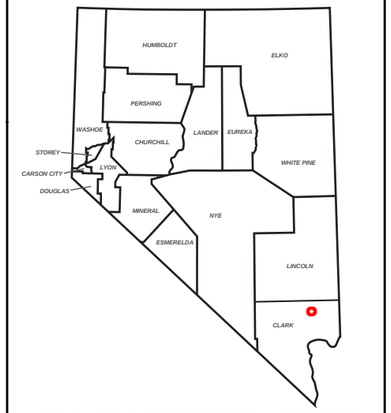
Date: 04/14/2015

Prepared By: DA

FIGURE: **1**

Path: Z:\GISPROJECTS_ENV\PHASE_II\EXELON\THREEMILE_ORM\MXD\TM_SiteLocation_20141021.mxd





AIYA, CLARK COUNTY, NEVADA

Legend

- Subject Property
- Transmission Line
- Railroad

SOURCE: Google Earth, 2015.

0 2,000 4,000
Feet
1:2,000

ARCADIS Exelon Wind

FIRST SOLAR

PHASE I ESA

SITE DETAIL MAP

Aiya, Clark County, Nevada

Date: 04/14/2015

Prepared By: DA

FIGURE: **2**

04/15/2015 JLOVING G:\ENVCAD\Irvine\ACTICO002026\0001\000000\PDF-GIS\Figure 2 SiteMap.pdf

Appendix A

Site Reconnaissance Photographs

	
View of the northern Subject Property boundary facing southeast along the northern transmission line.	View of the Subject Property northeast of Highway 168.
	
Another view of the Subject Property located northeast of Highway 168.	View of Lytle Lane located on the northwest portion of the Subject Property facing west.
	
View of the Subject Property north of Lytle Lane facing northwest.	View of the Subject Property between Lytle Lane and Reservation Road facing northeast.

	
Another view of the Subject Property between Lytle Lane and Reservation Road facing south.	View of a marker indicating a water pipeline located on the Subject Property.
	
View of the Subject Property south of Reservation Road.	View of the southern portion of the Subject Property located on the southwest of Highway 168.
	
View of transmission line located on the southern portion of the Subject Property.	View south of the transmission line located on the western portion of the Subject Property.

View north of the southern boundary of the Subject Property.

View of Highway 168 that runs through the Subject Property.

View of Reid Gardner Generation facility further south of the Subject Property.

Appendix B

ASTM User Questionnaire

URGENT and CONFIDENTIAL

USER QUESTIONNAIRE

AS REQUIRED by ASTM Standard E1527-13 or E 2247-08

To:	Dori Arbour	From:	Kevin Peters
At:	Arcadis	At:	First Solar
Fax:		Pages:	
Phone:		Date:	April 16, 2015

Site Name: Aiya Solar

Site Address: Moapa River Indian Tribal Lands, Clark County, NV

The person who will use the Phase I ESA should provide the following information. Please fill in this form to the best of your ability, explaining any Yes answers in the space provided or on a separate sheet of paper. Without response to the User Questionnaire, our report would have to note that the Phase I ESA is incomplete, and your Landowner Liability Protections could be at risk. Please provide response to the User Questionnaire prior to the site reconnaissance.

1. **Environmental Cleanup Liens.** ASTM requires the User to check for environmental liens and Activity and Use Limitations (AULs) that may be filed or recorded against the subject property under federal, tribal, state or local law or to include the review of environmental liens and AULs as an additional scope for the environmental professional. Such liens or limitations might be listed in the "exceptions to coverage" in the property's title insurance commitment or policy. Failure to check for these liens and limitations could put your Landowner Liability Protections at risk.

   Please indicate the person or entity responsible for review of environmental liens and activity and use limitations for this Phase I ESA. _Kevin Peters_____

   Are you aware of any such liens against the subject property? ❑ Yes X No

2. **Activity and Use Limitations (AULs).** These include engineering controls (e.g., slurry walls, caps) and land use restrictions or institutional controls (e.g., deed restrictions, covenants) that may be in place at the subject property or filed under federal, tribal, state or local law.

   Are you aware of any possible AULs involving the subject property? ❑ Yes X No

3. **Specialized Knowledge.** This involves personal knowledge or experience related to the subject property or nearby properties. For example, if you are involved in the same line of business as the current or former occupants of the property or an adjoining property, you may know of any chemicals, oil, degreasers, gasoline, or other hazardous substances commonly used in that type of business.

   Do you have any specialized knowledge that might indicate the past or present use of such substances on the subject or nearby properties? ❑ Yes X No

4. **Fair Market Value (FMV).** A purchase price significantly below FMV may indicate an environmental problem. Please note that this question does not require an appraisal of the property. If the price is significantly below FMV, the User should consider whether it might be because contamination may be present at the property.

   Is the purchase price significantly below fair market value? (The site is controlled by an option to lease) ❑ Yes X No

5. **Obvious Indicators.** This involves past or present spills, stains, releases, cleanups, etc. on or near the site.

   Do you know of any obvious indicators of possible contamination on or near the site? ❑ Yes X No

   Do you know of spills or other chemical releases that have taken place at the property? ❑ Yes X No

   Do you know of any environmental cleanups that have taken place at the property? ❑ Yes X No

6. **Litigation, Administrative Proceedings or Government Notices.**

   Do you know of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property? ❑ Yes X No

   Do you know of any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the property? ❑ Yes X No

Do you know of any notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products?

❑ Yes X No

7. **Common Knowledge.** Please use a separate sheet if necessary.

   a. Describe the past uses of the property: _____

   Vacant Land, bifurcated by a county roadway

   b. Describe any specific chemicals that may have been present at the property: _____

   Unknown

   c. Describe any other information that may help us identify possible contamination: _____

Additional Information: (Provide herein or indicate attachments)

Your Signature

April 16, 2015
Date

# of separate sheets attached: 0

Appendix C

EDR Radius Map™
with GeoCheck® Report

Aiya
Highway 168
Overton, NV 89040

Inquiry Number: 4249103.2s
March 30, 2015

The EDR Radius Map™ Report with GeoCheck®

Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

HIGHWAY 168
CLARK County, NV 89040

COORDINATES

Latitude (North):	36.6854000 - 36° 41' 7.44''
Longitude (West):	114.6410000 - 114° 38' 27.60''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	710778.4
UTM Y (Meters):	4062364.5
Elevation:	1774 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	36114-F6 MOAPA WEST, NV
Most Recent Revision:	1983
East Map:	36114-F5 MOAPA EAST, NV
Most Recent Revision:	1983

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20100522
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ---------- Federal Facility Site Information listing

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators

Federal institutional controls / engineering controls registries

US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls
LUCIS ---------- Land Use Control Information System

State and tribal landfill and/or solid waste disposal site lists

NV SWF/LF ---------- Landfill List

State and tribal leaking storage tank lists

INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

INDIAN UST ---------- Underground Storage Tanks on Indian Land
FEMA UST ---------- Underground Storage Tank Listing

State and tribal voluntary cleanup sites

NV VCP ---------- Voluntary Cleanup Program Sites
INDIAN VCP ---------- Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

NV BROWNFIELDS ---------- Project Tracking Database

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations

ODI Open Dump Inventory
NV SWRCY Recycling Information Listing
INDIAN ODI Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL Clandestine Drug Labs
US HIST CDL National Clandestine Laboratory Register

Local Land Records

LIENS 2 CERCLA Lien Information

Records of Emergency Release Reports

HMIRS Hazardous Materials Information Reporting System

Other Ascertainable Records

DOT OPS Incident and Accident Data
DOD Department of Defense Sites
FUDS Formerly Used Defense Sites
CONSENT Superfund (CERCLA) Consent Decrees
ROD Records Of Decision
UMTRA Uranium Mill Tailings Sites
US MINES Mines Master Index File
TSCA Toxic Substances Control Act
FTTS FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS FIFRA/TSCA Tracking System Administrative Case Listing
SSTS Section 7 Tracking Systems
PADS PCB Activity Database System
MLTS Material Licensing Tracking System
RADINFO Radiation Information Database
RAATS RCRA Administrative Action Tracking System
RMP Risk Management Plans
NV NPDES Permitted Facility Listing
SCRD DRYCLEANERS State Coalition for Remediation of Drycleaners Listing
NV COAL ASH Coal Ash Disposal Sites
NV Financial Assurance Financial Assurance Information Listing
PCB TRANSFORMER PCB Transformer Registration Database
COAL ASH EPA Coal Combustion Residues Surface Impoundments List
US AIRS Aerometric Information Retrieval System Facility Subsystem
US FIN ASSUR Financial Assurance Information
EPA WATCH LIST EPA WATCH LIST
COAL ASH DOE Steam-Electric Plant Operation Data
2020 COR ACTION 2020 Corrective Action Program List
PRP Potentially Responsible Parties
LEAD SMELTERS Lead Smelter Sites

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary Manufactured Gas Plants

EDR US Hist Auto Stat ..... EDR Exclusive Historic Gas Stations
EDR US Hist Cleaners ..... EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

NV RGA LF ..... Recovered Government Archive Solid Waste Facilities List
NV RGA LUST ..... Recovered Government Archive Leaking Underground Storage Tank
NV RGA HWS ..... Recovered Government Archive State Hazardous Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal CERCLIS NFRAP site List

CERC-NFRAP: Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

A review of the CERC-NFRAP list, as provided by EDR, and dated 10/25/2013 has revealed that there is 1 CERC-NFRAP site within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
NEVADA POWER STATION/REID GARD	***NE OF HWY 15, ACROSS MO***	***S 1 - 2 (1.868 mi.)***	***C10***	***41***

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 12/09/2014 has revealed that there is 1

RCRA-SQG site within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
AQUATIC CO	***201 N MEADOW VALLEY RD***	***E 1 - 2 (1.100 mi.)***	***A1***	***7***

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 12/09/2014 has revealed that there is 1 RCRA-CESQG site within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
NEVADA POWER STATION/REID GARD	***NE OF HWY 15, ACROSS MO***	***S 1 - 2 (1.868 mi.)***	***C10***	***41***

Federal ERNS list

ERNS: The Emergency Response Notification System records and stores information on reported releases of oil and hazardous substances. The source of this database is the U.S. EPA.

A review of the ERNS list, as provided by EDR, and dated 09/29/2014 has revealed that there are 3 ERNS sites within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
Not reported	501 WALLY KAY WAY	S 1 - 2 (1.868 mi.)	C13	45
Not reported	501 WALLY KAY WAY	S 1 - 2 (1.868 mi.)	C16	47
Not reported	501 WALLY KAY WAY	S 1 - 2 (1.868 mi.)	C18	48

State- and tribal - equivalent CERCLIS

NV SHWS: Corrective Action Case list (Active, Non-ust Hazardous Waste and Regulated Substance. Correction Actions)

A review of the NV SHWS list, as provided by EDR, and dated 11/13/2014 has revealed that there is 1 NV SHWS site within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
LASCO BATHWARE Date Closed: 02/01/1999	201 MEADOW VALLEY ROAD	E 1 - 2 (1.100 mi.)	A2	18

State and tribal leaking storage tank lists

NV LUST: Leaking UST List.

A review of the NV LUST list, as provided by EDR, and dated 11/13/2014 has revealed that there is 1 NV LUST site within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
REID GARDNER STATION Date Closed: 11/05/2012	***I-15 N EXIT 88***	***S 1 - 2 (1.895 mi.)***	***19***	***48***

State and tribal registered storage tank lists

NV UST: Registered Underground Storage Tank Facilities.

A review of the NV UST list, as provided by EDR, and dated 11/13/2014 has revealed that there is 1 NV UST site within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
REID GARDNER STATION	***I-15 N EXIT 88***	***S 1 - 2 (1.895 mi.)***	***19***	***48***

NV AST: N/A

A review of the NV AST list, as provided by EDR, and dated 11/13/2014 has revealed that there is 1 NV AST site within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
REID GARDNER STATION	***I-15 N EXIT 88***	***S 1 - 2 (1.895 mi.)***	***19***	***48***

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: The EPA's listing of Brownfields properties from the Cleanups in My Community program, which provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

A review of the US BROWNFIELDS list, as provided by EDR, and dated 12/22/2014 has revealed that there are 4 US BROWNFIELDS sites within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
MOAPA BAND OF PAIUTE SENIOR CE	***3 LINCOLN STREET***	***SW 1 - 2 (1.258 mi.)***	***B6***	***23***
MOAPA BAND OF PAIUTE LARGE GRE	***GREENHOUSE ROAD***	***SW 1 - 2 (1.304 mi.)***	***B7***	***25***
MOAPA BAND OF PAIUTE SMALL GRE	***1 GREENHOUSE ROAD***	***SW 1 - 2 (1.304 mi.)***	***B8***	***28***
MOAPA PAIUTE PACKING PLANT	***2 GREENHOUSE ROAD***	***SSW 1 - 2 (1.835 mi.)***	***9***	***30***

EXECUTIVE SUMMARY

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 12/09/2014 has revealed that there is 1 RCRA NonGen / NLR site within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
MOAPA BAND OF PAIUTES	***1 LINCOLN ST***	***SSW 1 - 2 (1.257 mi.)***	***5***	***22***

TRIS: The Toxic Chemical Release Inventory System identifies facilities that release toxic chemicals to the air, water, and land in reportable quantities under SARA Title III, Section 313. The source of this database is the U.S. EPA.

A review of the TRIS list, as provided by EDR, and dated 12/31/2011 has revealed that there are 2 TRIS sites within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
AQUATIC CO	201 N MEADOW VALLEY RD	E 1 - 2 (1.150 mi.)	A4	21
REID GARDNER GENERATING STATIO	501 WALLY KAY WAY	S 1 - 2 (1.868 mi.)	C17	47

ICIS: The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

A review of the ICIS list, as provided by EDR, and dated 01/23/2015 has revealed that there is 1 ICIS site within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
AQUATIC CO	***201 N MEADOW VALLEY RD***	***E 1 - 2 (1.100 mi.)***	***A1***	***7***

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 01/18/2015 has revealed that there are 10 FINDS sites within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
AQUATIC CO	***201 N MEADOW VALLEY RD***	***E 1 - 2 (1.100 mi.)***	***A1***	***7***
MOAPA BAND OF PAIUTES	***1 LINCOLN ST***	***SSW 1 - 2 (1.257 mi.)***	***5***	***22***
MOAPA BAND OF PAIUTE SENIOR CE	***3 LINCOLN STREET***	***SW 1 - 2 (1.258 mi.)***	***B6***	***23***

Lower Elevation	Address	Direction / Distance	Map ID	Page
MOAPA BAND OF PAIUTE LARGE GRE	***GREENHOUSE ROAD***	***SW 1 - 2 (1.304 mi.)***	***B7***	***25***
MOAPA BAND OF PAIUTE SMALL GRE	***1 GREENHOUSE ROAD***	***SW 1 - 2 (1.304 mi.)***	***B8***	***28***
MOAPA PAIUTE PACKING PLANT	***2 GREENHOUSE ROAD***	***SSW 1 - 2 (1.835 mi.)***	***9***	***30***
NEVADA POWER STATION/REID GARD	***NE OF HWY 15, ACROSS MO***	***S 1 - 2 (1.868 mi.)***	***C10***	***41***
MESA CONVEYANCE PIPELINE	501 WALLY KAY WAY	S 1 - 2 (1.868 mi.)	C11	45
REID GARDNER ASH HAUL	501 WALLY KAY WAY	S 1 - 2 (1.868 mi.)	C12	45
SOUTH LATERAL LANDFILL EXPANSI	501 WALLY KAY WAY	S 1 - 2 (1.868 mi.)	C14	45

CA HAZNET: The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000-1,000,000 annually, representing approximately 350,000-500,000 shipments. Data from non-California manifests & continuation sheets are not included at the present time. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, & disposal method. The source is the Department of Toxic Substance Control is the agency. This database begins with calendar year 1993.

A review of the CA HAZNET list, as provided by EDR, has revealed that there is 1 CA HAZNET site within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
NV POWER CO REID GARDNER GENER	501 WALLY KAY WAY	S 1 - 2 (1.868 mi.)	C15	46

A listing of permitted Airs facilities and their associated emissions information.

A review of the NV AIRS list, as provided by EDR, and dated 03/31/2011 has revealed that there are 2 NV AIRS sites within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CLASS 1 - ERC OPTC - REID GARD		SSE >2 (2.012 mi.)	D20	50
CLASS 1 PSD - REID-GARDNER GEN		SSE >2 (2.012 mi.)	D21	51

NV HMRI: Emergency Planning and Community Right-to-Know Act (EPCRA) required facilities which store or manufacture hazardous materials to prepare and submit a chemical inventory report by March 1st of each year to the State Emergency Response Commission (SERC), LEPC and the local fire department. The inventory form must include information on all hazardous chemicals present at the facility during the previous calendar year in amounts that meet or exceed thresholds.

A review of the NV HMRI list, as provided by EDR, and dated 08/05/2008 has revealed that there is 1 NV HMRI site within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
LASCO BATHWARE, INC	201 MEADOW VALLEY ROAD	E 1 - 2 (1.100 mi.)	A3	18

EXECUTIVE SUMMARY

INDIAN RESERV: This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

A review of the INDIAN RESERV list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 INDIAN RESERV site within approximately 2.5 miles of the target property.

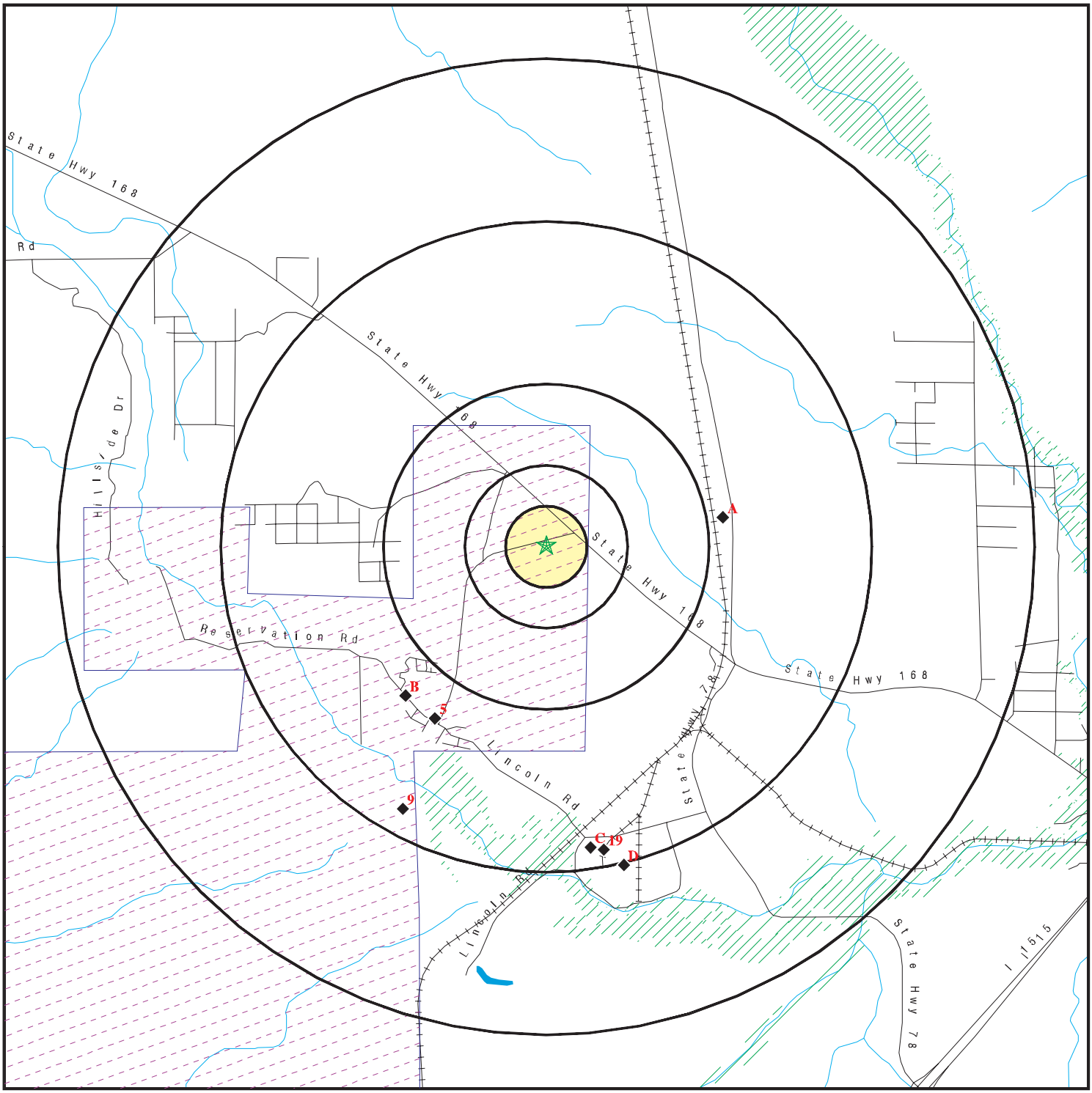
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MOAPA RIVER INDIAN RESERVATION		0 - 1/8 (0.000 mi.)	0	7

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 3 records.

Site Name	Database(s)
HIDDEN VALLEY DAIRY	NV SHWS, NV UST
WISER CONSTRUCTION, APN 031-34-801	NV SHWS
PERKINS ELEMENTARY SCHOOL	NV SHWS

OVERVIEW MAP - 4249103.2S

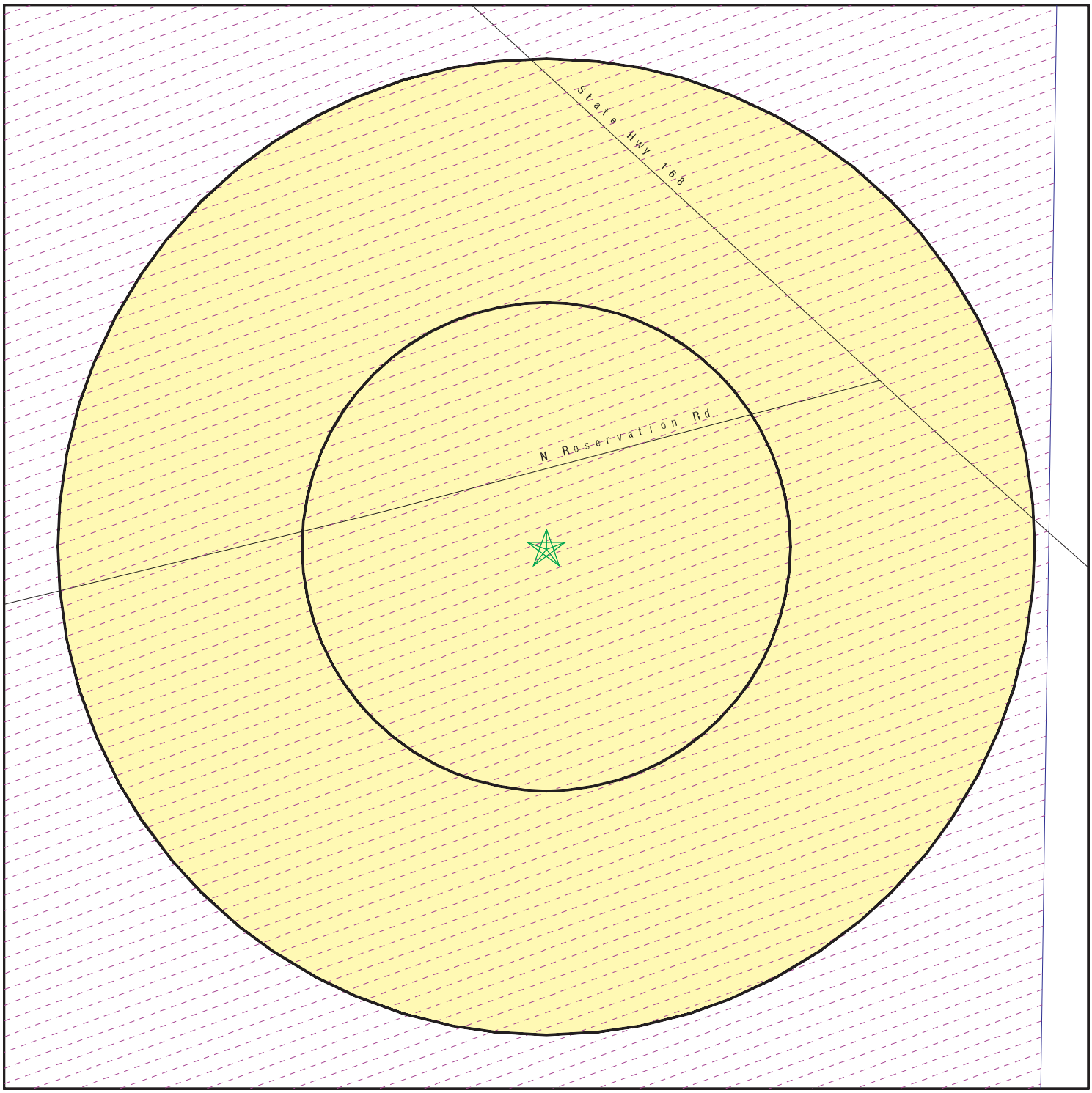


- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Aiya ADDRESS: Highway 168 Overton NV 89040 LAT/LONG: 36.6854 / 114.641	CLIENT: ARCADIS U.S., Inc. CONTACT: Dori INQUIRY #: 4249103.2s DATE: March 30, 2015 4:37 pm

DETAIL MAP - 4249103.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone

0 1/16 1/8 1/4 Miles

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Aiya	CLIENT: ARCADIS U.S., Inc.
ADDRESS: Highway 168 Overton NV 89040	CONTACT: Dori
LAT/LONG: 36.6854 / 114.641	INQUIRY #: 4249103.2s DATE: March 30, 2015 4:39 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	2.500		0	0	0	0	0	0
Proposed NPL	2.500		0	0	0	0	0	0
NPL LIENS	2.500		0	0	0	0	0	0
Federal Delisted NPL site list								
Delisted NPL	2.500		0	0	0	0	0	0
Federal CERCLIS list								
CERCLIS	2.500		0	0	0	0	0	0
FEDERAL FACILITY	2.500		0	0	0	0	0	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	2.500		0	0	0	0	1	1
Federal RCRA CORRACTS facilities list								
CORRACTS	2.500		0	0	0	0	0	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	2.500		0	0	0	0	0	0
Federal RCRA generators list								
RCRA-LQG	2.500		0	0	0	0	0	0
RCRA-SQG	2.500		0	0	0	0	1	1
RCRA-CESQG	2.500		0	0	0	0	1	1
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	2.500		0	0	0	0	0	0
US INST CONTROL	2.500		0	0	0	0	0	0
LUCIS	2.500		0	0	0	0	0	0
Federal ERNS list								
ERNS	2.500		0	0	0	0	3	3
State- and tribal - equivalent CERCLIS								
NV SHWS	2.500		0	0	0	0	1	1
State and tribal landfill and/or solid waste disposal site lists								
NV SWF/LF	2.500		0	0	0	0	0	0
State and tribal leaking storage tank lists								
NV LUST	2.500		0	0	0	0	1	1
INDIAN LUST	2.500		0	0	0	0	0	0
State and tribal registered storage tank lists								
NV UST	2.500		0	0	0	0	1	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NV AST	2.500		0	0	0	0	1	1
INDIAN UST	2.500		0	0	0	0	0	0
FEMA UST	2.500		0	0	0	0	0	0
State and tribal voluntary cleanup sites								
NV VCP	2.500		0	0	0	0	0	0
INDIAN VCP	2.500		0	0	0	0	0	0
State and tribal Brownfields sites								
NV BROWNFIELDS	2.500		0	0	0	0	0	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	2.500		0	0	0	0	4	4
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9	2.500		0	0	0	0	0	0
ODI	2.500		0	0	0	0	0	0
NV SWRCY	2.500		0	0	0	0	0	0
INDIAN ODI	2.500		0	0	0	0	0	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	2.500		0	0	0	0	0	0
US HIST CDL	2.500		0	0	0	0	0	0
Local Land Records								
LIENS 2	2.500		0	0	0	0	0	0
Records of Emergency Release Reports								
HMIRS	2.500		0	0	0	0	0	0
Other Ascertainable Records								
RCRA NonGen / NLR	2.500		0	0	0	0	1	1
DOT OPS	2.500		0	0	0	0	0	0
DOD	2.500		0	0	0	0	0	0
FUDS	2.500		0	0	0	0	0	0
CONSENT	2.500		0	0	0	0	0	0
ROD	2.500		0	0	0	0	0	0
UMTRA	2.500		0	0	0	0	0	0
US MINES	2.500		0	0	0	0	0	0
TRIS	2.500		0	0	0	0	2	2
TSCA	2.500		0	0	0	0	0	0
FTTS	2.500		0	0	0	0	0	0
HIST FTTS	2.500		0	0	0	0	0	0
SSTS	2.500		0	0	0	0	0	0
ICIS	2.500		0	0	0	0	1	1
PADS	2.500		0	0	0	0	0	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MLTS	2.500		0	0	0	0	0	0
RADINFO	2.500		0	0	0	0	0	0
FINDS	2.500		0	0	0	0	10	10
RAATS	2.500		0	0	0	0	0	0
RMP	2.500		0	0	0	0	0	0
CA HAZNET	2.500		0	0	0	0	1	1
NV NPDES	2.500		0	0	0	0	0	0
NV AIRS	2.500		0	0	0	0	2	2
NV HMRI	2.500		0	0	0	0	1	1
INDIAN RESERV	2.500		1	0	0	0	0	1
SCRD DRYCLEANERS	2.500		0	0	0	0	0	0
NV COAL ASH	2.500		0	0	0	0	0	0
NV Financial Assurance	2.500		0	0	0	0	0	0
PCB TRANSFORMER	2.500		0	0	0	0	0	0
COAL ASH EPA	2.500		0	0	0	0	0	0
US AIRS	2.500		0	0	0	0	0	0
US FIN ASSUR	2.500		0	0	0	0	0	0
EPA WATCH LIST	2.500		0	0	0	0	0	0
COAL ASH DOE	2.500		0	0	0	0	0	0
2020 COR ACTION	2.500		0	0	0	0	0	0
PRP	2.500		0	0	0	0	0	0
LEAD SMELTERS	2.500		0	0	0	0	0	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	2.500		0	0	0	0	0	0
EDR US Hist Auto Stat	2.500		0	0	0	0	0	0
EDR US Hist Cleaners	2.500		0	0	0	0	0	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
NV RGA LF	2.500		0	0	0	0	0	0
NV RGA LUST	2.500		0	0	0	0	0	0
NV RGA HWS	2.500		0	0	0	0	0	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

IND RES **MOAPA RIVER INDIAN RESERVATION** **INDIAN RESERV** **CIND100335**
Region **N/A**

MOAPA RIVER INDIAN RESERV (County), NV

< 1/8
1 ft.

INDIAN RESERV:
Feature: Indian Reservation
Name: Moapa River Indian Reservation
Agency: BIA
State: NV

A1 **AQUATIC CO** **RCRA-SQG** **1001460176**
East **201 N MEADOW VALLEY RD** **ICIS** **NVR000002170**
> 1 **MOAPA, NV 89025** **FINDS**
1.100 mi.
5807 ft. **Site 1 of 4 in cluster A**

Relative:
Lower

Actual:
1717 ft.

RCRA-SQG:
Date form received by agency: 02/18/2011
Facility name: AQUATIC CO
Facility address: 201 N MEADOW VALLEY RD
MOAPA, NV 89025
EPA ID: NVR000002170
Mailing address: P O BOX 310
MOAPA, NV 89025
Contact: HANNAH SLIMER
Contact address: P O BOX 310
MOAPA, NV 89025
Contact country: US
Contact telephone: (702) 864-2100
Telephone ext.: 51209
Contact email: HENKE@AQUATICBATH.COM
EPA Region: 09
Land type: Private
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: AQUATIC CO
Owner/operator address: 201 N MEADOW VALLEY RD
MOAPA, NV 89025
Owner/operator country: US
Owner/operator telephone: (702) 864-2100
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/01/1995
Owner/Op end date: Not reported

Owner/operator name: AQUATIC CO
Owner/operator address: 201 N MEADOW VALLEY RD
MOAPA, NV 89025
Owner/operator country: US
Owner/operator telephone: (702) 864-2100
Legal status: Private

AQUATIC CO (Continued) **1001460176**

Owner/Operator Type: Operator
Owner/Op start date: 01/01/1995
Owner/Op end date: Not reported

Owner/operator name: LASCO BATHWARE INC.
Owner/operator address: EAST KAISER BLVD.
ANAHEIM, CA 92808
Owner/operator country: Not reported
Owner/operator telephone: (714) 993-1220
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/01/1995
Owner/Op end date: Not reported

Owner/operator name: ASHLAND INC.
Owner/operator address: BLAZER PARKWAY
DUBLIN, OH 43017
Owner/operator country: Not reported
Owner/operator telephone: (614) 790-1938
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 09/11/2009
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 05/18/2010
Site name: ASHLAND INC.
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

Date form received by agency: 03/19/2010
Site name: AQUATIC CO - ASHLAND
Classification: Not a generator, verified

. Waste code: D001
. Waste name: IGNITABLE WASTE

AQUATIC CO (Continued) **1001460176**

Date form received by agency: 02/24/2010
Site name: AQUATIC CO
Classification: Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

Date form received by agency: 02/22/2010
Site name: AQUATIC CO
Classification: Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

Date form received by agency: 02/22/2010
Site name: ASHLAND INC.
Classification: Not a generator, verified

. Waste code: D001
. Waste name: IGNITABLE WASTE

Date form received by agency: 10/27/2009
Site name: ASHLAND INC
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

Date form received by agency: 09/17/2009
Site name: LASCO BATHWARE INC
Classification: Large Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR

AQUATIC CO (Continued) **1001460176**

MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 09/15/2003
Site name: LASCO BATHWARE INC
Classification: Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D002
. Waste name: CORROSIVE WASTE

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 06/22/2001
Site name: LASCO BATHWARE MOAPA
Classification: Large Quantity Generator

Date form received by agency: 11/06/1998
Site name: LASCO BATHWARE MOAPA
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 09/10/2012
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 03/15/2011
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported

AQUATIC CO (Continued) **1001460176**

Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 05/05/2009
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 05/30/2007
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 04/30/2002
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 02/05/1999
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 02/04/1999
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 11/06/1998
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

ICIS:
Enforcement Action ID: 09-2000-0054
FRS ID: 110043090650
Program ID: RCRAINFO NVR000002170
Action Name: TOMKINS INDUSTRIES - LASCO BATHWARE
Full Address: 201 N MEADOW VALLEY RD MOAPA NV 89025
State: Nevada
Facility Name: AQUATIC CO
Facility Address: 201 N MEADOW VALLEY RD
MOAPA, NV 89025
Enforcement Action Type: CAA 113D1 Action For Penalty
Facility County: CLARK
EPA Region #: 9

Enforcement Action ID: 09-2000-0054
FRS ID: 110043090650
Program ID: RBLC 3399
Action Name: TOMKINS INDUSTRIES - LASCO BATHWARE
Full Address: 201 N MEADOW VALLEY RD MOAPA NV 89025

AQUATIC CO (Continued) **1001460176**

State: Nevada
Facility Name: AQUATIC CO
Facility Address: 201 N MEADOW VALLEY RD
MOAPA, NV 89025
Enforcement Action Type: CAA 113D1 Action For Penalty
Facility County: CLARK
EPA Region #: 9

Enforcement Action ID: 09-2000-0054
FRS ID: 110043090650
Program ID: NEI NEI2NVT18231
Action Name: TOMKINS INDUSTRIES - LASCO BATHWARE
Full Address: 201 N MEADOW VALLEY RD MOAPA NV 89025
State: Nevada
Facility Name: AQUATIC CO
Facility Address: 201 N MEADOW VALLEY RD
MOAPA, NV 89025
Enforcement Action Type: CAA 113D1 Action For Penalty
Facility County: CLARK
EPA Region #: 9

Enforcement Action ID: 09-2000-0054
FRS ID: 110043090650
Program ID: FRS 110043090650
Action Name: TOMKINS INDUSTRIES - LASCO BATHWARE
Full Address: 201 N MEADOW VALLEY RD MOAPA NV 89025
State: Nevada
Facility Name: AQUATIC CO
Facility Address: 201 N MEADOW VALLEY RD
MOAPA, NV 89025
Enforcement Action Type: CAA 113D1 Action For Penalty
Facility County: CLARK
EPA Region #: 9

Enforcement Action ID: 09-2000-0054
FRS ID: 110043090650
Program ID: EIS 6690511
Action Name: TOMKINS INDUSTRIES - LASCO BATHWARE
Full Address: 201 N MEADOW VALLEY RD MOAPA NV 89025
State: Nevada
Facility Name: AQUATIC CO
Facility Address: 201 N MEADOW VALLEY RD
MOAPA, NV 89025
Enforcement Action Type: CAA 113D1 Action For Penalty
Facility County: CLARK
EPA Region #: 9

Enforcement Action ID: 09-2000-0054
FRS ID: 110043090650
Program ID: BR NVR000002170
Action Name: TOMKINS INDUSTRIES - LASCO BATHWARE
Full Address: 201 N MEADOW VALLEY RD MOAPA NV 89025
State: Nevada
Facility Name: AQUATIC CO
Facility Address: 201 N MEADOW VALLEY RD
MOAPA, NV 89025
Enforcement Action Type: CAA 113D1 Action For Penalty

AQUATIC CO (Continued) **1001460176**

Facility County: CLARK
EPA Region #: 9

Enforcement Action ID: 09-2000-0054
FRS ID: 110043090650
Program ID: TRIS 89025LSCBT201NM
Action Name: TOMKINS INDUSTRIES - LASCO BATHWARE
Full Address: 201 N MEADOW VALLEY RD MOAPA NV 89025
State: Nevada
Facility Name: AQUATIC CO
Facility Address: 201 N MEADOW VALLEY RD
MOAPA, NV 89025
Enforcement Action Type: CAA 113D1 Action For Penalty
Facility County: CLARK
EPA Region #: 9

Enforcement Action ID: 09-1996-0047
FRS ID: 110043090650
Program ID: RCRAINFO NVR000002170
Action Name: TOMKINS INDUSTRIES,INC.
Full Address: 201 N MEADOW VALLEY RD MOAPA NV 89025
State: Nevada
Facility Name: AQUATIC CO
Facility Address: 201 N MEADOW VALLEY RD
MOAPA, NV 89025
Enforcement Action Type: Civil Judicial Action
Facility County: CLARK
EPA Region #: 9

Enforcement Action ID: 09-1996-0047
FRS ID: 110043090650
Program ID: RBLC 3399
Action Name: TOMKINS INDUSTRIES,INC.
Full Address: 201 N MEADOW VALLEY RD MOAPA NV 89025
State: Nevada
Facility Name: AQUATIC CO
Facility Address: 201 N MEADOW VALLEY RD
MOAPA, NV 89025
Enforcement Action Type: Civil Judicial Action
Facility County: CLARK
EPA Region #: 9

Enforcement Action ID: 09-1996-0047
FRS ID: 110043090650
Program ID: NEI NEI2NVT18231
Action Name: TOMKINS INDUSTRIES,INC.
Full Address: 201 N MEADOW VALLEY RD MOAPA NV 89025
State: Nevada
Facility Name: AQUATIC CO
Facility Address: 201 N MEADOW VALLEY RD
MOAPA, NV 89025
Enforcement Action Type: Civil Judicial Action
Facility County: CLARK
EPA Region #: 9

Enforcement Action ID: 09-1996-0047
FRS ID: 110043090650

AQUATIC CO (Continued) **1001460176**

Program ID:	FRS 110043090650
Action Name:	TOMKINS INDUSTRIES,INC.
Full Address:	201 N MEADOW VALLEY RD MOAPA NV 89025
State:	Nevada
Facility Name:	AQUATIC CO
Facility Address:	201 N MEADOW VALLEY RD MOAPA, NV 89025
Enforcement Action Type:	Civil Judicial Action
Facility County:	CLARK
EPA Region #:	9

Enforcement Action ID:	09-1996-0047
FRS ID:	110043090650
Program ID:	EIS 6690511
Action Name:	TOMKINS INDUSTRIES,INC.
Full Address:	201 N MEADOW VALLEY RD MOAPA NV 89025
State:	Nevada
Facility Name:	AQUATIC CO
Facility Address:	201 N MEADOW VALLEY RD MOAPA, NV 89025
Enforcement Action Type:	Civil Judicial Action
Facility County:	CLARK
EPA Region #:	9

Enforcement Action ID:	09-1996-0047
FRS ID:	110043090650
Program ID:	BR NVR000002170
Action Name:	TOMKINS INDUSTRIES,INC.
Full Address:	201 N MEADOW VALLEY RD MOAPA NV 89025
State:	Nevada
Facility Name:	AQUATIC CO
Facility Address:	201 N MEADOW VALLEY RD MOAPA, NV 89025
Enforcement Action Type:	Civil Judicial Action
Facility County:	CLARK
EPA Region #:	9

Enforcement Action ID:	09-1996-0047
FRS ID:	110043090650
Program ID:	TRIS 89025LSCBT201NM
Action Name:	TOMKINS INDUSTRIES,INC.
Full Address:	201 N MEADOW VALLEY RD MOAPA NV 89025
State:	Nevada
Facility Name:	AQUATIC CO
Facility Address:	201 N MEADOW VALLEY RD MOAPA, NV 89025
Enforcement Action Type:	Civil Judicial Action
Facility County:	CLARK
EPA Region #:	9

Program ID:	BR NVR000002170
Facility Name:	AQUATIC CO
Address:	201 N MEADOW VALLEY RD
Tribal Indicator:	N
Fed Facility:	No
NAIC Code:	Not reported

AQUATIC CO (Continued) **1001460176**

SIC Code: 3431

Program ID: EIS 6690511
Facility Name: AQUATIC CO
Address: 201 N MEADOW VALLEY RD
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 3431

Program ID: FRS 110043090650
Facility Name: AQUATIC CO
Address: 201 N MEADOW VALLEY RD
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 3431

Program ID: NEI NEI2NVT18231
Facility Name: AQUATIC CO
Address: 201 N MEADOW VALLEY RD
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 3431

Program ID: RBLC 3399
Facility Name: AQUATIC CO
Address: 201 N MEADOW VALLEY RD
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 3431

Program ID: RCRAINFO NVR000002170
Facility Name: AQUATIC CO
Address: 201 N MEADOW VALLEY RD
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 3431

Program ID: TRIS 89025LSCBT201NM
Facility Name: AQUATIC CO
Address: 201 N MEADOW VALLEY RD
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 3431

Program ID: BR NVR000002170
Facility Name: AQUATIC CO
Address: 201 N MEADOW VALLEY RD
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 3431

AQUATIC CO (Continued) **1001460176**

Program ID: EIS 6690511
Facility Name: AQUATIC CO
Address: 201 N MEADOW VALLEY RD
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 3431

Program ID: FRS 110043090650
Facility Name: AQUATIC CO
Address: 201 N MEADOW VALLEY RD
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 3431

Program ID: NEI NEI2NVT18231
Facility Name: AQUATIC CO
Address: 201 N MEADOW VALLEY RD
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 3431

Program ID: RBLC 3399
Facility Name: AQUATIC CO
Address: 201 N MEADOW VALLEY RD
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 3431

Program ID: RCRAINFO NVR000002170
Facility Name: AQUATIC CO
Address: 201 N MEADOW VALLEY RD
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 3431

Program ID: TRIS 89025LSCBT201NM
Facility Name: AQUATIC CO
Address: 201 N MEADOW VALLEY RD
Tribal Indicator: N
Fed Facility: No
NAIC Code: Not reported
SIC Code: 3431

FINDS:

Registry ID: 110043090650

Environmental Interest/Information System
AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for

AQUATIC CO (Continued) **1001460176**

information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

US EPA TRIS (Toxics Release Inventory System) contains information from facilities on the amounts of over 300 listed toxic chemicals that these facilities release directly to air, water, land, or that are transported off-site.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

AIR MAJOR

CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY

ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and it Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities occurring in the Region that support Compliance and Enforcement programs. These include; Incident Tracking, Compliance Assistance, and Compliance Monitoring.

US EPA RACT/BACT/LAER Clearinghouse (RBLC) database contains case-specific information on the "Best Available" air pollution technologies that have been required to reduce the emission of air pollutants from stationary sources (e.g., power plants, steel mills, chemical plants, etc.). RACT, or Reasonably Available Control Technology, is required on existing sources in areas that are not meeting national ambient air quality standards. BACT, or Best Available Control Technology, is required on major new or modified sources in clean areas. LAER, or Lowest Achievable Emission Rate, is required on major new or modified sources in non-attainment areas.

Registry ID: 110059813983

Environmental Interest/Information System

Nevada Facility Profile (NV-FP) system contains facility based, integrated environmental information for the State of Nevada.

A2
East
> 1
1.100 mi.
5807 ft.

LASCO BATHWARE — **NV SHWS** — **S103877392**
201 MEADOW VALLEY ROAD — **N/A**
MOAPA, NV

Site 2 of 4 in cluster A

Relative:
Lower

Actual:
1717 ft.

SHWS:

Facility ID:	H-001332
Date Release Reported to NDEP:	01/19/1999
Program:	_
NDEP Case Officer:	arushana
Location of Paper File:	NDEP: Las Vegas
Type of Media Impacted:	Soil
Event:	Not reported
Date of Closure:	**02/01/1999**
Regulatory Type of Closure:	Clean w/ Remed
Contaminant:	Other; styrene base 36 resin (flammable)

A3
East
> 1
1.100 mi.
5807 ft.

LASCO BATHWARE, INC — **NV HMRI** — **S107600475**
201 MEADOW VALLEY ROAD — **N/A**
MOAPA, NV

Site 3 of 4 in cluster A

Relative:
Lower

Actual:
1717 ft.

HMRI:

Facility Id:	1044
Case Number:	100-42-5
Quantity:	121742 LBS
Chemical Name:	LAMINATING RESIN
Contact Name:	DOWLER,STEVE
Facility Contact2:	DOWLER,STEVE
Facility Contact3:	Not reported
Phone Number 1:	(702)864-2100
Phone Type 1:	W
Phone Number 2:	(702)240-7116
Phone Type 2:	H
Phone Number 3:	Not reported
Phone Type 3:	Not reported

Facility Id:	1044
Case Number:	100-42-5
Quantity:	60871 LBS
Chemical Name:	BARRIER COAT
Contact Name:	DOWLER,STEVE
Facility Contact2:	DOWLER,STEVE
Facility Contact3:	Not reported
Phone Number 1:	(702)864-2100
Phone Type 1:	W
Phone Number 2:	(702)240-7116
Phone Type 2:	H
Phone Number 3:	Not reported
Phone Type 3:	Not reported

Facility Id:	1044
Case Number:	100-42-5
Quantity:	77651 LBS
Chemical Name:	GEL COAT
Contact Name:	DOWLER,STEVE
Facility Contact2:	DOWLER,STEVE
Facility Contact3:	Not reported

LASCO BATHWARE, INC (Continued) **S107600475**

Phone Number 1: (702)864-2100
Phone Type 1: W
Phone Number 2: (702)240-7116
Phone Type 2: H
Phone Number 3: Not reported
Phone Type 3: Not reported

Facility Id: 1044
Case Number: 67-64-1
Quantity: 2499 LBS
Chemical Name: ACETONE
Contact Name: DOWLER,STEVE
Facility Contact2: DOWLER,STEVE
Facility Contact3: Not reported
Phone Number 1: (702)864-2100
Phone Type 1: W
Phone Number 2: (702)240-7116
Phone Type 2: H
Phone Number 3: Not reported
Phone Type 3: Not reported

Facility Id: 1044
Case Number: 1338-23-4
Quantity: 1567 LBS
Chemical Name: CATALYST
Contact Name: DOWLER,STEVE
Facility Contact2: DOWLER,STEVE
Facility Contact3: Not reported
Phone Number 1: (702)864-2100
Phone Type 1: W
Phone Number 2: (702)240-7116
Phone Type 2: H
Phone Number 3: Not reported
Phone Type 3: Not reported

Facility Id: 1044
Case Number: 100-42-5
Quantity: 121742 LBS
Chemical Name: LAMINATING RESIN
Contact Name: DOWLER,STEVE
Facility Contact2: DOWLER,STEVE
Facility Contact3: Not reported
Phone Number 1: (702)864-2100
Phone Type 1: W
Phone Number 2: (702)240-7116
Phone Type 2: H
Phone Number 3: Not reported
Phone Type 3: Not reported

Facility Id: 1044
Case Number: 100-42-5
Quantity: 60871 LBS
Chemical Name: BARRIER COAT
Contact Name: DOWLER,STEVE
Facility Contact2: DOWLER,STEVE
Facility Contact3: Not reported
Phone Number 1: (702)864-2100

LASCO BATHWARE, INC (Continued) **S107600475**

Phone Type 1: W
Phone Number 2: (702)240-7116
Phone Type 2: H
Phone Number 3: Not reported
Phone Type 3: Not reported

Facility Id: 1044
Case Number: 68476-34-6
Quantity: 12000 GAL
Chemical Name: DIESEL
Contact Name: DOWLER,STEVE
Facility Contact2: DOWLER,STEVE
Facility Contact3: Not reported
Phone Number 1: (702)864-2100
Phone Type 1: W
Phone Number 2: (702)240-7116
Phone Type 2: H
Phone Number 3: Not reported
Phone Type 3: Not reported

Facility Id: 1044
Case Number: 1338-23-4
Quantity: 1567 LBS
Chemical Name: CATALYST
Contact Name: DOWLER,STEVE
Facility Contact2: DOWLER,STEVE
Facility Contact3: Not reported
Phone Number 1: (702)864-2100
Phone Type 1: W
Phone Number 2: (702)240-7116
Phone Type 2: H
Phone Number 3: Not reported
Phone Type 3: Not reported

Facility Id: 1044
Case Number: 74-98-6
Quantity: 127500 LBS
Chemical Name: PROPANE
Contact Name: DOWLER,STEVE
Facility Contact2: DOWLER,STEVE
Facility Contact3: Not reported
Phone Number 1: (702)864-2100
Phone Type 1: W
Phone Number 2: (702)240-7116
Phone Type 2: H
Phone Number 3: Not reported
Phone Type 3: Not reported

Facility Id: 1044
Case Number: 67-64-1
Quantity: 2499 LBS
Chemical Name: ACETONE
Contact Name: DOWLER,STEVE
Facility Contact2: DOWLER,STEVE
Facility Contact3: Not reported
Phone Number 1: (702)864-2100
Phone Type 1: W

LASCO BATHWARE, INC (Continued) **S107600475**

Phone Number 2: (702)240-7116
Phone Type 2: H
Phone Number 3: Not reported
Phone Type 3: Not reported

Facility Id: 1044
Case Number: 100-42-5
Quantity: 77651 LBS
Chemical Name: GEL COAT
Contact Name: DOWLER,STEVE
Facility Contact2: DOWLER,STEVE
Facility Contact3: Not reported
Phone Number 1: (702)864-2100
Phone Type 1: W
Phone Number 2: (702)240-7116
Phone Type 2: H
Phone Number 3: Not reported
Phone Type 3: Not reported

Facility Id: 1044
Case Number: 68476-34-6
Quantity: 12000 GAL
Chemical Name: DIESEL
Contact Name: DOWLER,STEVE
Facility Contact2: DOWLER,STEVE
Facility Contact3: Not reported
Phone Number 1: (702)864-2100
Phone Type 1: W
Phone Number 2: (702)240-7116
Phone Type 2: H
Phone Number 3: Not reported
Phone Type 3: Not reported

Facility Id: 1044
Case Number: 74-98-6
Quantity: 127500 LBS
Chemical Name: PROPANE
Contact Name: DOWLER,STEVE
Facility Contact2: DOWLER,STEVE
Facility Contact3: Not reported
Phone Number 1: (702)864-2100
Phone Type 1: W
Phone Number 2: (702)240-7116
Phone Type 2: H
Phone Number 3: Not reported
Phone Type 3: Not reported

A4 **AQUATIC CO** **TRIS** **1016078443**
East **201 N MEADOW VALLEY RD** **89025LSCBT201NM**
> 1 **MOAPA, NV 89025**
1.150 mi.
6074 ft. **Site 4 of 4 in cluster A**

Relative:
Lower

TRIS:

Click this hyperlink while viewing on your computer to access
1 additional US_TRIS: record(s) in the EDR Site Report.

Actual:
1714 ft.

5
SSW
> 1
1.257 mi.
6636 ft.

MOAPA BAND OF PAIUTES
1 LINCOLN ST
MOAPA, NV 89025

RCRA NonGen / NLR **1001079574**
FINDS **NVR000001198**

Relative:
Lower

Actual:
1635 ft.

RCRA NonGen / NLR:

Date form received by agency:	10/18/1995
Facility name:	MOAPA BAND OF PAIUTES
Facility address:	1 LINCOLN ST MOAPA, NV 89025
EPA ID:	NVR000001198
Mailing address:	PO BOX 340 MOAPA, NV 89025
Contact:	ROGER KNUDSON
Contact address:	PO BOX 340 MOAPA, NV 89025
Contact country:	US
Contact telephone:	(702) 865-2787
Contact email:	Not reported
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	MOAPA BAND OF PAIUTES
Owner/operator address:	PO BOX 340 MOAPA, NV 89025
Owner/operator country:	Not reported
Owner/operator telephone:	(702) 865-2787
Legal status:	Indian
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

FINDS:

Registry ID: 110057120066

Environmental Interest/Information System

MOAPA BAND OF PAIUTES (Continued) **1001079574**

ELECTRIC GENERATOR

Registry ID: 110004303021

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

B6 **MOAPA BAND OF PAIUTE SENIOR CENTER** **US BROWNFIELDS** **1016378214**
SW **3 LINCOLN STREET** **FINDS** **N/A**
> 1 **MOAPA, NV 89025**
1.258 mi.
6642 ft. **Site 1 of 3 in cluster B**

Relative:
Lower

Actual:
1642 ft.

US BROWNFIELDS:

Recipient name:	Nevada Department of Conservation & Natural Resources
Grant type:	Section 128(a) State/Tribal
Property name:	MOAPA BAND OF PAIUTE SENIOR CENTER
Property #:	Not reported
Parcel size:	.1
Property Description:	This building is the tribal senior center on the Moapa Band of Paiute Reservation in Moapa, NV and is estimated to be approximately 30 years old. Following the 128(a) funded asbestos and lead-based paint abatement activities, the Tribe intends to complete renovations to the facility using Tribal funds and return it to use as the community senior center.
Latitude:	36.6721458
Longitude:	-114.65656000000001
HCM label:	Address Matching-Digitized
Map scale:	Not reported
Point of reference:	Entrance Point of a Facility or Station
Datum:	World Geodetic System of 1984
ACRES property ID:	132581
Start date:	17-AUG-12
Completed date:	20-SEP-12
Acres cleaned up:	.1
Cleanup funding:	37591
Cleanup funding source:	US EPA - State & Tribal Section 128(a) Funding
Assessment funding:	8616
Assessment funding source:	US EPA - State & Tribal Section 128(a) Funding
Redevelopment funding:	Not reported
Redev. funding source:	Not reported
Redev. funding entity name:	Not reported
Redevelopment start date:	Not reported
Assessment funding entity:	EPA
Cleanup funding entity:	EPA
Grant type:	H
Accomplishment type:	Phase I Environmental Assessment
Accomplishment count:	1
Cooperative agreement #:	00T10001
Ownership entity:	Government
Current owner:	Moapa Band of Paiutes
Did owner change:	N

MOAPA BAND OF PAIUTE SENIOR CENTER (Continued) **1016378214**

Cleanup required:	Yes
Video available:	No
Photo available:	Yes
Institutional controls required:	N
IC Category proprietary controls:	Not reported
IC cat. info. devices:	Not reported
IC cat. gov. controls:	Not reported
IC cat. enforcement permit tools:	Not reported
IC in place date:	Not reported
IC in place:	Not reported
State/tribal program date:	Not reported
State/tribal program ID:	Not reported
State/tribal NFA date:	06-DEC-12
Air contaminated:	Not reported
Air cleaned:	Not reported
Asbestos found:	Y
Asbestos cleaned:	Y
Controled substance found:	Not reported
Controled substance cleaned:	Not reported
Drinking water affected:	Not reported
Drinking water cleaned:	Not reported
Groundwater affected:	Not reported
Groundwater cleaned:	Not reported
Lead contaminant found:	Y
Lead cleaned up:	Y
No media affected:	Not reported
Unknown media affected:	Y
Other cleaned up:	Not reported
Other metals found:	Not reported
Other metals cleaned:	Not reported
Other contaminants found:	Not reported
Other contams found description:	Not reported
PAHs found:	Not reported
PAHs cleaned up:	Not reported
PCBs found:	Not reported
PCBs cleaned up:	Not reported
Petro products found:	Not reported
Petro products cleaned:	Not reported
Sediments found:	Not reported
Sediments cleaned:	Not reported
Soil affected:	Not reported
Soil cleaned up:	Not reported
Surface water cleaned:	Not reported
VOCs found:	Not reported
VOCs cleaned:	Not reported
Cleanup other description:	Not reported
Num. of cleanup and re-dev. jobs:	Not reported
Past use greenspace acreage:	Not reported
Past use residential acreage:	Not reported
Past use commercial acreage:	.1
Past use industrial acreage:	Not reported
Future use greenspace acreage:	Not reported
Future use residential acreage:	Not reported
Future use commercial acreage:	Not reported
Future use industrial acreage:	Not reported
Greenspace acreage and type:	Not reported
Superfund Fed. landowner flag:	Not reported

MOAPA BAND OF PAIUTE SENIOR CENTER (Continued) **1016378214**

Arsenic cleaned up:	Not reported
Cadmium cleaned up:	Not reported
Chromium cleaned up:	Not reported
Copper cleaned up:	Not reported
Iron cleaned up:	Not reported
mercury cleaned up:	Not reported
nickel cleaned up:	Not reported
No clean up:	Not reported
Pesticides cleaned up:	Not reported
Selenium cleaned up:	Not reported
SVOCs cleaned up:	Not reported
Unknown clean up:	Not reported
Arsenic contaminant found:	Not reported
Cadmium contaminant found:	Not reported
Chromium contaminant found:	Not reported
Copper contaminant found:	Not reported
Iron contaminant found:	Not reported
Mercury contaminant found:	Not reported
Nickel contaminant found:	Not reported
No contaminant found:	Not reported
Pesticides contaminant found:	Not reported
Selenium contaminant found:	Not reported
SVOCs contaminant found:	Not reported
Unknown contaminant found:	Not reported
Future Use: Multistory	Not reported
Media affected Bluiding Material:	Not reported
Media affected indoor air:	Not reported
Building material media cleaned up:	Not reported
Indoor air media cleaned up:	Not reported
Unknown media cleaned up:	Not reported
Past Use: Multistory	Not reported

FINDS:

Registry ID: 110055085223

Environmental Interest/Information System
US EPA Assessment, Cleanup and Redevelopment Exchange System (ACRES) is an federal online database for Brownfields Grantees to electronically submit data directly to EPA.

B7 **MOAPA BAND OF PAIUTE LARGE GREENHOUSES** **US BROWNFIELDS** **1016371063**
SW **GREENHOUSE ROAD** **FINDS** **N/A**
> 1 **MOAPA, NV 89025**
1.304 mi.
6883 ft. **Site 2 of 3 in cluster B**

Relative: Lower

Actual: 1634 ft.

US BROWNFIELDS:

Recipient name:	Nevada Department of Conservation & Natural Resources
Grant type:	Section 128(a) State/Tribal
Property name:	MOAPA BAND OF PAIUTE LARGE GREENHOUSES
Property #:	Not reported
Parcel size:	7.5
Property Description:	Not reported
Latitude:	36.6716587
Longitude:	-114.65711729999998

MOAPA BAND OF PAIUTE LARGE GREENHOUSES (Continued) **1016371063**

HCM label:	Address Matching-House Number
Map scale:	Not reported
Point of reference:	Entrance Point of a Facility or Station
Datum:	North American Datum of 1983
ACRES property ID:	143901
Start date:	Not reported
Completed date:	Not reported
Acres cleaned up:	Not reported
Cleanup funding:	Not reported
Cleanup funding source:	Not reported
Assessment funding:	5908
Assessment funding source:	US EPA - State & Tribal Section 128(a) Funding
Redevelopment funding:	Not reported
Redev. funding source:	Not reported
Redev. funding entity name:	Not reported
Redevelopment start date:	Not reported
Assessment funding entity:	EPA
Cleanup funding entity:	Not reported
Grant type:	N/A
Accomplishment type:	Phase I Environmental Assessment
Accomplishment count:	1
Cooperative agreement #:	00T10001
Ownership entity:	Not reported
Current owner:	Not reported
Did owner change:	Not reported
Cleanup required:	Yes
Video available:	No
Photo available:	Yes
Institutional controls required:	N
IC Category proprietary controls:	Not reported
IC cat. info. devices:	Not reported
IC cat. gov. controls:	Not reported
IC cat. enforcement permit tools:	Not reported
IC in place date:	Not reported
IC in place:	Not reported
State/tribal program date:	Not reported
State/tribal program ID:	Not reported
State/tribal NFA date:	Not reported
Air contaminated:	Not reported
Air cleaned:	Not reported
Asbestos found:	Y
Asbestos cleaned:	Not reported
Controled substance found:	Not reported
Controled substance cleaned:	Not reported
Drinking water affected:	Not reported
Drinking water cleaned:	Not reported
Groundwater affected:	Not reported
Groundwater cleaned:	Not reported
Lead contaminant found:	Not reported
Lead cleaned up:	Not reported
No media affected:	Not reported
Unknown media affected:	Y
Other cleaned up:	Not reported
Other metals found:	Not reported
Other metals cleaned:	Not reported
Other contaminants found:	Not reported
Other contams found description:	Not reported

MOAPA BAND OF PAIUTE LARGE GREENHOUSES (Continued) **1016371063**

PAHs found:	Not reported
PAHs cleaned up:	Not reported
PCBs found:	Not reported
PCBs cleaned up:	Not reported
Petro products found:	Not reported
Petro products cleaned:	Not reported
Sediments found:	Not reported
Sediments cleaned:	Not reported
Soil affected:	Not reported
Soil cleaned up:	Not reported
Surface water cleaned:	Not reported
VOCs found:	Not reported
VOCs cleaned:	Not reported
Cleanup other description:	Not reported
Num. of cleanup and re-dev. jobs:	Not reported
Past use greenspace acreage:	Not reported
Past use residential acreage:	Not reported
Past use commercial acreage:	Not reported
Past use industrial acreage:	Not reported
Future use greenspace acreage:	Not reported
Future use residential acreage:	Not reported
Future use commercial acreage:	Not reported
Future use industrial acreage:	Not reported
Greenspace acreage and type:	Not reported
Superfund Fed. landowner flag:	Not reported
Arsenic cleaned up:	Not reported
Cadmium cleaned up:	Not reported
Chromium cleaned up:	Not reported
Copper cleaned up:	Not reported
Iron cleaned up:	Not reported
mercury cleaned up:	Not reported
nickel cleaned up:	Not reported
No clean up:	Not reported
Pesticides cleaned up:	Not reported
Selenium cleaned up:	Not reported
SVOCs cleaned up:	Not reported
Unknown clean up:	Not reported
Arsenic contaminant found:	Not reported
Cadmium contaminant found:	Not reported
Chromium contaminant found:	Not reported
Copper contaminant found:	Not reported
Iron contaminant found:	Not reported
Mercury contaminant found:	Not reported
Nickel contaminant found:	Not reported
No contaminant found:	Not reported
Pesticides contaminant found:	Not reported
Selenium contaminant found:	Not reported
SVOCs contaminant found:	Not reported
Unknown contaminant found:	Not reported
Future Use: Multistory	Not reported
Media affected Bluiding Material:	Not reported
Media affected indoor air:	Not reported
Building material media cleaned up:	Not reported
Indoor air media cleaned up:	Not reported
Unknown media cleaned up:	Not reported
Past Use: Multistory	Not reported

MOAPA BAND OF PAIUTE LARGE GREENHOUSES (Continued) **1016371063**

FINDS:

Registry ID: 110046426934

Environmental Interest/Information System
US EPA Assessment, Cleanup and Redevelopment Exchange System (ACRES) is an federal online database for Brownfields Grantees to electronically submit data directly to EPA.

B8 **MOAPA BAND OF PAIUTE SMALL GREENHOUSE** **US BROWNFIELDS** **1016378213**
SW **1 GREENHOUSE ROAD** **FINDS** **N/A**
> 1 **MOAPA, NV 89025**
1.304 mi.
6883 ft. **Site 3 of 3 in cluster B**

Relative:
Lower

Actual:
1634 ft.

US BROWNFIELDS:

Recipient name:	Nevada Department of Conservation & Natural Resources
Grant type:	Section 128(a) State/Tribal
Property name:	MOAPA BAND OF PAIUTE SMALL GREENHOUSE
Property #:	Portion of 030-36-000-006
Parcel size:	2.5
Property Description:	The small greenhouses occupy an approximate 2.5 acre parcel on the Moapa Band of Paiute Reservation in Moapa, NV. The Tribe successfully operated a commercial vegetable operation which included small greenhouse, two large greenhouses and packing plant in the mid-1970s to approximately 1980 when a flood of the Muddy River destroyed much of the greenhouses, packing plant and related facilities. A Phase I ESA performed on the small greehhouse indicated that transite panels covering the exterior of the small greenhouse from ground level to approximately 3 feet contained asbestos. These panels were removed using Nevada 128(a) Brownfields funding.
Latitude:	36.6716587
Longitude:	-114.65711729999998
HCM label:	Address Matching-Digitized
Map scale:	Not reported
Point of reference:	Entrance Point of a Facility or Station
Datum:	World Geodetic System of 1984
ACRES property ID:	132541
Start date:	08-JUN-12
Completed date:	26-JUN-12
Acres cleaned up:	2.5
Cleanup funding:	15510
Cleanup funding source:	US EPA - State & Tribal Section 128(a) Funding
Assessment funding:	5424
Assessment funding source:	US EPA - State & Tribal Section 128(a) Funding
Redevelopment funding:	25000
Redev. funding source:	Other Federal Funding
Redev. funding entity name:	Bureau of Indian Affairs
Redevelopment start date:	16-APR-12
Assessment funding entity:	EPA
Cleanup funding entity:	EPA
Grant type:	H
Accomplishment type:	Phase I Environmental Assessment
Accomplishment count:	1
Cooperative agreement #:	00T10001
Ownership entity:	Government

MOAPA BAND OF PAIUTE SMALL GREENHOUSE (Continued) **1016378213**

Current owner:	Moapa Band of Paiute
Did owner change:	N
Cleanup required:	Yes
Video available:	Not reported
Photo available:	Yes
Institutional controls required:	N
IC Category proprietary controls:	Not reported
IC cat. info. devices:	Not reported
IC cat. gov. controls:	Not reported
IC cat. enforcement permit tools:	Not reported
IC in place date:	Not reported
IC in place:	Not reported
State/tribal program date:	Not reported
State/tribal program ID:	Not reported
State/tribal NFA date:	01-AUG-12
Air contaminated:	Not reported
Air cleaned:	Not reported
Asbestos found:	Y
Asbestos cleaned:	Y
Controled substance found:	Not reported
Controled substance cleaned:	Not reported
Drinking water affected:	Not reported
Drinking water cleaned:	Not reported
Groundwater affected:	Not reported
Groundwater cleaned:	Not reported
Lead contaminant found:	Not reported
Lead cleaned up:	Not reported
No media affected:	Not reported
Unknown media affected:	Y
Other cleaned up:	Not reported
Other metals found:	Not reported
Other metals cleaned:	Not reported
Other contaminants found:	Not reported
Other contams found description:	Not reported
PAHs found:	Not reported
PAHs cleaned up:	Not reported
PCBs found:	Not reported
PCBs cleaned up:	Not reported
Petro products found:	Not reported
Petro products cleaned:	Not reported
Sediments found:	Not reported
Sediments cleaned:	Not reported
Soil affected:	Not reported
Soil cleaned up:	Not reported
Surface water cleaned:	Not reported
VOCs found:	Not reported
VOCs cleaned:	Not reported
Cleanup other description:	Not reported
Num. of cleanup and re-dev. jobs:	0
Past use greenspace acreage:	Not reported
Past use residential acreage:	Not reported
Past use commercial acreage:	Not reported
Past use industrial acreage:	Not reported
Future use greenspace acreage:	Not reported
Future use residential acreage:	Not reported
Future use commercial acreage:	2.5
Future use industrial acreage:	Not reported

MOAPA BAND OF PAIUTE SMALL GREENHOUSE (Continued) **1016378213**

Greenspace acreage and type:	Not reported
Superfund Fed. landowner flag:	Not reported
Arsenic cleaned up:	Not reported
Cadmium cleaned up:	Not reported
Chromium cleaned up:	Not reported
Copper cleaned up:	Not reported
Iron cleaned up:	Not reported
mercury cleaned up:	Not reported
nickel cleaned up:	Not reported
No clean up:	Not reported
Pesticides cleaned up:	Not reported
Selenium cleaned up:	Not reported
SVOCs cleaned up:	Not reported
Unknown clean up:	Not reported
Arsenic contaminant found:	Not reported
Cadmium contaminant found:	Not reported
Chromium contaminant found:	Not reported
Copper contaminant found:	Not reported
Iron contaminant found:	Not reported
Mercury contaminant found:	Not reported
Nickel contaminant found:	Not reported
No contaminant found:	Not reported
Pesticides contaminant found:	Not reported
Selenium contaminant found:	Not reported
SVOCs contaminant found:	Not reported
Unknown contaminant found:	Not reported
Future Use: Multistory	Not reported
Media affected Bluiding Material:	Not reported
Media affected indoor air:	Not reported
Building material media cleaned up:	Not reported
Indoor air media cleaned up:	Not reported
Unknown media cleaned up:	Not reported
Past Use: Multistory	Not reported

FINDS:

Registry ID: 110055085214

Environmental Interest/Information System
US EPA Assessment, Cleanup and Redevelopment Exchange System (ACRES) is an federal online database for Brownfields Grantees to electronically submit data directly to EPA.

9
SSW
> 1
1.835 mi.
9688 ft.

Relative:
Lower

Actual:
1608 ft.

MOAPA PAIUTE PACKING PLANT **US BROWNFIELDS** **1016378221**
2 GREENHOUSE ROAD **FINDS** **N/A**
MOAPA, NV 89037

US BROWNFIELDS:

Recipient name:	Nevada Department of Conservation & Natural Resources
Grant type:	Section 128(a) State/Tribal
Property name:	MOAPA PAIUTE PACKING PLANT
Property #:	030-36-000-006
Parcel size:	9
Property Description:	This facility built circa 1980 served as produce packing plant for

MOAPA PAIUTE PACKING PLANT (Continued) **1016378221**

the Moapa Band of Paiutes commercial greenhouse operation and farm. The building has been abandoned since approximately August 1981 when historic flooding on the nearby Muddy River caused extensive damage to the packing plant, greenhouses and farm ultimately forcing them out of business.The Moapa Paiute Tribe continues efforts to return the former greenhouses, packing plant and other related facilties to reuse as a commercial agricultural operation. The Tribe has successfully received an USDA Rural Businees Enterprise Grant to perform a flood plain assessment on the properties used for the former greenhouses and packing plant. This flood plain assessment will help the Tribe design the new greenhouses and related facilities to prevent the recurrence of flooding in the future. The Tribe has also begun growing potted plants outdoors on adjacent parcels with funding from the Bureau of Indian Affairs. these plants are native species such as little brush, burrow brush, versage, desert broom, desert marigolds and others. These plants are to be used by BIA and BLM to revegetate land damaged by the annual Mint 400 Desert Race, which is held on Tribal and BLM land under bond to BLM and BIA.

Latitude:	36.662056
Longitude:	-114.656859
HCM label:	Interpolation-Satellite
Map scale:	Not reported
Point of reference:	Center of a Facility or Station
Datum:	North American Datum of 1983
ACRES property ID:	152521
Start date:	Not reported
Completed date:	Not reported
Acres cleaned up:	Not reported
Cleanup funding:	Not reported
Cleanup funding source:	Not reported
Assessment funding:	35225
Assessment funding source:	US EPA - State & Tribal Section 128(a) Funding
Redevelopment funding:	12154
Redev. funding source:	Other Federal Funding
Redev. funding entity name:	USDA
Redevelopment start date:	12-SEP-11
Assessment funding entity:	EPA
Cleanup funding entity:	Not reported
Grant type:	H
Accomplishment type:	Phase II Environmental Assessment
Accomplishment count:	0
Cooperative agreement #:	00T10001
Ownership entity:	Government
Current owner:	Moapa Band of Paiute Tribe
Did owner change:	N
Cleanup required:	No
Video available:	No
Photo available:	Yes
Institutional controls required:	N
IC Category proprietary controls:	Not reported
IC cat. info. devices:	Not reported
IC cat. gov. controls:	Not reported
IC cat. enforcement permit tools:	Not reported
IC in place date:	Not reported
IC in place:	Not reported
State/tribal program date:	Not reported
State/tribal program ID:	Not reported

MOAPA PAIUTE PACKING PLANT (Continued) **1016378221**

State/tribal NFA date:	Not reported
Air contaminated:	Not reported
Air cleaned:	Not reported
Asbestos found:	Not reported
Asbestos cleaned:	Not reported
Controled substance found:	Not reported
Controled substance cleaned:	Not reported
Drinking water affected:	Not reported
Drinking water cleaned:	Not reported
Groundwater affected:	Not reported
Groundwater cleaned:	Not reported
Lead contaminant found:	Not reported
Lead cleaned up:	Not reported
No media affected:	Not reported
Unknown media affected:	Not reported
Other cleaned up:	Not reported
Other metals found:	Not reported
Other metals cleaned:	Not reported
Other contaminants found:	Not reported
Other contams found description:	Not reported
PAHs found:	Not reported
PAHs cleaned up:	Not reported
PCBs found:	Not reported
PCBs cleaned up:	Not reported
Petro products found:	Not reported
Petro products cleaned:	Not reported
Sediments found:	Not reported
Sediments cleaned:	Not reported
Soil affected:	Not reported
Soil cleaned up:	Not reported
Surface water cleaned:	Not reported
VOCs found:	Not reported
VOCs cleaned:	Not reported
Cleanup other description:	Not reported
Num. of cleanup and re-dev. jobs:	2
Past use greenspace acreage:	Not reported
Past use residential acreage:	Not reported
Past use commercial acreage:	7
Past use industrial acreage:	Not reported
Future use greenspace acreage:	Not reported
Future use residential acreage:	Not reported
Future use commercial acreage:	9
Future use industrial acreage:	Not reported
Greenspace acreage and type:	Not reported
Superfund Fed. landowner flag:	Not reported
Arsenic cleaned up:	Not reported
Cadmium cleaned up:	Not reported
Chromium cleaned up:	Not reported
Copper cleaned up:	Not reported
Iron cleaned up:	Not reported
mercury cleaned up:	Not reported
nickel cleaned up:	Not reported
No clean up:	Not reported
Pesticides cleaned up:	Not reported
Selenium cleaned up:	Not reported
SVOCs cleaned up:	Not reported
Unknown clean up:	Not reported

MOAPA PAIUTE PACKING PLANT (Continued) **1016378221**

Arsenic contaminant found:	Not reported
Cadmium contaminant found:	Not reported
Chromium contaminant found:	Not reported
Copper contaminant found:	Not reported
Iron contaminant found:	Not reported
Mercury contaminant found:	Not reported
Nickel contaminant found:	Not reported
No contaminant found:	Not reported
Pesticides contaminant found:	Not reported
Selenium contaminant found:	Not reported
SVOCs contaminant found:	Not reported
Unknown contaminant found:	Not reported
Future Use: Multistory	Not reported
Media affected Bluiding Material:	Not reported
Media affected indoor air:	Not reported
Building material media cleaned up:	Not reported
Indoor air media cleaned up:	Not reported
Unknown media cleaned up:	Not reported
Past Use: Multistory	Not reported

Recipient name:	Nevada Department of Conservation & Natural Resources
Grant type:	Section 128(a) State/Tribal
Property name:	MOAPA PAIUTE PACKING PLANT
Property #:	030-36-000-006
Parcel size:	9
Property Description:	This facility built circa 1980 served as produce packing plant for the Moapa Band of Paiutes commercial greenhouse operation and farm. The building has been abandoned since approximately August 1981 when historic flooding on the nearby Muddy River caused extensive damage to the packing plant, greenhouses and farm ultimately forcing them out of business.The Moapa Paiute Tribe continues efforts to return the former greenhouses, packing plant and other related facilties to reuse as a commercial agricultural operation. The Tribe has successfully received an USDA Rural Businees Enterprise Grant to perform a flood plain assessment on the properties used for the former greenhouses and packing plant. This flood plain assessment will help the Tribe design the new greenhouses and related facilities to prevent the recurrence of flooding in the future. The Tribe has also begun growing potted plants outdoors on adjacent parcels with funding from the Bureau of Indian Affairs. these plants are native species such as little brush, burrow brush, versage, desert broom, desert marigolds and others. These plants are to be used by BIA and BLM to revegetate land damaged by the annual Mint 400 Desert Race, which is held on Tribal and BLM land under bond to BLM and BIA.
Latitude:	36.662056
Longitude:	-114.656859
HCM label:	Interpolation-Satellite
Map scale:	Not reported
Point of reference:	Center of a Facility or Station
Datum:	North American Datum of 1983
ACRES property ID:	152521
Start date:	Not reported
Completed date:	Not reported
Acres cleaned up:	Not reported
Cleanup funding:	Not reported
Cleanup funding source:	Not reported
Assessment funding:	35225

MOAPA PAIUTE PACKING PLANT (Continued) **1016378221**

Assessment funding source:	US EPA - State & Tribal Section 128(a) Funding
Redevelopment funding:	3000
Redev. funding source:	State/Tribal Funding (non-section 128(a))
Redev. funding entity name:	Moapa Band of Paiute
Redevelopment start date:	12-SEP-11
Assessment funding entity:	EPA
Cleanup funding entity:	Not reported
Grant type:	H
Accomplishment type:	Phase II Environmental Assessment
Accomplishment count:	0
Cooperative agreement #:	00T10001
Ownership entity:	Government
Current owner:	Moapa Band of Paiute Tribe
Did owner change:	N
Cleanup required:	No
Video available:	No
Photo available:	Yes
Institutional controls required:	N
IC Category proprietary controls:	Not reported
IC cat. info. devices:	Not reported
IC cat. gov. controls:	Not reported
IC cat. enforcement permit tools:	Not reported
IC in place date:	Not reported
IC in place:	Not reported
State/tribal program date:	Not reported
State/tribal program ID:	Not reported
State/tribal NFA date:	Not reported
Air contaminated:	Not reported
Air cleaned:	Not reported
Asbestos found:	Not reported
Asbestos cleaned:	Not reported
Controled substance found:	Not reported
Controled substance cleaned:	Not reported
Drinking water affected:	Not reported
Drinking water cleaned:	Not reported
Groundwater affected:	Not reported
Groundwater cleaned:	Not reported
Lead contaminant found:	Not reported
Lead cleaned up:	Not reported
No media affected:	Not reported
Unknown media affected:	Not reported
Other cleaned up:	Not reported
Other metals found:	Not reported
Other metals cleaned:	Not reported
Other contaminants found:	Not reported
Other contams found description:	Not reported
PAHs found:	Not reported
PAHs cleaned up:	Not reported
PCBs found:	Not reported
PCBs cleaned up:	Not reported
Petro products found:	Not reported
Petro products cleaned:	Not reported
Sediments found:	Not reported
Sediments cleaned:	Not reported
Soil affected:	Not reported
Soil cleaned up:	Not reported
Surface water cleaned:	Not reported

MOAPA PAIUTE PACKING PLANT (Continued) **1016378221**

VOCs found:	Not reported
VOCs cleaned:	Not reported
Cleanup other description:	Not reported
Num. of cleanup and re-dev. jobs:	2
Past use greenspace acreage:	Not reported
Past use residential acreage:	Not reported
Past use commercial acreage:	7
Past use industrial acreage:	Not reported
Future use greenspace acreage:	Not reported
Future use residential acreage:	Not reported
Future use commercial acreage:	9
Future use industrial acreage:	Not reported
Greenspace acreage and type:	Not reported
Superfund Fed. landowner flag:	Not reported
Arsenic cleaned up:	Not reported
Cadmium cleaned up:	Not reported
Chromium cleaned up:	Not reported
Copper cleaned up:	Not reported
Iron cleaned up:	Not reported
mercury cleaned up:	Not reported
nickel cleaned up:	Not reported
No clean up:	Not reported
Pesticides cleaned up:	Not reported
Selenium cleaned up:	Not reported
SVOCs cleaned up:	Not reported
Unknown clean up:	Not reported
Arsenic contaminant found:	Not reported
Cadmium contaminant found:	Not reported
Chromium contaminant found:	Not reported
Copper contaminant found:	Not reported
Iron contaminant found:	Not reported
Mercury contaminant found:	Not reported
Nickel contaminant found:	Not reported
No contaminant found:	Not reported
Pesticides contaminant found:	Not reported
Selenium contaminant found:	Not reported
SVOCs contaminant found:	Not reported
Unknown contaminant found:	Not reported
Future Use: Multistory	Not reported
Media affected Bluiding Material:	Not reported
Media affected indoor air:	Not reported
Building material media cleaned up:	Not reported
Indoor air media cleaned up:	Not reported
Unknown media cleaned up:	Not reported
Past Use: Multistory	Not reported

Recipient name:	Nevada Department of Conservation & Natural Resources
Grant type:	Section 128(a) State/Tribal
Property name:	MOAPA PAIUTE PACKING PLANT
Property #:	030-36-000-006
Parcel size:	9
Property Description:	This facility built circa 1980 served as produce packing plant for the Moapa Band of Paiutes commercial greenhouse operation and farm. The building has been abandoned since approximately August 1981 when historic flooding on the nearby Muddy River caused extensive damage to the packing plant, greenhouses and farm ultimately forcing them out of business.The Moapa Paiute Tribe continues efforts to return

MOAPA PAIUTE PACKING PLANT (Continued) **1016378221**

the former greenhouses, packing plant and other related facilties to reuse as a commercial agricultural operation. The Tribe has successfully received an USDA Rural Businees Enterprise Grant to perform a flood plain assessment on the properties used for the former greenhouses and packing plant. This flood plain assessment will help the Tribe design the new greenhouses and related facilities to prevent the recurrence of flooding in the future. The Tribe has also begun growing potted plants outdoors on adjacent parcels with funding from the Bureau of Indian Affairs. these plants are native species such as little brush, burrow brush, versage, desert broom, desert marigolds and others. These plants are to be used by BIA and BLM to revegetate land damaged by the annual Mint 400 Desert Race, which is held on Tribal and BLM land under bond to BLM and BIA.

Latitude:	36.662056
Longitude:	-114.656859
HCM label:	Interpolation-Satellite
Map scale:	Not reported
Point of reference:	Center of a Facility or Station
Datum:	North American Datum of 1983
ACRES property ID:	152521
Start date:	Not reported
Completed date:	Not reported
Acres cleaned up:	Not reported
Cleanup funding:	Not reported
Cleanup funding source:	Not reported
Assessment funding:	3050
Assessment funding source:	US EPA - State & Tribal Section 128(a) Funding
Redevelopment funding:	12154
Redev. funding source:	Other Federal Funding
Redev. funding entity name:	USDA
Redevelopment start date:	12-SEP-11
Assessment funding entity:	EPA
Cleanup funding entity:	Not reported
Grant type:	H
Accomplishment type:	Phase I Environmental Assessment
Accomplishment count:	1
Cooperative agreement #:	00T10001
Ownership entity:	Government
Current owner:	Moapa Band of Paiute Tribe
Did owner change:	N
Cleanup required:	No
Video available:	No
Photo available:	Yes
Institutional controls required:	N
IC Category proprietary controls:	Not reported
IC cat. info. devices:	Not reported
IC cat. gov. controls:	Not reported
IC cat. enforcement permit tools:	Not reported
IC in place date:	Not reported
IC in place:	Not reported
State/tribal program date:	Not reported
State/tribal program ID:	Not reported
State/tribal NFA date:	Not reported
Air contaminated:	Not reported
Air cleaned:	Not reported
Asbestos found:	Not reported
Asbestos cleaned:	Not reported

MOAPA PAIUTE PACKING PLANT (Continued) **1016378221**

Controled substance found:	Not reported
Controled substance cleaned:	Not reported
Drinking water affected:	Not reported
Drinking water cleaned:	Not reported
Groundwater affected:	Not reported
Groundwater cleaned:	Not reported
Lead contaminant found:	Not reported
Lead cleaned up:	Not reported
No media affected:	Not reported
Unknown media affected:	Not reported
Other cleaned up:	Not reported
Other metals found:	Not reported
Other metals cleaned:	Not reported
Other contaminants found:	Not reported
Other contams found description:	Not reported
PAHs found:	Not reported
PAHs cleaned up:	Not reported
PCBs found:	Not reported
PCBs cleaned up:	Not reported
Petro products found:	Not reported
Petro products cleaned:	Not reported
Sediments found:	Not reported
Sediments cleaned:	Not reported
Soil affected:	Not reported
Soil cleaned up:	Not reported
Surface water cleaned:	Not reported
VOCs found:	Not reported
VOCs cleaned:	Not reported
Cleanup other description:	Not reported
Num. of cleanup and re-dev. jobs:	2
Past use greenspace acreage:	Not reported
Past use residential acreage:	Not reported
Past use commercial acreage:	7
Past use industrial acreage:	Not reported
Future use greenspace acreage:	Not reported
Future use residential acreage:	Not reported
Future use commercial acreage:	9
Future use industrial acreage:	Not reported
Greenspace acreage and type:	Not reported
Superfund Fed. landowner flag:	Not reported
Arsenic cleaned up:	Not reported
Cadmium cleaned up:	Not reported
Chromium cleaned up:	Not reported
Copper cleaned up:	Not reported
Iron cleaned up:	Not reported
mercury cleaned up:	Not reported
nickel cleaned up:	Not reported
No clean up:	Not reported
Pesticides cleaned up:	Not reported
Selenium cleaned up:	Not reported
SVOCs cleaned up:	Not reported
Unknown clean up:	Not reported
Arsenic contaminant found:	Not reported
Cadmium contaminant found:	Not reported
Chromium contaminant found:	Not reported
Copper contaminant found:	Not reported
Iron contaminant found:	Not reported

MOAPA PAIUTE PACKING PLANT (Continued) **1016378221**

Mercury contaminant found:	Not reported
Nickel contaminant found:	Not reported
No contaminant found:	Not reported
Pesticides contaminant found:	Not reported
Selenium contaminant found:	Not reported
SVOCs contaminant found:	Not reported
Unknown contaminant found:	Not reported
Future Use: Multistory	Not reported
Media affected Bluiding Material:	Not reported
Media affected indoor air:	Not reported
Building material media cleaned up:	Not reported
Indoor air media cleaned up:	Not reported
Unknown media cleaned up:	Not reported
Past Use: Multistory	Not reported
Recipient name:	Nevada Department of Conservation & Natural Resources
Grant type:	Section 128(a) State/Tribal
Property name:	MOAPA PAIUTE PACKING PLANT
Property #:	030-36-000-006
Parcel size:	9
Property Description:	This facility built circa 1980 served as produce packing plant for the Moapa Band of Paiutes commercial greenhouse operation and farm. The building has been abandoned since approximately August 1981 when historic flooding on the nearby Muddy River caused extensive damage to the packing plant, greenhouses and farm ultimately forcing them out of business.The Moapa Paiute Tribe continues efforts to return the former greenhouses, packing plant and other related facilties to reuse as a commercial agricultural operation. The Tribe has successfully received an USDA Rural Businees Enterprise Grant to perform a flood plain assessment on the properties used for the former greenhouses and packing plant. This flood plain assessment will help the Tribe design the new greenhouses and related facilities to prevent the recurrence of flooding in the future. The Tribe has also begun growing potted plants outdoors on adjacent parcels with funding from the Bureau of Indian Affairs. these plants are native species such as little brush, burrow brush, versage, desert broom, desert marigolds and others. These plants are to be used by BIA and BLM to revegetate land damaged by the annual Mint 400 Desert Race, which is held on Tribal and BLM land under bond to BLM and BIA.
Latitude:	36.662056
Longitude:	-114.656859
HCM label:	Interpolation-Satellite
Map scale:	Not reported
Point of reference:	Center of a Facility or Station
Datum:	North American Datum of 1983
ACRES property ID:	152521
Start date:	Not reported
Completed date:	Not reported
Acres cleaned up:	Not reported
Cleanup funding:	Not reported
Cleanup funding source:	Not reported
Assessment funding:	3050
Assessment funding source:	US EPA - State & Tribal Section 128(a) Funding
Redevelopment funding:	3000
Redev. funding source:	State/Tribal Funding (non-section 128(a))
Redev. funding entity name:	Moapa Band of Paiute
Redevelopment start date:	12-SEP-11

MOAPA PAIUTE PACKING PLANT (Continued) **1016378221**

Assessment funding entity:	EPA
Cleanup funding entity:	Not reported
Grant type:	H
Accomplishment type:	Phase I Environmental Assessment
Accomplishment count:	1
Cooperative agreement #:	00T10001
Ownership entity:	Government
Current owner:	Moapa Band of Paiute Tribe
Did owner change:	N
Cleanup required:	No
Video available:	No
Photo available:	Yes
Institutional controls required:	N
IC Category proprietary controls:	Not reported
IC cat. info. devices:	Not reported
IC cat. gov. controls:	Not reported
IC cat. enforcement permit tools:	Not reported
IC in place date:	Not reported
IC in place:	Not reported
State/tribal program date:	Not reported
State/tribal program ID:	Not reported
State/tribal NFA date:	Not reported
Air contaminated:	Not reported
Air cleaned:	Not reported
Asbestos found:	Not reported
Asbestos cleaned:	Not reported
Controled substance found:	Not reported
Controled substance cleaned:	Not reported
Drinking water affected:	Not reported
Drinking water cleaned:	Not reported
Groundwater affected:	Not reported
Groundwater cleaned:	Not reported
Lead contaminant found:	Not reported
Lead cleaned up:	Not reported
No media affected:	Not reported
Unknown media affected:	Not reported
Other cleaned up:	Not reported
Other metals found:	Not reported
Other metals cleaned:	Not reported
Other contaminants found:	Not reported
Other contams found description:	Not reported
PAHs found:	Not reported
PAHs cleaned up:	Not reported
PCBs found:	Not reported
PCBs cleaned up:	Not reported
Petro products found:	Not reported
Petro products cleaned:	Not reported
Sediments found:	Not reported
Sediments cleaned:	Not reported
Soil affected:	Not reported
Soil cleaned up:	Not reported
Surface water cleaned:	Not reported
VOCs found:	Not reported
VOCs cleaned:	Not reported
Cleanup other description:	Not reported
Num. of cleanup and re-dev. jobs:	2
Past use greenspace acreage:	Not reported

MOAPA PAIUTE PACKING PLANT (Continued) **1016378221**

Past use residential acreage:	Not reported
Past use commercial acreage:	7
Past use industrial acreage:	Not reported
Future use greenspace acreage:	Not reported
Future use residential acreage:	Not reported
Future use commercial acreage:	9
Future use industrial acreage:	Not reported
Greenspace acreage and type:	Not reported
Superfund Fed. landowner flag:	Not reported
Arsenic cleaned up:	Not reported
Cadmium cleaned up:	Not reported
Chromium cleaned up:	Not reported
Copper cleaned up:	Not reported
Iron cleaned up:	Not reported
mercury cleaned up:	Not reported
nickel cleaned up:	Not reported
No clean up:	Not reported
Pesticides cleaned up:	Not reported
Selenium cleaned up:	Not reported
SVOCs cleaned up:	Not reported
Unknown clean up:	Not reported
Arsenic contaminant found:	Not reported
Cadmium contaminant found:	Not reported
Chromium contaminant found:	Not reported
Copper contaminant found:	Not reported
Iron contaminant found:	Not reported
Mercury contaminant found:	Not reported
Nickel contaminant found:	Not reported
No contaminant found:	Not reported
Pesticides contaminant found:	Not reported
Selenium contaminant found:	Not reported
SVOCs contaminant found:	Not reported
Unknown contaminant found:	Not reported
Future Use: Multistory	Not reported
Media affected Bluiding Material:	Not reported
Media affected indoor air:	Not reported
Building material media cleaned up:	Not reported
Indoor air media cleaned up:	Not reported
Unknown media cleaned up:	Not reported
Past Use: Multistory	Not reported

FINDS:

Registry ID: 110055085303

Environmental Interest/Information System
US EPA Assessment, Cleanup and Redevelopment Exchange System (ACRES) is an federal online database for Brownfields Grantees to electronically submit data directly to EPA.

C10 **NEVADA POWER STATION/REID GARDNER STATIO** **CERC-NFRAP** **1015735543**
South **NE OF HWY 15, ACROSS MOAPA INDIAN RESER.** **RCRA-CESQG** **NVD093065852**
> 1 **MOAPA, NV 89025** **FINDS**
1.868 mi.
9862 ft. **Site 1 of 9 in cluster C**

Relative:
Lower

Actual:
1601 ft.

CERC-NFRAP:

Site ID:	0904466
Federal Facility:	Not a Federal Facility
NPL Status:	Not on the NPL
Non NPL Status:	NFRAP-Site does not qualify for the NPL based on existing information

CERCLIS-NFRAP Assessment History:

Action:	DISCOVERY
Date Started:	/ /
Date Completed:	04/15/92
Priority Level:	Not reported
Action:	PRELIMINARY ASSESSMENT
Date Started:	/ /
Date Completed:	10/22/93
Priority Level:	Higher priority for further assessment
Action:	ARCHIVE SITE
Date Started:	/ /
Date Completed:	01/23/96
Priority Level:	Not reported
Action:	SITE INSPECTION
Date Started:	07/15/94
Date Completed:	09/28/95
Priority Level:	NFRAP-Site does not qualify for the NPL based on existing information

RCRA-CESQG:

Date form received by agency:	06/16/2008
Facility name:	NV ENERGY - REID GARDNER GENERATING STATION
Facility address:	501 WALLY KAY WAY MOAPA, NV 89025
EPA ID:	NVD093065852
Mailing address:	PO BOX 98910 MS30 MOAPA, NV 89025
Contact:	DENIE RASMUSSEN
Contact address:	PO BOX 98910 MS30 MOAPA, NV 89025
Contact country:	US
Contact telephone:	702-367-5406
Contact email:	RASMUSS@NEVP.DOM
EPA Region:	09
Land type:	Private
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting

NEVADA POWER STATION/REID GARDNER STATIO (Continued) **1015735543**

from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	NEVADA POWER COMPANY
Owner/operator address:	P O BOX 230 NOT REQUIRED, NV 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(702) 385-5011
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NEVADA POWER COMPANY
Owner/operator address:	PO BOX 98910 MS30 LAS VEGAS, NV 89151
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	06/30/1965
Owner/Op end date:	Not reported

Owner/operator name:	NEVADA POWER COMPANY
Owner/operator address:	PO BOX 98910 MS30 LAS VEGAS, NV 89151
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	06/30/1965
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

NEVADA POWER STATION/REID GARDNER STATIO (Continued) **1015735543**

Universal Waste Summary:
Waste type: Batteries
Accumulated waste on-site: Yes
Generated waste on-site: Not reported

Waste type: Lamps
Accumulated waste on-site: Yes
Generated waste on-site: Not reported

Waste type: Pesticides
Accumulated waste on-site: Yes
Generated waste on-site: Not reported

Waste type: Thermostats
Accumulated waste on-site: Yes
Generated waste on-site: Not reported

Historical Generators:
Date form received by agency: 03/14/2001
Site name: NEVADA POWER CO REID GARDNER
Classification: Large Quantity Generator

Date form received by agency: 08/05/1998
Site name: NEVADA POWER CO REID GARDNER
Classification: Small Quantity Generator

Date form received by agency: 08/05/1994
Site name: NEVADA POWER CO REID GARDNER
Classification: Small Quantity Generator

Date form received by agency: 02/28/1992
Site name: REID GARDNER STATION
Classification: Large Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: FR - 262.40-43.D
Area of violation: Generators - General
Date violation determined: 11/30/1993
Date achieved compliance: 04/20/1994
Violation lead agency: State
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 262.30-34.C
Area of violation: Generators - General
Date violation determined: 11/30/1993
Date achieved compliance: 04/20/1994
Violation lead agency: State
Enforcement action: Not reported
Enforcement action date: Not reported

NEVADA POWER STATION/REID GARDNER STATIO (Continued) **1015735543**

Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 04/30/2009
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 09/20/2006
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 08/05/1998
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 11/30/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 04/20/1994
Evaluation lead agency: State

Evaluation date: 01/16/1986
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 11/28/1984
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:

Registry ID: 110059815525

Environmental Interest/Information System
Nevada Facility Profile (NV-FP) system contains facility based, integrated environmental information for the State of Nevada.

C11 **MESA CONVEYANCE PIPELINE** **FINDS** **1014807467**
South **501 WALLY KAY WAY** **N/A**
> 1 **MOAPA, NV 89025**
1.868 mi.
9862 ft. **Site 2 of 9 in cluster C**

Relative: FINDS:
Lower

Registry ID: 110059862215

Actual:
1601 ft.

Environmental Interest/Information System
Nevada Facility Profile (NV-FP) system contains facility based, integrated environmental information for the State of Nevada.

C12 **REID GARDNER ASH HAUL** **FINDS** **1015915025**
South **501 WALLY KAY WAY** **N/A**
> 1 **MOAPA, NV 89025**
1.868 mi.
9862 ft. **Site 3 of 9 in cluster C**

Relative: FINDS:
Lower

Registry ID: 110059843647

Actual:
1601 ft.

Environmental Interest/Information System
Nevada Facility Profile (NV-FP) system contains facility based, integrated environmental information for the State of Nevada.

C13 **ERNS** **2007303942**
South **501 WALLY KAY WAY** **N/A**
> 1 **MOAPA, NV 89025**
1.868 mi.
9862 ft. **Site 4 of 9 in cluster C**

Relative:
Lower

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

Actual:
1601 ft.

C14 **SOUTH LATERAL LANDFILL EXPANSION - PHASE 1** **FINDS** **1015897100**
South **501 WALLY KAY WAY** **N/A**
> 1 **MOAPA, NV 89025**
1.868 mi.
9862 ft. **Site 5 of 9 in cluster C**

Relative: FINDS:
Lower

Registry ID: 110059820270

Actual:
1601 ft.

Environmental Interest/Information System
Nevada Facility Profile (NV-FP) system contains facility based, integrated environmental information for the State of Nevada.

C15
South
> 1
1.868 mi.
9862 ft.

NV POWER CO REID GARDNER GENERATING STATION
501 WALLY KAY WAY
MOAPA, NV 89025

Site 6 of 9 in cluster C

CA HAZNET

S113184585
N/A

Relative:
Lower

Actual:
1601 ft.

HAZNET:

envid:	S113184585
Year:	2012
GEPAID:	NVD093065852
Contact:	DENIE RASMUSSEN
Telephone:	7023675406
Mailing Name:	Not reported
Mailing Address:	PO BOX 98910
Mailing City,St,Zip:	MOAPA, NV 890250000
Gen County:	99
TSD EPA ID:	CAD044429835
TSD County:	Los Angeles
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.04
Facility County:	99

envid:	S113184585
Year:	2012
GEPAID:	NVD093065852
Contact:	DENIE RASMUSSEN
Telephone:	7023675406
Mailing Name:	Not reported
Mailing Address:	PO BOX 98910
Mailing City,St,Zip:	MOAPA, NV 890250000
Gen County:	99
TSD EPA ID:	CAD044429835
TSD County:	Los Angeles
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.04
Facility County:	99

envid:	S113184585
Year:	2012
GEPAID:	NVD093065852
Contact:	DENIE RASMUSSEN
Telephone:	7023675406
Mailing Name:	Not reported
Mailing Address:	PO BOX 98910
Mailing City,St,Zip:	MOAPA, NV 890250000
Gen County:	99
TSD EPA ID:	CAD044429835
TSD County:	Los Angeles
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.1
Facility County:	99

envid: S113184585

NV POWER CO REID GARDNER GENERATING STATION (Continued) **S113184585**

Year:	2012
GEPAID:	NVD093065852
Contact:	DENIE RASMUSSEN
Telephone:	7023675406
Mailing Name:	Not reported
Mailing Address:	PO BOX 98910
Mailing City,St,Zip:	MOAPA, NV 890250000
Gen County:	99
TSD EPA ID:	CAD044429835
TSD County:	Los Angeles
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.1
Facility County:	99

envid:	S113184585
Year:	2012
GEPAID:	NVD093065852
Contact:	DENIE RASMUSSEN
Telephone:	7023675406
Mailing Name:	Not reported
Mailing Address:	PO BOX 98910
Mailing City,St,Zip:	MOAPA, NV 890250000
Gen County:	99
TSD EPA ID:	CAD044429835
TSD County:	Los Angeles
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.3
Facility County:	99

Click this hyperlink while viewing on your computer to access
127 additional CA_HAZNET: record(s) in the EDR Site Report.

C16 **ERNS** **2009909334**
South **501 WALLY KAY WAY** **N/A**
> 1 **MOAPA, NV 89025**
1.868 mi.
9862 ft. **Site 7 of 9 in cluster C**

Relative:
Lower

Click this hyperlink while viewing on your computer to access
additional ERNS detail in the EDR Site Report.

Actual:
1601 ft.

C17 **REID GARDNER GENERATING STATION** **TRIS** **1005454729**
South **501 WALLY KAY WAY** **89025RDGRD1WALL**
> 1 **MOAPA, NV 89025**
1.868 mi.
9862 ft. **Site 8 of 9 in cluster C**

Relative:
Lower

TRIS:

Click this hyperlink while viewing on your computer to access
6 additional US_TRIS: record(s) in the EDR Site Report.

Actual:
1601 ft.

C18
South
> 1
1.868 mi.
9862 ft.

Relative:
Lower

Actual:
1601 ft.

501 WALLY KAY WAY
MOAPA, NV 89025

Site 9 of 9 in cluster C

ERNS **2008909334**
N/A

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

19
South
> 1
1.895 mi.
10005 ft.

Relative:
Lower

Actual:
1598 ft.

REID GARDNER STATION
I-15 N EXIT 88
MOAPA, NV 89025

NV LUST **U004161555**
NV UST **N/A**
NV AST

LUST:

Facility ID:	8-000461
Program:	LUST
Type of Media Impacted:	Soil
Event:	Not reported
Contaminant:	Diesel
Closure Date:	11/05/2012
Closure Type:	Clean w/ Remed
Date Reported to NDEP:	06/25/2012
Flag:	CLOSED
NDEP Case Officer:	aoakley
Location of Paper File:	NDEP: Carson City

UST:

Facility ID:	8-000461

Owner:

ASSOCIATED FACILITY:	Reid Gardner Station
OWNER/OPERATOR NAME:	Nevada Power Co DBA NV Energy
Owner Address, City, State, Zip:	ATTN: Accounts Payable-S4a60; PO Box 10100; Reno, NV 89520-0024
Tank ID:	1
Tank Status:	PERMANENTLY OUT OF USE
Tank Capacity:	1023
Tank Substance:	GASOLINE
Install Date:	08/15/1976
Tank Material:	ASPHALT COATED OR BARE STEEL
TANK SECONDARY CONTAMINMENT:	CATHODICALLY PROTECTED (NOT SPECIFIED)
FEDERALLY REGULATED UST:	TRUE
Pipe Material:	UNKNOWN
PIPE SECONDARY CONTAMINMENT:	NONE
Tank ID:	2
Tank Status:	PERMANENTLY OUT OF USE
Tank Capacity:	1000
Tank Substance:	DIESEL
Install Date:	08/15/1966
Tank Material:	ASPHALT COATED OR BARE STEEL
TANK SECONDARY CONTAMINMENT:	CATHODICALLY PROTECTED (NOT SPECIFIED)
FEDERALLY REGULATED UST:	TRUE
Pipe Material:	UNKNOWN
PIPE SECONDARY CONTAMINMENT:	NONE
Tank ID:	3
Tank Status:	PERMANENTLY OUT OF USE

REID GARDNER STATION (Continued) **U004161555**

Tank Capacity:	1000
Tank Substance:	DIESEL
Install Date:	08/15/1966
Tank Material:	ASPHALT COATED OR BARE STEEL
TANK SECONDARY CONTAMINMENT:	CATHODICALLY PROTECTED (NOT SPECIFIED)
FEDERALLY REGULATED UST:	TRUE
Pipe Material:	UNKNOWN
PIPE SECONDARY CONTAMINMENT:	NONE

Tank ID:	4
Tank Status:	PERMANENTLY OUT OF USE
Tank Capacity:	2550
Tank Substance:	GASOLINE
Install Date:	08/15/1981
Tank Material:	FIBERGLASS REINFORCED PLASTIC
TANK SECONDARY CONTAMINMENT:	NONE
FEDERALLY REGULATED UST:	TRUE
Pipe Material:	BARE STEEL
PIPE SECONDARY CONTAMINMENT:	CATHODICALLY PROTECTED (NOT SPECIFIED)

Tank ID:	5
Tank Status:	PERMANENTLY OUT OF USE
Tank Capacity:	2550
Tank Substance:	DIESEL
Install Date:	08/15/1981
Tank Material:	FIBERGLASS REINFORCED PLASTIC
TANK SECONDARY CONTAMINMENT:	NONE
FEDERALLY REGULATED UST:	TRUE
Pipe Material:	BARE STEEL
PIPE SECONDARY CONTAMINMENT:	CATHODICALLY PROTECTED (NOT SPECIFIED)

Tank ID:	6
Tank Status:	CURRENTLY IN USE
Tank Capacity:	10000
Tank Substance:	DIESEL
Install Date:	01/01/1985
Tank Material:	ASPHALT COATED OR BARE STEEL
TANK SECONDARY CONTAMINMENT:	NONE
FEDERALLY REGULATED UST:	FALSE
Pipe Material:	NOT LISTED
PIPE SECONDARY CONTAMINMENT:	NONE

Tank ID:	7
Tank Status:	CURRENTLY IN USE
Tank Capacity:	10000
Tank Substance:	DIESEL
Install Date:	01/01/1985
Tank Material:	ASPHALT COATED OR BARE STEEL
TANK SECONDARY CONTAMINMENT:	NONE
FEDERALLY REGULATED UST:	FALSE
Pipe Material:	NOT LISTED
PIPE SECONDARY CONTAMINMENT:	NONE

AST:

Facility ID:	8-000461

Tank ID:	6

REID GARDNER STATION (Continued) **U004161555**

Tank Status:	CURRENTLY IN USE
Capacity:	10000
Substance:	DIESEL
Install Date:	01/01/1985
Tank Material:	ASPHALT COATED OR BARE STEEL
Tank Secondary Containment/CP:	NONE
Federally Regulated AST:	FALSE
Pipe Secondary Containment/CP:	NONE
Pipe Material:	NOT LISTED

Tank ID:	7
Tank Status:	CURRENTLY IN USE
Capacity:	10000
Substance:	DIESEL
Install Date:	01/01/1985
Tank Material:	ASPHALT COATED OR BARE STEEL
Tank Secondary Containment/CP:	NONE
Federally Regulated AST:	FALSE
Pipe Secondary Containment/CP:	NONE
Pipe Material:	NOT LISTED

D20 **CLASS 1 - ERC OPTC - REID GARDNER** **NV AIRS** **S110777399**
SSE **N/A**
> 1 **, NV**
2.012 mi.
10625 ft. **Site 1 of 2 in cluster D**

Relative:
Lower

Actual:
1592 ft.

NV AIRS:

edr_fname:	CLASS 1 - ERC OPTC - REID GARDNER
Facility Sequence Number:	2628
Permit Number:	AP49112628
Facility ID:	A0379
Company Name:	NV ENERGY
Issue Date:	1/4/2010
Responsible Official Name:	KEVIN C. GERAGHTY
Responsible Official Title:	VP, POWER GENERATION
Responsible Official Address:	6226 WEST SAHARA AVENUE, M/S 25
Responsible Official Address2:	Not reported
Responsible Official City:	LAS VEGAS
Responsible Official State:	NV
Responsible Official Zip Code:	89146
Responsible Official Country:	USA
Section:	05
Township Code:	15
North/South:	S
Range:	66E
UTM E:	711.62
UTM N:	4059.44
Pollutant ID:	NOX
Annual Emissions (ST/YR):	3107.35

D21 **CLASS 1 PSD - REID-GARDNER GENERATING STATION** **NV AIRS** **S110777387**
SSE **N/A**
> 1 **, NV**
2.012 mi.
10625 ft. **Site 2 of 2 in cluster D**

Relative:
Lower

Actual:
1592 ft.

NV AIRS:

edr_fname:	CLASS 1 PSD - REID-GARDNER GENERATING STATION
Facility Sequence Number:	0897
Permit Number:	AP49110897
Facility ID:	A0379
Company Name:	NEVADA POWER COMPANY
Issue Date:	4/22/2004
Responsible Official Name:	KEVIN C. GERAGHTY
Responsible Official Title:	EXECUTIVE, GENERATION
Responsible Official Address:	6226 WEST SAHARA AVENUE, M/S 25
Responsible Official Address2:	Not reported
Responsible Official City:	LAS VEGAS
Responsible Official State:	NV
Responsible Official Zip Code:	89146
Responsible Official Country:	USA
Section:	05
Township Code:	15
North/South:	S
Range:	66E
UTM E:	711.62
UTM N:	4059.44
Pollutant ID:	CO
Annual Emissions (ST/YR):	Not reported

edr_fname:	CLASS 1 PSD - REID-GARDNER GENERATING STATION
Facility Sequence Number:	0897
Permit Number:	AP49110897
Facility ID:	A0379
Company Name:	NEVADA POWER COMPANY
Issue Date:	4/22/2004
Responsible Official Name:	KEVIN C. GERAGHTY
Responsible Official Title:	EXECUTIVE, GENERATION
Responsible Official Address:	6226 WEST SAHARA AVENUE, M/S 25
Responsible Official Address2:	Not reported
Responsible Official City:	LAS VEGAS
Responsible Official State:	NV
Responsible Official Zip Code:	89146
Responsible Official Country:	USA
Section:	05
Township Code:	15
North/South:	S
Range:	66E
UTM E:	711.62
UTM N:	4059.44
Pollutant ID:	NOX
Annual Emissions (ST/YR):	14776.6

edr_fname:	CLASS 1 PSD - REID-GARDNER GENERATING STATION
Facility Sequence Number:	0897
Permit Number:	AP49110897
Facility ID:	A0379
Company Name:	NEVADA POWER COMPANY
Issue Date:	4/22/2004

CLASS 1 PSD - REID-GARDNER GENERATING STATION (Continued) **S110777387**

Responsible Official Name: KEVIN C. GERAGHTY
Responsible Official Title: EXECUTIVE, GENERATION
Responsible Official Address: 6226 WEST SAHARA AVENUE, M/S 25
Responsible Official Address2: Not reported
Responsible Official City: LAS VEGAS
Responsible Official State: NV
Responsible Official Zip Code: 89146
Responsible Official Country: USA
Section: 05
Township Code: 15
North/South: S
Range: 66E
UTM E: 711.62
UTM N: 4059.44
Pollutant ID: NOX-BIT
Annual Emissions (ST/YR): 7768.37

edr_fname: CLASS 1 PSD - REID-GARDNER GENERATING STATION
Facility Sequence Number: 0897
Permit Number: AP49110897
Facility ID: A0379
Company Name: NEVADA POWER COMPANY
Issue Date: 4/22/2004
Responsible Official Name: KEVIN C. GERAGHTY
Responsible Official Title: EXECUTIVE, GENERATION
Responsible Official Address: 6226 WEST SAHARA AVENUE, M/S 25
Responsible Official Address2: Not reported
Responsible Official City: LAS VEGAS
Responsible Official State: NV
Responsible Official Zip Code: 89146
Responsible Official Country: USA
Section: 05
Township Code: 15
North/South: S
Range: 66E
UTM E: 711.62
UTM N: 4059.44
Pollutant ID: NOX-SUB
Annual Emissions (ST/YR): 6473.64

edr_fname: CLASS 1 PSD - REID-GARDNER GENERATING STATION
Facility Sequence Number: 0897
Permit Number: AP49110897
Facility ID: A0379
Company Name: NEVADA POWER COMPANY
Issue Date: 4/22/2004
Responsible Official Name: KEVIN C. GERAGHTY
Responsible Official Title: EXECUTIVE, GENERATION
Responsible Official Address: 6226 WEST SAHARA AVENUE, M/S 25
Responsible Official Address2: Not reported
Responsible Official City: LAS VEGAS
Responsible Official State: NV
Responsible Official Zip Code: 89146
Responsible Official Country: USA
Section: 05
Township Code: 15
North/South: S

CLASS 1 PSD - REID-GARDNER GENERATING STATION (Continued) **S110777387**

Range:	66E
UTM E:	711.62
UTM N:	4059.44
Pollutant ID:	PM
Annual Emissions (ST/YR):	10694.0165
edr_fname:	CLASS 1 PSD - REID-GARDNER GENERATING STATION
Facility Sequence Number:	0897
Permit Number:	AP49110897
Facility ID:	A0379
Company Name:	NEVADA POWER COMPANY
Issue Date:	4/22/2004
Responsible Official Name:	KEVIN C. GERAGHTY
Responsible Official Title:	EXECUTIVE, GENERATION
Responsible Official Address:	6226 WEST SAHARA AVENUE, M/S 25
Responsible Official Address2:	Not reported
Responsible Official City:	LAS VEGAS
Responsible Official State:	NV
Responsible Official Zip Code:	89146
Responsible Official Country:	USA
Section:	05
Township Code:	15
North/South:	S
Range:	66E
UTM E:	711.62
UTM N:	4059.44
Pollutant ID:	PM10
Annual Emissions (ST/YR):	13460.7565
edr_fname:	CLASS 1 PSD - REID-GARDNER GENERATING STATION
Facility Sequence Number:	0897
Permit Number:	AP49110897
Facility ID:	A0379
Company Name:	NEVADA POWER COMPANY
Issue Date:	4/22/2004
Responsible Official Name:	KEVIN C. GERAGHTY
Responsible Official Title:	EXECUTIVE, GENERATION
Responsible Official Address:	6226 WEST SAHARA AVENUE, M/S 25
Responsible Official Address2:	Not reported
Responsible Official City:	LAS VEGAS
Responsible Official State:	NV
Responsible Official Zip Code:	89146
Responsible Official Country:	USA
Section:	05
Township Code:	15
North/South:	S
Range:	66E
UTM E:	711.62
UTM N:	4059.44
Pollutant ID:	S
Annual Emissions (ST/YR):	26898.72
edr_fname:	CLASS 1 PSD - REID-GARDNER GENERATING STATION
Facility Sequence Number:	0897
Permit Number:	AP49110897
Facility ID:	A0379
Company Name:	NEVADA POWER COMPANY

CLASS 1 PSD - REID-GARDNER GENERATING STATION (Continued) **S110777387**

Issue Date:	4/22/2004
Responsible Official Name:	KEVIN C. GERAGHTY
Responsible Official Title:	EXECUTIVE, GENERATION
Responsible Official Address:	6226 WEST SAHARA AVENUE, M/S 25
Responsible Official Address2:	Not reported
Responsible Official City:	LAS VEGAS
Responsible Official State:	NV
Responsible Official Zip Code:	89146
Responsible Official Country:	USA
Section:	05
Township Code:	15
North/South:	S
Range:	66E
UTM E:	711.62
UTM N:	4059.44
Pollutant ID:	SO2
Annual Emissions (ST/YR):	21422.33

edr_fname:	CLASS 1 PSD - REID-GARDNER GENERATING STATION
Facility Sequence Number:	0897
Permit Number:	AP49110897
Facility ID:	A0379
Company Name:	NEVADA POWER COMPANY
Issue Date:	4/22/2004
Responsible Official Name:	KEVIN C. GERAGHTY
Responsible Official Title:	EXECUTIVE, GENERATION
Responsible Official Address:	6226 WEST SAHARA AVENUE, M/S 25
Responsible Official Address2:	Not reported
Responsible Official City:	LAS VEGAS
Responsible Official State:	NV
Responsible Official Zip Code:	89146
Responsible Official Country:	USA
Section:	05
Township Code:	15
North/South:	S
Range:	66E
UTM E:	711.62
UTM N:	4059.44
Pollutant ID:	VOC
Annual Emissions (ST/YR):	1.4

Count: 3 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
MOAPA	U003379965	HIDDEN VALLEY DAIRY	1000 HIDDEN VALLEY RD	89025	NV SHWS, NV UST
MOAPA	S114373325	WISER CONSTRUCTION, APN 031-34-801	1501 STATE ROUTE 168	89025	NV SHWS
MOAPA	S106870531	PERKINS ELEMENTARY SCHOOL	STATE ROUTE 168 @ HENRY ROAD	89025	NV SHWS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/16/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/16/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/16/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/21/2014
Date Data Arrived at EDR: 10/07/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/09/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/03/2014
Date Data Arrived at EDR: 12/12/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 48

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 09/30/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 37

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: Sites Database

A listing of correction action sites.

Date of Government Version: 11/13/2014
Date Data Arrived at EDR: 12/23/2014
Date Made Active in Reports: 01/22/2015
Number of Days to Update: 30

Source: Department of Conservation and Natural Resources
Telephone: 775-687-5872
Last EDR Contact: 03/25/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Varies

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Landfill List

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 03/03/2015
Date Data Arrived at EDR: 03/06/2015
Date Made Active in Reports: 03/11/2015
Number of Days to Update: 5

Source: Department of Conservation and Natural Resources
Telephone: 775-687-5872
Last EDR Contact: 03/03/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Annually

State and tribal leaking storage tank lists

LUST: Sites Database

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 11/13/2014
Date Data Arrived at EDR: 12/23/2014
Date Made Active in Reports: 01/22/2015
Number of Days to Update: 30

Source: Department of Conservation and Natural Resources
Telephone: 775-687-5872
Last EDR Contact: 03/25/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 01/30/2015
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 32

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/03/2015
Date Data Arrived at EDR: 02/12/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 29

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 01/28/2015
Date Data Arrived at EDR: 01/30/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 42

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/10/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 31

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/08/2015
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Underground Storage Tank List
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 11/13/2014
Date Data Arrived at EDR: 12/23/2014
Date Made Active in Reports: 01/26/2015
Number of Days to Update: 34

Source: Department of Conservation and Natural Resources
Telephone: 775-687-5872
Last EDR Contact: 03/25/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Varies

AST: Aboveground Storage Tank List
Registered Aboveground Storage Tanks.

Date of Government Version: 11/13/2014
Date Data Arrived at EDR: 12/23/2014
Date Made Active in Reports: 01/26/2015
Number of Days to Update: 34

Source: Department of Conservation and Natural Resources
Telephone: 775-687-5872
Last EDR Contact: 03/25/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 01/30/2015
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 36

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 28

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 12/14/2014
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 28

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/03/2015
Date Data Arrived at EDR: 02/12/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 29

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 271

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 01/29/2015
Date Data Arrived at EDR: 01/30/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 42

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/12/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Sites

The Voluntary Cleanup Program provides relief from liability to owners who undertake cleanups of contaminated properties under the oversight of the Nevada Division of Environmental Protection.

Date of Government Version: 08/16/2011
Date Data Arrived at EDR: 09/27/2011
Date Made Active in Reports: 10/12/2011
Number of Days to Update: 15

Source: Department of Conservation & Natural Resources
Telephone: 775-687-9381
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 10/01/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 36

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/31/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Project Tracking Database

Brownfields sites included in the Project Tracking Database. The term "brownfields" is used to describe abandoned, idled, or underused industrial or commercial properties taken out of productive use because of real or perceived risks from environmental contamination. The State of Nevada has initiated Brownfields, a land-recycling program, to provide an opportunity to redevelop these undesirable properties and revitalize communities.

Date of Government Version: 11/13/2014
Date Data Arrived at EDR: 12/23/2014
Date Made Active in Reports: 01/22/2015
Number of Days to Update: 30

Source: Division of Environmental Protection
Telephone: 775-687-9384
Last EDR Contact: 03/25/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/22/2014
Date Data Arrived at EDR: 12/22/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 38

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/24/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: No Update Planned

SWRCY: Recycling Information Listing

A listing of recycling facilities in Nevada.

Date of Government Version: 02/24/2015
Date Data Arrived at EDR: 02/25/2015
Date Made Active in Reports: 03/11/2015
Number of Days to Update: 14

Source: Department of Environmental Protection
Telephone: 775-687-9463
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/25/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 15

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/03/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Quarterly

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/25/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 15

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/03/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 12/30/2014
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 69

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/03/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 06/06/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 8

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/13/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 24

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/10/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 12/30/2014
Date Data Arrived at EDR: 12/31/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 29

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/06/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 01/29/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/06/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 01/09/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 33

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/16/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 21

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 02/27/2015
Date Data Arrived at EDR: 02/27/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 01/18/2015
Date Data Arrived at EDR: 02/27/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 26

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52
Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/24/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Biennially

NPDES: Permitted Facility Listing

A listing of permitted wastewater facilities.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 12/31/2014
Date Made Active in Reports: 01/22/2015
Number of Days to Update: 22
Source: Department of Environmental Protection
Telephone: 775-687-9414
Last EDR Contact: 03/23/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Varies

AIRS: Permitted Airs Facility Listing

A listing of permitted Airs facilities and their associated emissions information.

Date of Government Version: 03/31/2011
Date Data Arrived at EDR: 03/31/2011
Date Made Active in Reports: 05/13/2011
Number of Days to Update: 43
Source: Division of Environmental Protection
Telephone: 775-687-9359
Last EDR Contact: 03/23/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Varies

HMRI: Hazardous Materials Repository Information Data

Emergency Planning and Community Right-to-Know Act (EPCRA) required facilities which store or manufacture hazardous materials to prepare and submit a chemical inventory report by March 1st of each year to the State Emergency Response Commission (SERC), LEPC and the local fire department. The inventory form must include information on all hazardous chemicals present at the facility during the previous calendar year in amounts that meet or exceed thresholds.

Date of Government Version: 08/05/2008
Date Data Arrived at EDR: 08/05/2008
Date Made Active in Reports: 08/13/2008
Number of Days to Update: 8
Source: State Emergency Response Commission
Telephone: 775-687-6973
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Semi-Annually

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/18/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 11/25/2014
Date Data Arrived at EDR: 11/26/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Varies

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/13/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Varies

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 02/13/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

Financial Assurance 2: Financial Assurance Information
Solid waste facility financial assurance information.

Date of Government Version: 12/01/2014
Date Data Arrived at EDR: 12/05/2014
Date Made Active in Reports: 01/22/2015
Number of Days to Update: 48
Source: Division of Environmental Protection
Telephone: 775-687-9477
Last EDR Contact: 03/03/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies

EPA WATCH LIST: EPA WATCH LIST
EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88
Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information
All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/09/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 15
Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Quarterly

COAL ASH: Coal Ash Disposal Sites
A listing of coal ash plants.

Date of Government Version: 10/02/2013
Date Data Arrived at EDR: 10/03/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 29
Source: Division of Environmental Protection
Telephone: 775-687-9477
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17
Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 02/06/2015
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

Financial Assurance 1: Financial Assurance Information Listing

Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 12/28/2010
Date Data Arrived at EDR: 12/29/2010
Date Made Active in Reports: 02/02/2011
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 775-687-9465
Last EDR Contact: 03/23/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/13/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Varies

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 02/06/2015
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: N/A

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Conservation and Natural Resources in Neveda.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/16/2014
Number of Days to Update: 199

Source: Department of Conservation and Natural Resources
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Conservation and Natural Resources in Neveda.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/26/2013
Number of Days to Update: 178

Source: Department of Conservation and Natural Resources
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Conservation and Natural Resources in Neveda.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/26/2013
Number of Days to Update: 178

Source: Department of Conservation and Natural Resources
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

WASHOE COUNTY:

Underground Storage Tank in Washoe County

A listing of underground storage tank sites located in Washoe County.

Date of Government Version: 12/22/2014
Date Data Arrived at EDR: 12/24/2014
Date Made Active in Reports: 01/22/2015
Number of Days to Update: 29

Source: Washoe County Department of Environmental Health
Telephone: 775-328-2493
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: No Update Planned

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2015
Date Data Arrived at EDR: 02/04/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 23

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/04/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Care Facility List
Source: Department of Human Resources
Telephone: 775-684-1100

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

AIYA
HIGHWAY 168
OVERTON, NV 89040

TARGET PROPERTY COORDINATES

Latitude (North):	36.6854 - 36° 41' 7.44''
Longitude (West):	114.641 - 114° 38' 27.60''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	710778.4
UTM Y (Meters):	4062364.5
Elevation:	1774 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	36114-F6 MOAPA WEST, NV
Most Recent Revision:	1983
East Map:	36114-F5 MOAPA EAST, NV
Most Recent Revision:	1983

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

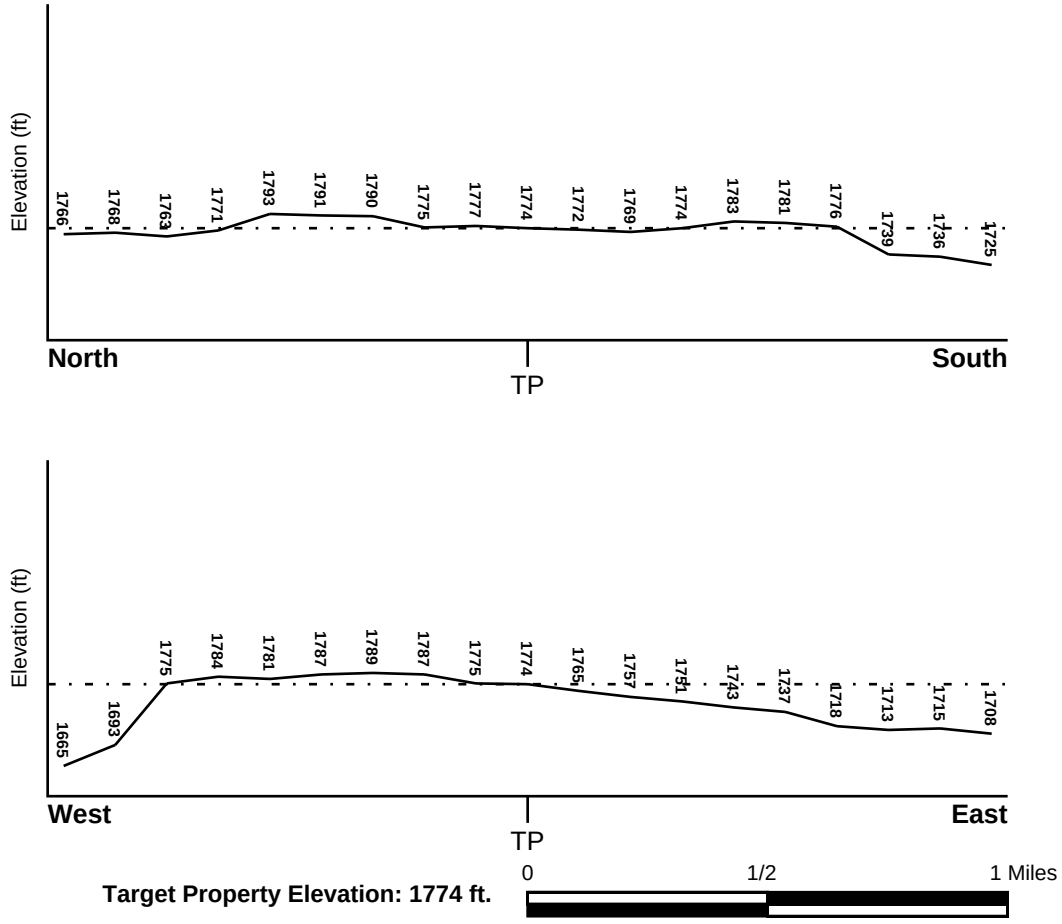
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General ESE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 1774 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
CLARK, NV	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 32003C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
MOAPA WEST	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

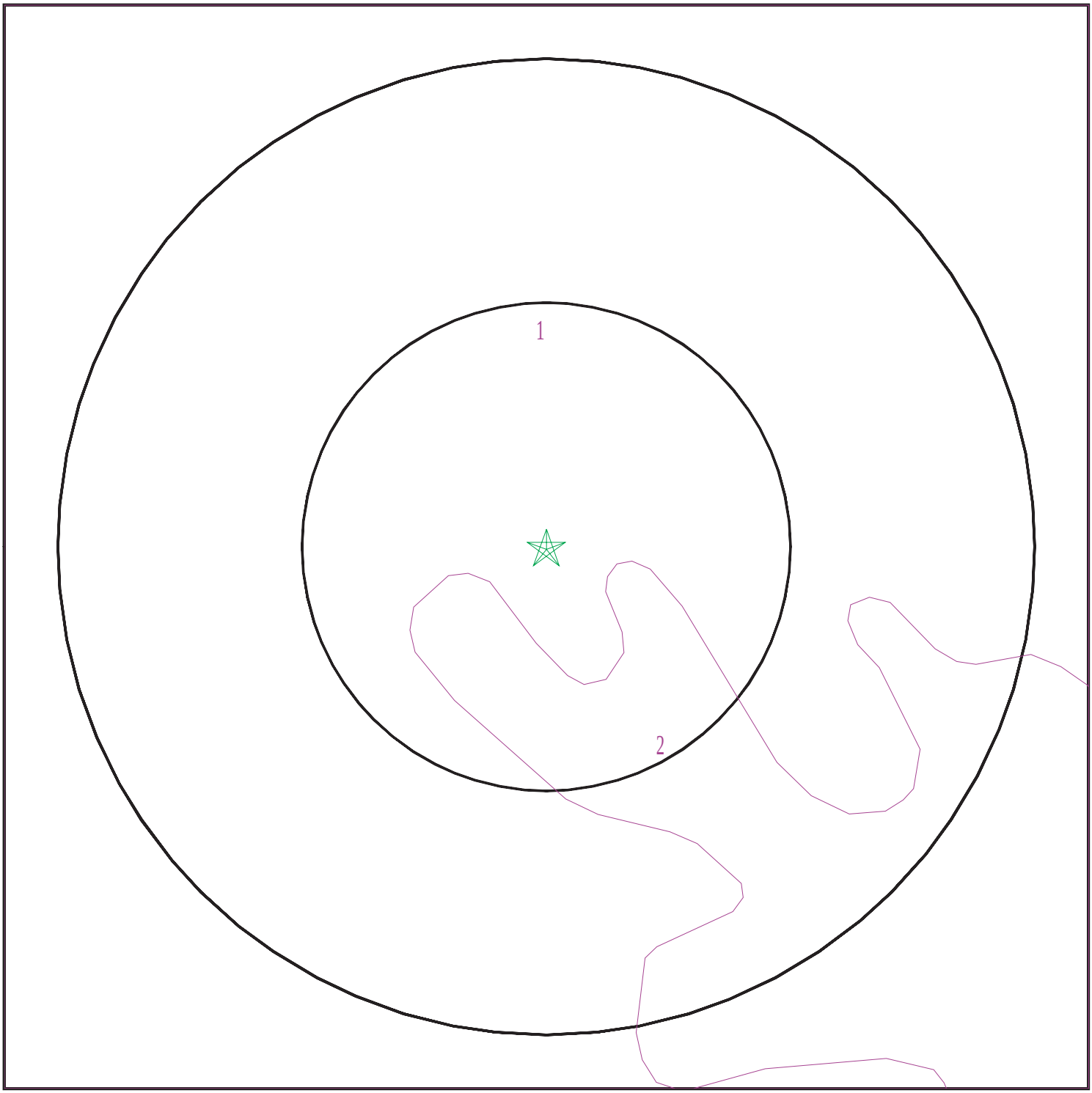
Era:	Cenozoic
System:	Tertiary
Series:	Pliocene
Code:	Tpc *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Continental Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4249103.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Aiya	CLIENT:	ARCADIS U.S., Inc.
ADDRESS:	Highway 168 Overton NV 89040	CONTACT:	Dori
		INQUIRY #:	4249103.2s
LAT/LONG:	36.6854 / 114.641	DATE:	March 30, 2015 4:40 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Bard

Soil Surface Texture: gravelly fine sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	gravelly fine sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 9 Min: 7.9
2	0 inches	5 inches	gravelly fine sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 9 Min: 7.9
3	5 inches	18 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 9 Min: 7.9

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
4	5 inches	18 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 9 Min: 7.9
5	18 inches	22 inches	indurated	Not reported	Not reported	Max: 0 Min: 0	Max: Min:
6	18 inches	22 inches	indurated	Not reported	Not reported	Max: 0 Min: 0	Max: Min:

Soil Map ID: 2

Soil Component Name: Badland

Soil Surface Texture: gravelly fine sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	2.500
Federal FRDS PWS	Nearest PWS within 2.500 miles
State Database	2.500

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS40000753884	1 - 2 Miles WSW
3	USGS40000753883	1 - 2 Miles WSW
B8	USGS40000753903	1 - 2 Miles West
B9	USGS40000753902	1 - 2 Miles West
125	USGS40000753885	2 - 3 Miles South
135	USGS40000753929	2 - 3 Miles ENE
148	USGS40000753928	2 - 3 Miles WNW
163	USGS40000753940	2 - 3 Miles WNW
V164	USGS40000753832	2 - 3 Miles South
V165	USGS40000753833	2 - 3 Miles South

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	NV4000000043620	1 - 2 Miles WNW
4	NV4000000043631	1 - 2 Miles WNW
A5	NV4000000043445	1 - 2 Miles South
A6	NV4000000043446	1 - 2 Miles South
A7	NV4000000043447	1 - 2 Miles South
C10	NV4000000043605	1 - 2 Miles West
C11	NV4000000043606	1 - 2 Miles West
C12	NV4000000043607	1 - 2 Miles West
D13	NV4000000043448	1 - 2 Miles South
D14	NV4000000043449	1 - 2 Miles South
D15	NV4000000043450	1 - 2 Miles South
16	NV4000000043589	1 - 2 Miles West
E17	NV4000000043580	1 - 2 Miles WSW
E18	NV4000000043581	1 - 2 Miles WSW
F19	NV4000000043442	1 - 2 Miles SSW
F20	NV4000000043443	1 - 2 Miles SSW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
F21	NV4000000043444	1 - 2 Miles SSW
G22	NV4000000043427	1 - 2 Miles SSE
G23	NV4000000043426	1 - 2 Miles SSE
G24	NV4000000043425	1 - 2 Miles SSE
G25	NV4000000043428	1 - 2 Miles SSE
G26	NV4000000043431	1 - 2 Miles SSE
G27	NV4000000043430	1 - 2 Miles SSE
G28	NV4000000043429	1 - 2 Miles SSE
H29	NV4000000043422	1 - 2 Miles SSW
H30	NV4000000043421	1 - 2 Miles SSW
H31	NV4000000043424	1 - 2 Miles SSW
H32	NV4000000043423	1 - 2 Miles SSW
I33	NV4000000043604	1 - 2 Miles West
I34	NV4000000043603	1 - 2 Miles West
J35	NV4000000043339	1 - 2 Miles South
J36	NV4000000043340	1 - 2 Miles South
J37	NV4000000043337	1 - 2 Miles South
J38	NV4000000043338	1 - 2 Miles South
J39	NV4000000043343	1 - 2 Miles South
J40	NV4000000043344	1 - 2 Miles South
J41	NV4000000043341	1 - 2 Miles South
J42	NV4000000043342	1 - 2 Miles South
K43	NV4000000043588	1 - 2 Miles West
K44	NV4000000043587	1 - 2 Miles West
L45	NV4000000043355	1 - 2 Miles South
L46	NV4000000043354	1 - 2 Miles South
L47	NV4000000043353	1 - 2 Miles South
L48	NV4000000043356	1 - 2 Miles South
L49	NV4000000043359	1 - 2 Miles South
L50	NV4000000043358	1 - 2 Miles South
L51	NV4000000043357	1 - 2 Miles South
L52	NV4000000043352	1 - 2 Miles South
L53	NV4000000043347	1 - 2 Miles South
L54	NV4000000043346	1 - 2 Miles South
L55	NV4000000043345	1 - 2 Miles South
L56	NV4000000043348	1 - 2 Miles South
L57	NV4000000043351	1 - 2 Miles South
L58	NV4000000043350	1 - 2 Miles South
L59	NV4000000043349	1 - 2 Miles South
L60	NV4000000043360	1 - 2 Miles South
L61	NV4000000043371	1 - 2 Miles South
L62	NV4000000043370	1 - 2 Miles South
L63	NV4000000043369	1 - 2 Miles South
L64	NV4000000043372	1 - 2 Miles South
L65	NV4000000043375	1 - 2 Miles South
L66	NV4000000043374	1 - 2 Miles South
L67	NV4000000043373	1 - 2 Miles South
L68	NV4000000043368	1 - 2 Miles South
L69	NV4000000043363	1 - 2 Miles South
L70	NV4000000043362	1 - 2 Miles South
L71	NV4000000043361	1 - 2 Miles South
L72	NV4000000043364	1 - 2 Miles South

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
L73	NV4000000043367	1 - 2 Miles South
L74	NV4000000043366	1 - 2 Miles South
L75	NV4000000043365	1 - 2 Miles South
76	NV4000000043441	1 - 2 Miles SSW
77	NV4000000043673	1 - 2 Miles WNW
M78	NV4000000043333	1 - 2 Miles SSW
M79	NV4000000043332	1 - 2 Miles SSW
M80	NV4000000043334	1 - 2 Miles SSW
M81	NV4000000043336	1 - 2 Miles SSW
M82	NV4000000043335	1 - 2 Miles SSW
N83	NV4000000043398	2 - 3 Miles SSE
N84	NV4000000043397	2 - 3 Miles SSE
N85	NV4000000043396	2 - 3 Miles SSE
N86	NV4000000043399	2 - 3 Miles SSE
N87	NV4000000043402	2 - 3 Miles SSE
N88	NV4000000043401	2 - 3 Miles SSE
N89	NV4000000043400	2 - 3 Miles SSE
N90	NV4000000043391	2 - 3 Miles SSE
N91	NV4000000043390	2 - 3 Miles SSE
N92	NV4000000043389	2 - 3 Miles SSE
N93	NV4000000043392	2 - 3 Miles SSE
N94	NV4000000043395	2 - 3 Miles SSE
N95	NV4000000043394	2 - 3 Miles SSE
N96	NV4000000043393	2 - 3 Miles SSE
N97	NV4000000043403	2 - 3 Miles SSE
N98	NV4000000043413	2 - 3 Miles SSE
N99	NV4000000043412	2 - 3 Miles SSE
N100	NV4000000043411	2 - 3 Miles SSE
N101	NV4000000043414	2 - 3 Miles SSE
N102	NV4000000043417	2 - 3 Miles SSE
N103	NV4000000043416	2 - 3 Miles SSE
N104	NV4000000043415	2 - 3 Miles SSE
N105	NV4000000043406	2 - 3 Miles SSE
N106	NV4000000043405	2 - 3 Miles SSE
N107	NV4000000043404	2 - 3 Miles SSE
N108	NV4000000043407	2 - 3 Miles SSE
N109	NV4000000043410	2 - 3 Miles SSE
N110	NV4000000043409	2 - 3 Miles SSE
N111	NV4000000043408	2 - 3 Miles SSE
N112	NV4000000043379	2 - 3 Miles SSE
N113	NV4000000043380	2 - 3 Miles SSE
N114	NV4000000043381	2 - 3 Miles SSE
N115	NV4000000043376	2 - 3 Miles SSE
N116	NV4000000043377	2 - 3 Miles SSE
N117	NV4000000043378	2 - 3 Miles SSE
N118	NV4000000043382	2 - 3 Miles SSE
N119	NV4000000043386	2 - 3 Miles SSE
N120	NV4000000043387	2 - 3 Miles SSE
N121	NV4000000043388	2 - 3 Miles SSE
N122	NV4000000043383	2 - 3 Miles SSE
N123	NV4000000043384	2 - 3 Miles SSE
N124	NV4000000043385	2 - 3 Miles SSE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

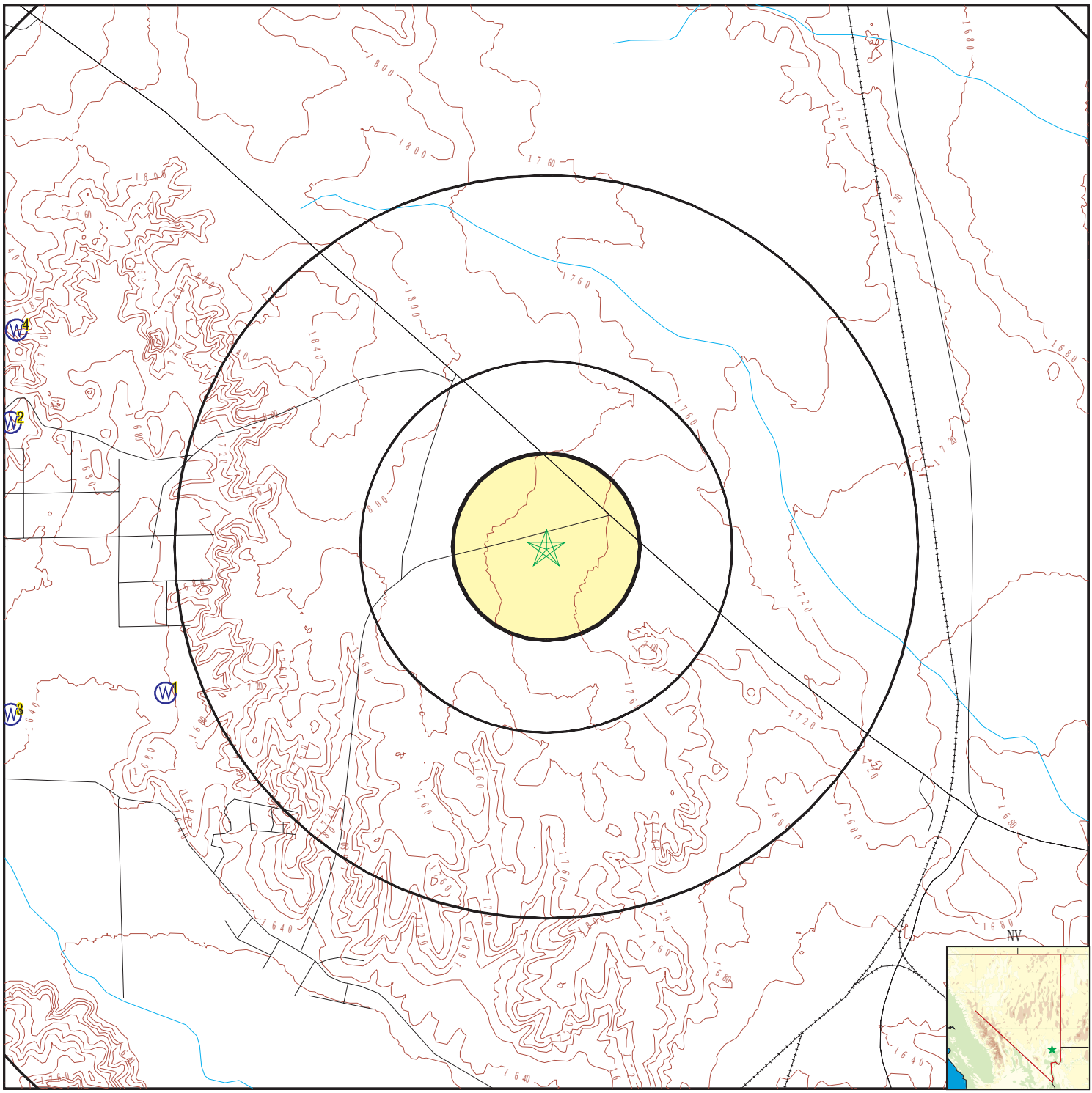
MAP ID	WELL ID	LOCATION FROM TP
O126	NV4000000043322	2 - 3 Miles South
O127	NV4000000043323	2 - 3 Miles South
O128	NV4000000043320	2 - 3 Miles South
O129	NV4000000043321	2 - 3 Miles South
O130	NV4000000043326	2 - 3 Miles South
O131	NV4000000043327	2 - 3 Miles South
O132	NV4000000043324	2 - 3 Miles South
O133	NV4000000043325	2 - 3 Miles South
134	NV4000000043651	2 - 3 Miles WNW
P136	NV4000000043304	2 - 3 Miles South
P137	NV4000000043305	2 - 3 Miles South
Q138	NV4000000043300	2 - 3 Miles South
Q139	NV4000000043299	2 - 3 Miles South
Q140	NV4000000043298	2 - 3 Miles South
Q141	NV4000000043303	2 - 3 Miles South
Q142	NV4000000043302	2 - 3 Miles South
Q143	NV4000000043301	2 - 3 Miles South
R144	NV4000000043307	2 - 3 Miles South
R145	NV4000000043306	2 - 3 Miles South
R146	NV4000000043309	2 - 3 Miles South
R147	NV4000000043308	2 - 3 Miles South
S149	NV4000000043632	2 - 3 Miles ENE
S150	NV4000000043633	2 - 3 Miles ENE
S151	NV4000000043634	2 - 3 Miles ENE
152	NV4000000043731	2 - 3 Miles NW
T153	NV4000000043297	2 - 3 Miles SSW
154	NV4000000043650	2 - 3 Miles WNW
T155	NV4000000043294	2 - 3 Miles SSW
T156	NV4000000043293	2 - 3 Miles SSW
T157	NV4000000043296	2 - 3 Miles SSW
T158	NV4000000043295	2 - 3 Miles SSW
159	NV4000000043507	2 - 3 Miles SE
160	NV4000000043602	2 - 3 Miles East
U161	NV4000000043671	2 - 3 Miles WNW
U162	NV4000000043672	2 - 3 Miles WNW
W166	NV4000000043274	2 - 3 Miles South
W167	NV4000000043275	2 - 3 Miles South
W168	NV4000000043272	2 - 3 Miles South
W169	NV4000000043273	2 - 3 Miles South
W170	NV4000000043278	2 - 3 Miles South
W171	NV4000000043279	2 - 3 Miles South
W172	NV4000000043276	2 - 3 Miles South
W173	NV4000000043277	2 - 3 Miles South
174	NV4000000043663	2 - 3 Miles WNW
X175	NV4000000043282	2 - 3 Miles South
X176	NV4000000043283	2 - 3 Miles South
X177	NV4000000043280	2 - 3 Miles South
X178	NV4000000043281	2 - 3 Miles South
X179	NV4000000043284	2 - 3 Miles South
X180	NV4000000043287	2 - 3 Miles South
X181	NV4000000043288	2 - 3 Miles South
X182	NV4000000043285	2 - 3 Miles South

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
X183	NV4000000043286	2 - 3 Miles South
184	NV4000000043630	2 - 3 Miles WNW
185	NV4000000043271	2 - 3 Miles South
Y186	NV4000000043685	2 - 3 Miles WNW
Y187	NV4000000043686	2 - 3 Miles WNW

PHYSICAL SETTING SOURCE MAP - 4249103.2s



0 1/4 1/2 1 Miles

- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data

SITE NAME:	Aiya	CLIENT:	ARCADIS U.S., Inc.
ADDRESS:	Highway 168 Overton NV 89040	CONTACT:	Dori
		INQUIRY #:	4249103.2s
LAT/LONG:	36.6854 / 114.641	DATE:	March 30, 2015 4:40 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
WSW
1 - 2 Miles
Lower

FED USGS **USGS40000753884**

Org. Identifier:	USGS-NV		
Formal name:	USGS Nevada Water Science Center		
Monloc Identifier:	USGS-364047114393101		
Monloc name:	218 S14 E65 36BA 1		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	15010012	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	36.6796934
Longitude:	-114.6594364	Sourcemap scale:	24000
Horiz Acc measure:	10	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1640.
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19760328	Welldepth:	139
Welldepth units:	ft	Wellholedepth:	139
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1976-03-28	12	

2
WNW
1 - 2 Miles
Lower

NV WELLS **NV4000000043620**

Well log:	82285	App:	Not Reported
Notice of :	19576	Waiver no:	Not Reported
Date log r:	13-FEB-01	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	H	Drilling m:	H
Sc:	32003	Ha:	218
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	25	Sec quarte:	AC
Legal quar:	SW NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	POWELL, RON		
Owner addr:	400 FT SW OF DAUITE & TIPPIPAH ST		
Owner no:	Not Reported		
Parcel no:	030-25-501-010	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	01-FEB-01	Date cmplt:	D
Gravel pac:	Y	Depth seal:	50
Depth dril:	190	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	190
Csng diame:	6		
Csng reduc:	0	Top perf:	110
Bottom per:	190	Perf inter:	1
Static wl:	80		
Temperatur:	0		
Yield:	25		
Drawdown:	0		
Hours pump:	5		
Test metho:	A	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	28969		
Contract 1:	Not Reported		
Contract 2:	Not Reported		
Contract 3:	0		
Driller li:	1191	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-MAR-01
Update use:	Not Reported	Date updat:	10-FEB-98
Edit statu:	F	Well start:	17-JAN-01
Gravel p 1:	50	Gravel p 2:	190
Utm x:	708521.168239		
Utm y:	4062850.73377		
Site id:	NV4000000043620		

3
WSW **FED USGS** **USGS40000753883**
1 - 2 Miles
Lower

Org. Identifier:	USGS-NV		
Formal name:	USGS Nevada Water Science Center		
Monloc Identifier:	USGS-364044114395801		
Monloc name:	218 S14 E65 36BADA1		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	15010012	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	36.67886
Longitude:	-114.6669368	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1637.
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19741124	Welldepth:	90
Welldepth units:	ft	Wellholedepth:	90
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 2

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1990-03-29	6.7		1985-03-15	8.52	

4
WNW **NV WELLS** **NV4000000043631**
1 - 2 Miles
Lower

Well log:	50487	App:	Not Reported
Notice of :	1947	Waiver no:	Not Reported
Date log r:	29-DEC-95	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	H	Drilling m:	H
Sc:	32003	Ha:	218
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	25	Sec quarte:	AB
Legal quar:	NW NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	POWELL, RON		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	650-310-015	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	04-DEC-95	Date cmplt:	D
Gravel pac:	Y	Depth seal:	50
Depth dril:	140	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	140
Csng diame:	6.62		
Csng reduc:	0	Top perf:	100
Bottom per:	140	Perf inter:	1
Static wl:	81		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	6294A		
Contract 1:	BRINER DRILLING INC		
Contract 2:	555 N PARKSON RD HENDERSON NV 89015		
Contract 3:	0		
Driller li:	1338	Source age:	NV003
User id:	DBRANTLEY	Date entry:	12-MAR-96
Update use:	Not Reported	Date updat:	16-AUG-96
Edit statu:	F	Well start:	29-NOV-95
Gravel p 1:	50	Gravel p 2:	140

Utm x:	708536.231953
Utm y:	4063251.99604
Site id:	NV4000000043631

A5
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043445**

Well log:	95884	App:	Not Reported
Notice of :	26908	Waiver no:	Not Reported
Date log r:	13-APR-05	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	BC
Legal quar:	SW NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-201-002	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	09-FEB-05	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	35	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	35
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	35	Perf inter:	1
Static wl:	25		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	13-APR-05
Update use:	Not Reported	Date updat:	03-JUN-98
Edit statu:	F	Well start:	09-FEB-05
Gravel p 1:	8	Gravel p 2:	35
Utm x:	710983.765363		
Utm y:	4059673.00178		
Site id:	NV4000000043445		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A6
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043446**

Well log:	95885	App:	Not Reported
Notice of :	26908	Waiver no:	Not Reported
Date log r:	13-APR-05	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	BC
Legal quar:	SW NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-201-002	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	09-FEB-05	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	35	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	35
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	35	Perf inter:	1
Static wl:	25		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	13-APR-05
Update use:	Not Reported	Date updat:	03-JUN-98
Edit statu:	F	Well start:	09-FEB-05
Gravel p 1:	8	Gravel p 2:	35
Utm x:	710983.765363		
Utm y:	4059673.00178		
Site id:	NV4000000043446		

A7
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043447**

Well log:	95886	App:	Not Reported
Notice of :	26908	Waiver no:	Not Reported
Date log r:	13-APR-05	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	BC
Legal quar:	SW NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-201-002	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	09-FEB-05	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	35	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	35
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	35	Perf inter:	1
Static wl:	25		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	13-APR-05
Update use:	Not Reported	Date updat:	03-JUN-98
Edit statu:	F	Well start:	09-FEB-05
Gravel p 1:	8	Gravel p 2:	35
Utm x:	710983.765363		
Utm y:	4059673.00178		
Site id:	NV4000000043447		

B8
West
1 - 2 Miles
Lower

FED USGS **USGS40000753903**

Org. Identifier:	USGS-NV		
Formal name:	USGS Nevada Water Science Center		
Monloc Identifier:	USGS-364106114401402		
Monloc name:	218 S14 E65 25CDBB2		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	15010012	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	36.684971
Longitude:	-114.6713815	Sourcemap scale:	24000

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1655.
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19710316	Welldepth:	58
Welldepth units:	ft	Wellholedepth:	58
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 3

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1990-03-29	9.4		1985-03-15	9.01	
1971-03-16	10				

B9
West
1 - 2 Miles
Lower

FED USGS **USGS40000753902**

Org. Identifier:	USGS-NV		
Formal name:	USGS Nevada Water Science Center		
Monloc Identifier:	USGS-364106114401401		
Monloc name:	218 S14 E65 25CDBB1		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	15010012	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	36.684971
Longitude:	-114.6713815	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1655.
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19770118	Welldepth:	175
Welldepth units:	ft	Wellholedepth:	175
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 2

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1990-03-29	8.9		1985-03-15	8.50	

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C10
West
1 - 2 Miles
Lower

NV WELLS **NV4000000043605**

Well log:	11028	App:	25355
Notice of :	0	Waiver no:	Not Reported
Date log r:	20-MAY-70	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	I	Drilling m:	C
Sc:	32003	Ha:	218
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	25	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	LYTLE, JOHN V		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	20-JUL-66	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	100	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	100
Csng diame:	18		
Csng reduc:	0	Top perf:	28
Bottom per:	95	Perf inter:	1
Static wl:	18		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	EFFINGER DRLG AND PUMP		
Contract 2:	BOX 579		
Contract 3:	0		
Driller li:	212	Source age:	NV003
User id:	MTHORSON	Date entry:	08-JUL-05
Update use:	Not Reported	Date updat:	24-APR-00
Edit statu:	F	Well start:	12-JUL-66
Gravel p 1:	0	Gravel p 2:	0
Utm x:	708133.754113		
Utm y:	4062440.41448		
Site id:	NV4000000043605		

C11
West
1 - 2 Miles
Lower

NV WELLS **NV4000000043606**

Well log:	13277	App:	26371
Notice of :	0	Waiver no:	Not Reported
Date log r:	13-MAY-71	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	I	Drilling m:	H
Sc:	32003	Ha:	218
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	25	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	LYTLE, JOHN		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	16-MAR-71	Date cmplt:	D
Gravel pac:	Y	Depth seal:	5
Depth dril:	58	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	58
Csng diame:	8		
Csng reduc:	0	Top perf:	10
Bottom per:	58	Perf inter:	1
Static wl:	10		
Temperatur:	79		
Yield:	70		
Drawdown:	10		
Hours pump:	2		
Test metho:	B	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	10015		
Contract 1:	BOBBY F WOOLLEY		
Contract 2:	4161 CANALE ST LAS VEGAS NV		
Contract 3:	0		
Driller li:	633	Source age:	NV003
User id:	MTHORSON	Date entry:	08-JUL-05
Update use:	Not Reported	Date updat:	24-APR-00
Edit statu:	F	Well start:	16-MAR-71
Gravel p 1:	5	Gravel p 2:	58
Utm x:	708133.754113		
Utm y:	4062440.41448		
Site id:	NV4000000043606		

C12
West
1 - 2 Miles
Lower

NV WELLS **NV4000000043607**

Well log:	16236	App:	26371
Notice of :	0	Waiver no:	Not Reported
Date log r:	04-MAR-77	Date log 1:	D
Site type:	N	Work type:	S
Work type :	Not Reported		
Proposed u:	I	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	25	Sec quarte:	CA

Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	LYTLE, MARY LOU		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	25-14-65	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	23-FEB-77	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	175	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	175
Csng diame:	12		
Csng reduc:	0	Top perf:	75
Bottom per:	170	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	7381		
Contract 1:	B & B DRILLING CO		
Contract 2:	P O BOX 111 BEAVER UT 84713		
Contract 3:	0		
Driller li:	818	Source age:	NV003
User id:	MTHORSON	Date entry:	08-JUL-05
Update use:	DBRANTLEY	Date updat:	15-FEB-08
Edit statu:	F	Well start:	18-JAN-77
Gravel p 1:	0	Gravel p 2:	175
Utm x:	708133.754113		
Utm y:	4062440.41448		
Site id:	NV4000000043607		

D13
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043448**

Well log:	107270	App:	Not Reported
Notice of :	34021	Waiver no:	MO-2822
Date log r:	19-SEP-08	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	BD
Legal quar:	SE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	CH-01		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	21-AUG-08	Date cmplt:	D
Gravel pac:	Y	Depth seal:	21
Depth dril:	41	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	40
Csng diame:	4.5		
Csng reduc:	0	Top perf:	23
Bottom per:	38	Perf inter:	1
Static wl:	8.8		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	12852		
Contract 1:	W D C EXPLORATION & WELLS		
Contract 2:	500 MAIN ST WOODLAND CA 95695		
Contract 3:	0		
Driller li:	2057	Source age:	NV003
User id:	DBRANTLEY	Date entry:	02-JAN-09
Update use:	Not Reported	Date updat:	03-JUN-98
Edit statu:	F	Well start:	20-AUG-08
Gravel p 1:	21	Gravel p 2:	41
Utm x:	711405.901534		
Utm y:	4059683.40242		
Site id:	NV4000000043448		

D14
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043449**

Well log:	107271	App:	Not Reported
Notice of :	34021	Waiver no:	MO-2822
Date log r:	19-SEP-08	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	BD
Legal quar:	SE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	CH-02		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	22-AUG-08	Date cmplt:	D
Gravel pac:	Y	Depth seal:	21
Depth dril:	41	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	40
Csng diame:	4.5		
Csng reduc:	0	Top perf:	23
Bottom per:	38	Perf inter:	1
Static wl:	27.5		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	12852		
Contract 1:	W D C EXPLORATION & WELLS		
Contract 2:	500 MAIN ST WOODLAND CA 95695		
Contract 3:	0		
Driller li:	2057	Source age:	NV003
User id:	DBRANTLEY	Date entry:	02-JAN-09
Update use:	Not Reported	Date updat:	03-JUN-98
Edit statu:	F	Well start:	21-AUG-08
Gravel p 1:	21	Gravel p 2:	41
Utm x:	711405.901534		
Utm y:	4059683.40242		
Site id:	NV4000000043449		

D15
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043450**

Well log:	107272	App:	Not Reported
Notice of :	34021	Waiver no:	MO-2822
Date log r:	19-SEP-08	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	BD
Legal quar:	SE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	CH-03		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	25-AUG-08	Date cmplt:	D
Gravel pac:	Y	Depth seal:	41
Depth dril:	61	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	60
Csng diame:	4.5		
Csng reduc:	0	Top perf:	43
Bottom per:	58	Perf inter:	1
Static wl:	36		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	12852		
Contract 1:	W D C EXPLORATION & WELLS		
Contract 2:	500 MAIN ST WOODLAND CA 95695		
Contract 3:	0		
Driller li:	2057	Source age:	NV003
User id:	DBRANTLEY	Date entry:	02-JAN-09
Update use:	DBRANTLEY	Date updat:	14-JAN-09
Edit statu:	F	Well start:	25-AUG-08
Gravel p 1:	41	Gravel p 2:	61

Utm x:	711405.901534
Utm y:	4059683.40242
Site id:	NV4000000043450

16
West
1 - 2 Miles
Lower

NV WELLS **NV4000000043589**

Well log:	61488	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	11-NOV-74	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	H	Drilling m:	H
Sc:	32003	Ha:	218
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	25	Sec quarte:	CD
Legal quar:	SE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	PERKINS, BOB		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	09-SEP-74	Date cmplt:	D
Gravel pac:	Y	Depth seal:	50
Depth dril:	70	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	70
Csng diame:	6		
Csng reduc:	0	Top perf:	50
Bottom per:	70	Perf inter:	1
Static wl:	19		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	10791		
Contract 1:	CHAPARRAL DRILLING & PUMPS		
Contract 2:	4161 CANAL ST LAS VEGAS NV		
Contract 3:	0		
Driller li:	692	Source age:	NV003
User id:	DBRANTLEY	Date entry:	24-FEB-97
Update use:	Not Reported	Date updat:	08-FEB-06
Edit statu:	F	Well start:	06-SEP-74
Gravel p 1:	50	Gravel p 2:	70
Utm x:	708118.666667		
Utm y:	4062039.15429		
Site id:	NV4000000043589		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

E17
WSW
1 - 2 Miles
Lower

NV WELLS **NV4000000043580**

Well log:	19790	App:	31086
Notice of :	0	Waiver no:	Not Reported
Date log r:	14-JUL-75	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	I	Drilling m:	H
Sc:	32003	Ha:	205
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	36	Sec quarte:	BA
Legal quar:	NE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	PERKINS, ROBERT		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	09-JAN-75	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	100	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	100
Csng diame:	12		
Csng reduc:	0	Top perf:	10
Bottom per:	100	Perf inter:	1
Static wl:	12		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	10062		
Contract 1:	DIMICK DRILLING		
Contract 2:	5360 N BONITA VISTA ST LAS VEGAS NV 89129		
Contract 3:	0		
Driller li:	552	Source age:	NV003
User id:	MTHORSON	Date entry:	08-JUL-05
Update use:	Not Reported	Date updat:	21-JAN-98
Edit statu:	F	Well start:	06-JAN-75
Gravel p 1:	0	Gravel p 2:	100
Utm x:	708128.40153		
Utm y:	4061638.49755		
Site id:	NV4000000043580		

E18
WSW
1 - 2 Miles
Lower

NV WELLS **NV4000000043581**

Well log:	19791	App:	31087
Notice of :	0	Waiver no:	Not Reported
Date log r:	15-APR-76	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	I	Drilling m:	U
Sc:	32003	Ha:	205
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	36	Sec quarte:	BA
Legal quar:	NE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	PERKINS, BOB		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	28-MAR-76	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	139	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	139
Csng diame:	12		
Csng reduc:	0	Top perf:	90
Bottom per:	139	Perf inter:	1
Static wl:	12		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	7381		
Contract 1:	B & B DRILLING CO		
Contract 2:	P O BOX 111 BEAVER UT 84713		
Contract 3:	0		
Driller li:	818	Source age:	NV003
User id:	MTHORSON	Date entry:	08-JUL-05
Update use:	DBRANTLEY	Date updat:	15-FEB-08
Edit statu:	F	Well start:	24-FEB-76
Gravel p 1:	0	Gravel p 2:	139
Utm x:	708128.40153		
Utm y:	4061638.49755		
Site id:	NV4000000043581		

F19
SSW
1 - 2 Miles
Lower

NV WELLS **NV4000000043442**

Well log:	71206	App:	Not Reported
Notice of :	17135	Waiver no:	Not Reported
Date log r:	13-MAY-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	BD

Legal quar:	SE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-25		
Parcel no:	690-250-031	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	21-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	4
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	3		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	KCOON	Date entry:	20-MAY-98
Update use:	Not Reported	Date updat:	16-JUN-04
Edit statu:	F	Well start:	17-APR-98
Gravel p 1:	4	Gravel p 2:	25
Utm x:	709717.359334		
Utm y:	4059641.92479		
Site id:	NV4000000043442		

F20
SSW
1 - 2 Miles
Lower

NV WELLS **NV4000000043443**

Well log:	71207	App:	Not Reported
Notice of :	17135	Waiver no:	Not Reported
Date log r:	13-MAY-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	BD
Legal quar:	SE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-02M		
Parcel no:	690-250-031	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	21-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	38
Depth dril:	50	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	50
Csng diame:	2		
Csng reduc:	0	Top perf:	40
Bottom per:	50	Perf inter:	1
Static wl:	3		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	KCOON	Date entry:	20-MAY-98
Update use:	user15	Date updat:	03-JUN-98
Edit statu:	F	Well start:	17-APR-98
Gravel p 1:	38	Gravel p 2:	50
Utm x:	709717.359334		
Utm y:	4059641.92479		
Site id:	NV4000000043443		

F21
SSW
1 - 2 Miles
Lower

NV WELLS **NV4000000043444**

Well log:	71208	App:	Not Reported
Notice of :	17135	Waiver no:	Not Reported
Date log r:	13-MAY-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	BD
Legal quar:	SE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-02D		
Parcel no:	690-250-031	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	21-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	62
Depth dril:	74	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	74
Csng diame:	2		
Csng reduc:	0	Top perf:	64
Bottom per:	74	Perf inter:	1
Static wl:	3		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	KCOON	Date entry:	20-MAY-98
Update use:	user15	Date updat:	03-JUN-98
Edit statu:	F	Well start:	17-APR-98
Gravel p 1:	62	Gravel p 2:	74
Utm x:	709717.359334		
Utm y:	4059641.92479		
Site id:	NV4000000043444		

G22
SSE
1 - 2 Miles
Lower

NV WELLS **NV4000000043427**

Well log:	59770	App:	Not Reported
Notice of :	16534	Waiver no:	MO-2765
Date log r:	10-JAN-97	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	Not Reported
Legal quar:	Not Reported	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	6226 W SAHARA AVE LAS VEGAS NV		
Owner no:	Not Reported		
Parcel no:	700-770-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	06-DEC-96	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	85
Depth dril:	120	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	120
Csng diame:	2		
Csng reduc:	0	Top perf:	100
Bottom per:	120	Perf inter:	1
Static wl:	105		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	1871	Source age:	NV003
User id:	DBRANTLEY	Date entry:	17-JAN-97
Update use:	dsdavis	Date updat:	17-JAN-97
Edit statu:	F	Well start:	04-DEC-96
Gravel p 1:	0	Gravel p 2:	0

Utm x:	711633.950916
Utm y:	4059503.99765
Site id:	NV4000000043427

G23
SSE **NV WELLS** **NV4000000043426**
1 - 2 Miles
Lower

Well log:	52868	App:	Not Reported
Notice of :	17546	Waiver no:	MO-2309
Date log r:	01-AUG-96	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	U
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	Not Reported
Legal quar:	Not Reported	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	ASH FLY LANDFILL MOAPA NV		
Owner no:	MW-01		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	22-APR-96	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	0	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	731 PILOT RD STE H LAS VEGAS NV 89119		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	CRWAKEFI	Date entry:	28-AUG-96
Update use:	dsdavis	Date updat:	30-DEC-96
Edit statu:	F	Well start:	22-APR-96
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711633.950916		
Utm y:	4059503.99765		
Site id:	NV4000000043426		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

G24
SSE
1 - 2 Miles
Lower

NV WELLS **NV4000000043425**

Well log:	43045	App:	Not Reported
Notice of :	12096	Waiver no:	MO-2309
Date log r:	21-OCT-93	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	Not Reported
Legal quar:	Not Reported	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER POWER PLANT		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-AUG-93	Date cmplt:	D
Gravel pac:	Y	Depth seal:	90
Depth dril:	115	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	115
Csng diame:	2		
Csng reduc:	0	Top perf:	95
Bottom per:	115	Perf inter:	1
Static wl:	95		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	F
Qual lith :	F		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	BJFOSTER	Date entry:	02-MAY-97
Update use:	dsdavis	Date updat:	16-OCT-96
Edit statu:	F	Well start:	03-OCT-50
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711633.950916		
Utm y:	4059503.99765		
Site id:	NV4000000043425		

G25
SSE
1 - 2 Miles
Lower

NV WELLS **NV4000000043428**

Well log:	66346	App:	Not Reported
Notice of :	11371	Waiver no:	MO-2229
Date log r:	22-JAN-93	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	Not Reported
Legal quar:	Not Reported	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	NEVADA POWER PLANT MOAPA NV		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	09-JAN-93	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	40	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	40
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	40	Perf inter:	1
Static wl:	23		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	KCOON	Date entry:	02-JUL-97
Update use:	dsdavis	Date updat:	20-APR-98
Edit statu:	F	Well start:	09-JAN-93
Gravel p 1:	8	Gravel p 2:	40
Utm x:	711633.950916		
Utm y:	4059503.99765		
Site id:	NV4000000043428		

G26
SSE **NV WELLS** **NV4000000043431**
1 - 2 Miles
Lower

Well log:	66349	App:	Not Reported
Notice of :	11374	Waiver no:	MO-2229
Date log r:	22-JAN-93	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	Not Reported

Legal quar:	Not Reported	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	NEVADA POWER PLANT MOAPA NV		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	08-JAN-93	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	40	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	40
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	40	Perf inter:	1
Static wl:	25		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	KCOON	Date entry:	02-JUL-97
Update use:	dsdavis	Date updat:	20-APR-98
Edit statu:	F	Well start:	08-JAN-93
Gravel p 1:	8	Gravel p 2:	40
Utm x:	711633.950916		
Utm y:	4059503.99765		
Site id:	NV4000000043431		

G27
SSE **NV WELLS** **NV4000000043430**
1 - 2 Miles
Lower

Well log:	66348	App:	Not Reported
Notice of :	11373	Waiver no:	MO-2229
Date log r:	22-JAN-93	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	Not Reported
Legal quar:	Not Reported	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	NEVADA POWER PLANT MOAPA NV		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	08-JAN-93	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	40	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	40
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	40	Perf inter:	1
Static wl:	21		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	KCOON	Date entry:	02-JUL-97
Update use:	dsdavis	Date updat:	20-APR-98
Edit statu:	F	Well start:	08-JAN-93
Gravel p 1:	8	Gravel p 2:	40
Utm x:	711633.950916		
Utm y:	4059503.99765		
Site id:	NV4000000043430		

G28
SSE **NV WELLS** **NV4000000043429**
1 - 2 Miles
Lower

Well log:	66347	App:	Not Reported
Notice of :	11372	Waiver no:	MO-2229
Date log r:	22-JAN-93	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	Not Reported
Legal quar:	Not Reported	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	NEVADA POWER PLANT MOAPA NV		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	09-JAN-93	Date cmplt:	D
Gravel pac:	Y	Depth seal:	5
Depth dril:	40	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	40
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	40	Perf inter:	1
Static wl:	23		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	KCOON	Date entry:	02-JUL-97
Update use:	dsdavis	Date updat:	20-APR-98
Edit statu:	F	Well start:	09-JAN-93
Gravel p 1:	8	Gravel p 2:	40
Utm x:	711633.950916		
Utm y:	4059503.99765		
Site id:	NV4000000043429		

H29
SSW **NV WELLS** **NV4000000043422**
1 - 2 Miles
Lower

Well log:	1461	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	26-OCT-50	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	I	Drilling m:	C
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	Not Reported
Legal quar:	Not Reported	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	SEARLES, KENNETH		
Owner addr:	2020 W BONANZA RD LAS VEGAS NV		
Owner no:	WELL 02		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	26-SEP-50	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	100	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	100
Csng diame:	20		
Csng reduc:	1	Top perf:	0
Bottom per:	100	Perf inter:	1
Static wl:	1		
Temperatur:	0		
Yield:	400		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	2065		
Contract 1:	S R MCKINNEY & SONS INC		
Contract 2:	1042 S MAIN ST LAS VEGAS NV		
Contract 3:	0		
Driller li:	45	Source age:	NV003
User id:	KCOON	Date entry:	02-MAY-97
Update use:	Not Reported	Date updat:	19-OCT-98
Edit statu:	F	Well start:	19-SEP-50
Gravel p 1:	12	Gravel p 2:	20

Utm x:	709945.37136
Utm y:	4059462.47666
Site id:	NV4000000043422

H30
SSW **NV WELLS** **NV4000000043421**
1 - 2 Miles
Lower

Well log:	1460	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	26-OCT-50	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	U	Drilling m:	C
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	Not Reported
Legal quar:	Not Reported	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	SEARLES, KENNETH		
Owner addr:	2020 W BONANZA RD LAS VEGAS NV		
Owner no:	WELL 01		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	16-SEP-50	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	50	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	32
Csng diame:	20		
Csng reduc:	0	Top perf:	0
Bottom per:	32	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	2065		
Contract 1:	S R MCKINNEY & SONS INC		
Contract 2:	1042 S MAIN ST LAS VEGAS NV		
Contract 3:	0		
Driller li:	45	Source age:	NV003
User id:	KCOON	Date entry:	02-MAY-97
Update use:	dsdavis	Date updat:	19-OCT-98
Edit statu:	F	Well start:	14-SEP-50
Gravel p 1:	0	Gravel p 2:	0
Utm x:	709945.37136		
Utm y:	4059462.47666		
Site id:	NV4000000043421		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

H31
SSW
1 - 2 Miles
Lower

NV WELLS **NV4000000043424**

Well log:	1463	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	26-OCT-50	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	I	Drilling m:	C
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	Not Reported
Legal quar:	Not Reported	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	SEARLES, KENNETH		
Owner addr:	2020 W BONANZA RD LAS VEGAS NV		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	06-OCT-50	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	75	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	68
Csng diame:	12		
Csng reduc:	0	Top perf:	0
Bottom per:	68	Perf inter:	1
Static wl:	2		
Temperatur:	0		
Yield:	350		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	2065		
Contract 1:	S R MCKINNEY & SONS INC		
Contract 2:	1042 S MAIN ST LAS VEGAS NV		
Contract 3:	0		
Driller li:	45	Source age:	NV003
User id:	KCOON	Date entry:	02-MAY-97
Update use:	Not Reported	Date updat:	19-OCT-98
Edit statu:	F	Well start:	03-OCT-50
Gravel p 1:	0	Gravel p 2:	0
Utm x:	709945.37136		
Utm y:	4059462.47666		
Site id:	NV4000000043424		

H32
SSW
1 - 2 Miles
Lower

NV WELLS **NV4000000043423**

Well log:	1462	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	26-OCT-50	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	H	Drilling m:	C
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	Not Reported
Legal quar:	Not Reported	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	SEARLES, KENNETH		
Owner addr:	2020 W BONANZA RD LAS VEGAS NV		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	29-SEP-50	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	61	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	61
Csng diame:	8		
Csng reduc:	0	Top perf:	30
Bottom per:	61	Perf inter:	1
Static wl:	7		
Temperatur:	0		
Yield:	40		
Drawdown:	0		
Hours pump:	0		
Test metho:	B	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	2065		
Contract 1:	S R MCKINNEY & SONS INC		
Contract 2:	1042 S MAIN ST LAS VEGAS NV		
Contract 3:	0		
Driller li:	45	Source age:	NV003
User id:	KCOON	Date entry:	02-MAY-97
Update use:	Not Reported	Date updat:	19-OCT-98
Edit statu:	F	Well start:	28-SEP-50
Gravel p 1:	0	Gravel p 2:	0
Utm x:	709945.37136		
Utm y:	4059462.47666		
Site id:	NV4000000043423		

I33
West
1 - 2 Miles
Lower

NV WELLS **NV4000000043604**

Well log:	41216	App:	53091
Notice of :	0	Waiver no:	Not Reported
Date log r:	29-MAR-93	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	I	Drilling m:	H
Sc:	32003	Ha:	218
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	25	Sec quarte:	CB

Legal quar:	NW SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	WHEELER, ELMER		
Owner addr:	P O BOX 398 OVERTON NV		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	04-JUN-91	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	200	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	N
Qual lith :	F		
Remarks ad:	Not Reported		
Contractor:	4286A		
Contract 1:	THOMPSON DRILLING CO INC		
Contract 2:	4185 W HARMON LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1686	Source age:	NV003
User id:	KLOHAIR	Date entry:	08-JUL-05
Update use:	DBRANTLEY	Date updat:	24-APR-00
Edit statu:	F	Well start:	31-MAY-91
Gravel p 1:	0	Gravel p 2:	0
Utm x:	707761.407175		
Utm y:	4062431.37334		
Site id:	NV4000000043604		

I34
West
1 - 2 Miles
Lower

NV WELLS **NV4000000043603**

Well log:	14572	App:	26371
Notice of :	0	Waiver no:	Not Reported
Date log r:	10-FEB-75	Date log 1:	D
Site type:	N	Work type:	S
Work type :	Not Reported		
Proposed u:	I	Drilling m:	C
Sc:	32003	Ha:	218
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	25	Sec quarte:	CB
Legal quar:	NW SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	LYTLE, JOHN V		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	06-JAN-75	Date cmplt:	D
Gravel pac:	N	Depth seal:	0
Depth dril:	50	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	0
Csng diame:	12		
Csng reduc:	0	Top perf:	10
Bottom per:	50	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	HOWARD O THATCHER		
Contract 2:	LAS VEGAS NV		
Contract 3:	0		
Driller li:	599	Source age:	NV003
User id:	MTHORSON	Date entry:	08-JUL-05
Update use:	APALMER	Date updat:	08-FEB-06
Edit statu:	F	Well start:	30-DEC-74
Gravel p 1:	0	Gravel p 2:	0
Utm x:	707736.584057		
Utm y:	4062430.77118		
Site id:	NV4000000043603		

J35
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043339**

Well log:	94274	App:	Not Reported
Notice of :	27110	Waiver no:	Not Reported
Date log r:	11-OCT-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	A
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DA
Legal quar:	NE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	BENSON, SARGENT N		
Owner addr:	501 WALLY KAY WY		
Owner no:	CMW02 POND 4A		
Parcel no:	042-06-701-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-OCT-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	5
Depth dril:	35	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	35
Csng diame:	2.5		
Csng reduc:	0	Top perf:	5
Bottom per:	35	Perf inter:	2
Static wl:	1		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	12852		
Contract 1:	WATER DEVELOPMENT CORP (THE)		
Contract 2:	1202 E KENTUCKY AVE WOODLAND CA 95776		
Contract 3:	0		
Driller li:	2182	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-NOV-04
Update use:	DBRANTLEY	Date updat:	05-JAN-05
Edit statu:	F	Well start:	07-OCT-04
Gravel p 1:	5	Gravel p 2:	35
Utm x:	710596.303677		
Utm y:	4059262.57425		
Site id:	NV4000000043339		

J36
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043340**

Well log:	94275	App:	Not Reported
Notice of :	27110	Waiver no:	Not Reported
Date log r:	11-OCT-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	A
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DA
Legal quar:	NE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	BENSON, SARGENT N		
Owner addr:	501 WALLY KAY WY		
Owner no:	CMW-05		
Parcel no:	042-06-701-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	01-OCT-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	12
Depth dril:	46	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	45
Csng diame:	2		
Csng reduc:	0	Top perf:	14
Bottom per:	45	Perf inter:	2
Static wl:	15		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	12852		
Contract 1:	WATER DEVELOPMENT CORP (THE)		
Contract 2:	1202 E KENTUCKY AVE WOODLAND CA 95776		
Contract 3:	0		
Driller li:	2182	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-NOV-04
Update use:	DBRANTLEY	Date updat:	05-JAN-05
Edit statu:	F	Well start:	30-SEP-04
Gravel p 1:	13	Gravel p 2:	45

Utm x:	710596.303677
Utm y:	4059262.57425
Site id:	NV4000000043340

J37
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043337**

Well log:	91689	App:	Not Reported
Notice of :	24918	Waiver no:	Not Reported
Date log r:	22-DEC-03	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DA
Legal quar:	NE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-06-801-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	09-DEC-03	Date cmplt:	D
Gravel pac:	Y	Depth seal:	5
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	4		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	15		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	13-JAN-04
Update use:	Not Reported	Date updat:	05-MAR-04
Edit statu:	F	Well start:	09-DEC-03
Gravel p 1:	5	Gravel p 2:	25
Utm x:	710596.303677		
Utm y:	4059262.57425		
Site id:	NV4000000043337		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

J38
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043338**

Well log:	94206	App:	Not Reported
Notice of :	27110	Waiver no:	Not Reported
Date log r:	12-OCT-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	A
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DA
Legal quar:	NE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	INTERIOR OF POND 4A		
Owner no:	CMW-03		
Parcel no:	042-06-701-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	30-SEP-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	16
Depth dril:	46	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	46
Csng diame:	2.5		
Csng reduc:	0	Top perf:	17
Bottom per:	45	Perf inter:	2
Static wl:	14		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	12852		
Contract 1:	WATER DEVELOPMENT CORP (THE)		
Contract 2:	1202 E KENTUCKY AVE WOODLAND CA 95776		
Contract 3:	0		
Driller li:	2182	Source age:	NV003
User id:	DBRANTLEY	Date entry:	27-OCT-04
Update use:	DBRANTLEY	Date updat:	04-JAN-05
Edit statu:	F	Well start:	28-SEP-04
Gravel p 1:	16	Gravel p 2:	46
Utm x:	710596.303677		
Utm y:	4059262.57425		
Site id:	NV4000000043338		

J39
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043343**

Well log:	94278	App:	Not Reported
Notice of :	27110	Waiver no:	Not Reported
Date log r:	11-OCT-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	A
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DA
Legal quar:	NE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	BENSON, SARGENT N		
Owner addr:	501 WALLY KAY WY		
Owner no:	CMW-01		
Parcel no:	042-06-701-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	08-OCT-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	5
Depth dril:	35	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	35
Csng diame:	2.5		
Csng reduc:	0	Top perf:	5
Bottom per:	35	Perf inter:	2
Static wl:	7		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	12852		
Contract 1:	WATER DEVELOPMENT CORP (THE)		
Contract 2:	1202 E KENTUCKY AVE WOODLAND CA 95776		
Contract 3:	0		
Driller li:	2182	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-NOV-04
Update use:	DBRANTLEY	Date updat:	05-JAN-05
Edit statu:	F	Well start:	07-OCT-04
Gravel p 1:	5	Gravel p 2:	35
Utm x:	710596.303677		
Utm y:	4059262.57425		
Site id:	NV4000000043343		

J40
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043344**

Well log:	94279	App:	Not Reported
Notice of :	27110	Waiver no:	Not Reported
Date log r:	11-OCT-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	A
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DA

Legal quar:	NE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	BENSON, SARGENT N		
Owner addr:	501 WALLY KAY WY		
Owner no:	CMW-07		
Parcel no:	042-06-701-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	09-OCT-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	10
Depth dril:	35	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	35
Csng diame:	2.5		
Csng reduc:	0	Top perf:	10
Bottom per:	35	Perf inter:	2
Static wl:	10		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	12852		
Contract 1:	WATER DEVELOPMENT CORP (THE)		
Contract 2:	1202 E KENTUCKY AVE WOODLAND CA 95776		
Contract 3:	0		
Driller li:	2182	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-NOV-04
Update use:	DBRANTLEY	Date updat:	05-JAN-05
Edit statu:	F	Well start:	08-OCT-04
Gravel p 1:	9	Gravel p 2:	35
Utm x:	710596.303677		
Utm y:	4059262.57425		
Site id:	NV4000000043344		

J41
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043341**

Well log:	94276	App:	Not Reported
Notice of :	27110	Waiver no:	Not Reported
Date log r:	11-OCT-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	A
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DA
Legal quar:	NE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	BENSON, SARGENT N		
Owner addr:	501 WALLY KAY WY		
Owner no:	CMW-04		
Parcel no:	042-06-701-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	05-OCT-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	9
Depth dril:	30	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	30
Csng diame:	2.5		
Csng reduc:	0	Top perf:	10
Bottom per:	30	Perf inter:	2
Static wl:	10		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	12852		
Contract 1:	WATER DEVELOPMENT CORP (THE)		
Contract 2:	1202 E KENTUCKY AVE WOODLAND CA 95776		
Contract 3:	0		
Driller li:	2182	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-NOV-04
Update use:	DBRANTLEY	Date updat:	05-JAN-05
Edit statu:	F	Well start:	04-OCT-04
Gravel p 1:	9	Gravel p 2:	30
Utm x:	710596.303677		
Utm y:	4059262.57425		
Site id:	NV4000000043341		

J42
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043342**

Well log:	94277	App:	Not Reported
Notice of :	27110	Waiver no:	Not Reported
Date log r:	11-OCT-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	A
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DA
Legal quar:	NE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	BENSON, SARGENT N		
Owner addr:	501 WALLY KAY WY		
Owner no:	CMW-06		
Parcel no:	042-06-701-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	04-OCT-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	12
Depth dril:	46	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	45
Csng diame:	2.5		
Csng reduc:	0	Top perf:	15
Bottom per:	45	Perf inter:	2
Static wl:	15		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	12852		
Contract 1:	WATER DEVELOPMENT CORP (THE)		
Contract 2:	1202 E KENTUCKY AVE WOODLAND CA 95776		
Contract 3:	0		
Driller li:	2182	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-NOV-04
Update use:	DBRANTLEY	Date updat:	05-JAN-05
Edit statu:	F	Well start:	01-OCT-04
Gravel p 1:	14	Gravel p 2:	46
Utm x:	710596.303677		
Utm y:	4059262.57425		
Site id:	NV4000000043342		

K43
West
1 - 2 Miles
Lower

NV WELLS **NV4000000043588**

Well log:	14575	App:	28635
Notice of :	0	Waiver no:	Not Reported
Date log r:	10-FEB-75	Date log 1:	D
Site type:	e	Work type:	D
Work type :	Not Reported		
Proposed u:	I	Drilling m:	C
Sc:	32003	Ha:	218
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	25	Sec quarte:	CC
Legal quar:	SW SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	PERKINS, ROBERT E		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	16-DEC-74	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	90	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	90
Csng diame:	12		
Csng reduc:	0	Top perf:	55
Bottom per:	90	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	HOWARD O THATCHER		
Contract 2:	LAS VEGAS NV		
Contract 3:	0		
Driller li:	599	Source age:	NV003
User id:	MTHORSON	Date entry:	08-JUL-05
Update use:	APALMER	Date updat:	08-FEB-06
Edit statu:	F	Well start:	24-NOV-74
Gravel p 1:	0	Gravel p 2:	90

Utm x:	707746.302305
Utm y:	4062030.11457
Site id:	NV4000000043588

K44
West
1 - 2 Miles
Lower

NV WELLS **NV4000000043587**

Well log:	61490	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	14-DEC-87	Date log 1:	Not Reported
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	H	Drilling m:	C
Sc:	32003	Ha:	218
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	25	Sec quarte:	CC
Legal quar:	SW SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	PERKINS		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	01-OCT-67	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	62	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	62
Csng diame:	0		
Csng reduc:	0	Top perf:	40
Bottom per:	60	Perf inter:	1
Static wl:	8		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	Not Reported		
Contract 2:	Not Reported		
Contract 3:	0		
Driller li:	458	Source age:	NV003
User id:	DBRANTLEY	Date entry:	24-FEB-97
Update use:	Not Reported	Date updat:	16-AUG-96
Edit statu:	F	Well start:	27-SEP-67
Gravel p 1:	0	Gravel p 2:	0
Utm x:	707747.049828		
Utm y:	4061999.29484		
Site id:	NV4000000043587		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

L45
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043355**

Well log:	79486	App:	Not Reported
Notice of :	19540	Waiver no:	Not Reported
Date log r:	24-MAY-00	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	220
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	HM-03		
Parcel no:	690-250-034	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	18-MAY-00	Date cmplt:	D
Gravel pac:	N	Depth seal:	0
Depth dril:	0	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	30-MAY-00
Update use:	Not Reported	Date updat:	30-MAY-00
Edit statu:	F	Well start:	18-MAY-00
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043355		

L46
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043354**

Well log:	79485	App:	Not Reported
Notice of :	19540	Waiver no:	Not Reported
Date log r:	24-MAY-00	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	220
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	HR-03		
Parcel no:	690-250-034	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	16-MAY-00	Date cmplt:	D
Gravel pac:	N	Depth seal:	0
Depth dril:	0	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	30-MAY-00
Update use:	DBRANTLEY	Date updat:	30-MAY-00
Edit statu:	F	Well start:	16-MAY-00
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043354		

L47
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043353**

Well log:	79484	App:	Not Reported
Notice of :	19540	Waiver no:	Not Reported
Date log r:	24-MAY-00	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	220
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA

Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	HM-14		
Parcel no:	690-250-034	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	18-MAY-00	Date cmplt:	D
Gravel pac:	N	Depth seal:	0
Depth dril:	0	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	30-MAY-00
Update use:	Not Reported	Date updat:	19-JUN-00
Edit statu:	F	Well start:	18-MAY-00
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043353		

L48
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043356**

Well log:	87529	App:	Not Reported
Notice of :	24145	Waiver no:	Not Reported
Date log r:	16-JAN-03	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	HIDDEN VALLEY RD		
Owner no:	01		
Parcel no:	042-05-301-002	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	19-SEP-02	Date cmplt:	D
Gravel pac:	Y	Depth seal:	13
Depth dril:	30	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4.5		
Csng reduc:	0	Top perf:	15
Bottom per:	30	Perf inter:	1
Static wl:	19		
Temperatur:	0		
Yield:	1		
Drawdown:	3		
Hours pump:	2		
Test metho:	P	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	53311		
Contract 1:	WATER DEVELOPMENT CORP (THE)		
Contract 2:	1202 E KENTUCKY AVE WOODLAND CA 95776		
Contract 3:	0		
Driller li:	2216	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-JAN-03
Update use:	Not Reported	Date updat:	30-MAY-00
Edit statu:	F	Well start:	15-SEP-02
Gravel p 1:	13	Gravel p 2:	30
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043356		

L49
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043359**

Well log:	87532	App:	Not Reported
Notice of :	24145	Waiver no:	Not Reported
Date log r:	16-JAN-03	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	HIDDEN VALLEY RD		
Owner no:	04		
Parcel no:	042-05-301-002	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	19-SEP-02	Date cmplt:	D
Gravel pac:	Y	Depth seal:	13
Depth dril:	30	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4.5		
Csng reduc:	0	Top perf:	15
Bottom per:	30	Perf inter:	1
Static wl:	19		
Temperatur:	0		
Yield:	1		
Drawdown:	3		
Hours pump:	2		
Test metho:	P	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	53311		
Contract 1:	Not Reported		
Contract 2:	Not Reported		
Contract 3:	0		
Driller li:	2216	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-JAN-03
Update use:	DBRANTLEY	Date updat:	17-MAR-03
Edit statu:	F	Well start:	15-SEP-02
Gravel p 1:	13	Gravel p 2:	30
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043359		

L50
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043358**

Well log:	87531	App:	Not Reported
Notice of :	24145	Waiver no:	Not Reported
Date log r:	16-JAN-03	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	HIDDEN VALLEY RD		
Owner no:	03		
Parcel no:	042-05-301-002	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	19-SEP-02	Date cmplt:	D
Gravel pac:	Y	Depth seal:	13
Depth dril:	30	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4.5		
Csng reduc:	0	Top perf:	15
Bottom per:	30	Perf inter:	1
Static wl:	19		
Temperatur:	0		
Yield:	1		
Drawdown:	3.75		
Hours pump:	2		
Test metho:	P	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	53311		
Contract 1:	Not Reported		
Contract 2:	Not Reported		
Contract 3:	0		
Driller li:	2216	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-JAN-03
Update use:	DBRANTLEY	Date updat:	17-MAR-03
Edit statu:	F	Well start:	15-SEP-02
Gravel p 1:	13	Gravel p 2:	30

Utm x:	711440.615171
Utm y:	4059283.35637
Site id:	NV4000000043358

L51
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043357**

Well log:	87530	App:	Not Reported
Notice of :	24145	Waiver no:	Not Reported
Date log r:	16-JAN-03	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	HIDDEN VALLEY RD		
Owner no:	02		
Parcel no:	042-05-301-002	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	19-SEP-02	Date cmplt:	D
Gravel pac:	Y	Depth seal:	13
Depth dril:	30	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4.5		
Csng reduc:	0	Top perf:	15
Bottom per:	30	Perf inter:	1
Static wl:	19		
Temperatur:	0		
Yield:	1		
Drawdown:	4		
Hours pump:	2		
Test metho:	P	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	53311		
Contract 1:	BADLANDS DRILLING CORP		
Contract 2:	3642 N RANCHO DR LAS VEGAS NV 89130		
Contract 3:	0		
Driller li:	2216	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-JAN-03
Update use:	DBRANTLEY	Date updat:	17-MAR-03
Edit statu:	F	Well start:	15-SEP-02
Gravel p 1:	13	Gravel p 2:	30
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043357		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

L52
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043352**

Well log:	79483	App:	Not Reported
Notice of :	19540	Waiver no:	Not Reported
Date log r:	24-MAY-00	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	220
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	HM-05		
Parcel no:	690-250-034	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	18-MAY-00	Date cmplt:	D
Gravel pac:	N	Depth seal:	0
Depth dril:	0	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	30-MAY-00
Update use:	Not Reported	Date updat:	19-JUN-00
Edit statu:	F	Well start:	18-MAY-00
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043352		

L53
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043347**

Well log:	79478	App:	Not Reported
Notice of :	19541	Waiver no:	Not Reported
Date log r:	24-MAY-00	Date log 1:	D
Site type:	E	Work type:	D
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	220
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	HM-22		
Parcel no:	690-250-034	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	17-MAY-00	Date cmplt:	D
Gravel pac:	Y	Depth seal:	13
Depth dril:	35	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	35
Csng diame:	4		
Csng reduc:	0	Top perf:	15
Bottom per:	35	Perf inter:	1
Static wl:	20		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	30-MAY-00
Update use:	Not Reported	Date updat:	05-JAN-05
Edit statu:	F	Well start:	17-MAY-00
Gravel p 1:	13	Gravel p 2:	35
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043347		

L54
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043346**

Well log:	79477	App:	Not Reported
Notice of :	19541	Waiver no:	Not Reported
Date log r:	24-MAY-00	Date log 1:	D
Site type:	E	Work type:	D
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	220
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA

Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	HM-07		
Parcel no:	690-250-034	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	18-MAY-00	Date cmplt:	D
Gravel pac:	Y	Depth seal:	13
Depth dril:	35	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	35
Csng diame:	4		
Csng reduc:	0	Top perf:	15
Bottom per:	35	Perf inter:	1
Static wl:	22.9		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	30-MAY-00
Update use:	Not Reported	Date updat:	05-JAN-05
Edit statu:	F	Well start:	17-MAY-00
Gravel p 1:	13	Gravel p 2:	35
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043346		

L55
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043345**

Well log:	75526	App:	Not Reported
Notice of :	17113	Waiver no:	Not Reported
Date log r:	16-MAR-99	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	220
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	Not Reported		
Parcel no:	690-250-034	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	23-FEB-99	Date cmplt:	D
Gravel pac:	Y	Depth seal:	5
Depth dril:	30	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4		
Csng reduc:	0	Top perf:	7
Bottom per:	30	Perf inter:	1
Static wl:	15		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	16-JUN-99
Update use:	Not Reported	Date updat:	05-JAN-05
Edit statu:	F	Well start:	23-FEB-99
Gravel p 1:	5	Gravel p 2:	30
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043345		

L56
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043348**

Well log:	79479	App:	Not Reported
Notice of :	19542	Waiver no:	Not Reported
Date log r:	24-MAY-00	Date log 1:	D
Site type:	E	Work type:	D
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	220
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	HM-28		
Parcel no:	690-250-237	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	16-MAY-00	Date cmplt:	D
Gravel pac:	Y	Depth seal:	18
Depth dril:	40	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	40
Csng diame:	4		
Csng reduc:	0	Top perf:	20
Bottom per:	40	Perf inter:	1
Static wl:	24		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	30-MAY-00
Update use:	DBRANTLEY	Date updat:	19-JUN-00
Edit statu:	F	Well start:	16-MAY-00
Gravel p 1:	18	Gravel p 2:	40
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043348		

L57
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043351**

Well log:	79482	App:	Not Reported
Notice of :	19540	Waiver no:	Not Reported
Date log r:	24-MAY-00	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	220
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	HM-13		
Parcel no:	690-250-034	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	16-MAY-00	Date cmplt:	D
Gravel pac:	N	Depth seal:	0
Depth dril:	0	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	30-MAY-00
Update use:	Not Reported	Date updat:	19-JUN-00
Edit statu:	F	Well start:	15-MAY-00
Gravel p 1:	0	Gravel p 2:	0

Utm x:	711440.615171
Utm y:	4059283.35637
Site id:	NV4000000043351

L58
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043350**

Well log:	79481	App:	Not Reported
Notice of :	19540	Waiver no:	Not Reported
Date log r:	24-MAY-00	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	220
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	HM-10		
Parcel no:	690-250-034	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	15-MAY-00	Date cmplt:	D
Gravel pac:	N	Depth seal:	0
Depth dril:	0	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	30-MAY-00
Update use:	Not Reported	Date updat:	19-JUN-00
Edit statu:	F	Well start:	15-MAY-00
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043350		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

L59
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043349**

Well log:	79480	App:	Not Reported
Notice of :	19540	Waiver no:	Not Reported
Date log r:	24-MAY-00	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	220
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	HM-09		
Parcel no:	690-250-034	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	15-MAY-00	Date cmplt:	D
Gravel pac:	N	Depth seal:	0
Depth dril:	0	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	30-MAY-00
Update use:	Not Reported	Date updat:	19-JUN-00
Edit statu:	F	Well start:	15-MAY-00
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043349		

L60
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043360**

Well log:	87533	App:	Not Reported
Notice of :	24145	Waiver no:	Not Reported
Date log r:	16-JAN-03	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	HIDDEN VALLEY RD		
Owner no:	05		
Parcel no:	042-05-301-002	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	19-SEP-02	Date cmplt:	D
Gravel pac:	Y	Depth seal:	13
Depth dril:	30	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4.5		
Csng reduc:	0	Top perf:	15
Bottom per:	30	Perf inter:	1
Static wl:	19		
Temperatur:	0		
Yield:	1		
Drawdown:	3.5		
Hours pump:	2		
Test metho:	P	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	53311		
Contract 1:	BADLANDS DRILLING CORP		
Contract 2:	3642 N RANCHO DR LAS VEGAS NV 89130		
Contract 3:	0		
Driller li:	2216	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-JAN-03
Update use:	DBRANTLEY	Date updat:	17-MAR-03
Edit statu:	F	Well start:	15-SEP-02
Gravel p 1:	13	Gravel p 2:	30
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043360		

L61
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043371**

Well log:	95883	App:	Not Reported
Notice of :	26907	Waiver no:	Not Reported
Date log r:	13-APR-05	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CD

Legal quar:	SE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-401-004	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	08-FEB-05	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	30	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	30	Perf inter:	1
Static wl:	20		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	13-APR-05
Update use:	DBRANTLEY	Date updat:	19-APR-05
Edit statu:	F	Well start:	08-FEB-05
Gravel p 1:	8	Gravel p 2:	30
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043371		

L62
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043370**

Well log:	95882	App:	Not Reported
Notice of :	26907	Waiver no:	Not Reported
Date log r:	13-APR-05	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CD
Legal quar:	SE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-401-004	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	08-FEB-05	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	30	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	30	Perf inter:	1
Static wl:	20		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	13-APR-05
Update use:	DBRANTLEY	Date updat:	19-APR-05
Edit statu:	F	Well start:	08-FEB-05
Gravel p 1:	8	Gravel p 2:	30
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043370		

L63
South **NV WELLS** **NV4000000043369**
1 - 2 Miles
Lower

Well log:	95881	App:	Not Reported
Notice of :	26906	Waiver no:	Not Reported
Date log r:	13-APR-05	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-301-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-FEB-05	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	30	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	30	Perf inter:	1
Static wl:	18		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	13-APR-05
Update use:	Not Reported	Date updat:	17-MAR-03
Edit statu:	F	Well start:	07-FEB-05
Gravel p 1:	8	Gravel p 2:	30
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043369		

L64
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043372**

Well log:	97281	App:	Not Reported
Notice of :	26916	Waiver no:	Not Reported
Date log r:	03-AUG-05	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	A
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-301-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	11-JUL-05	Date cmplt:	D
Gravel pac:	Y	Depth seal:	10
Depth dril:	27	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	27
Csng diame:	4		
Csng reduc:	0	Top perf:	12
Bottom per:	27	Perf inter:	1
Static wl:	17		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	05-AUG-05
Update use:	Not Reported	Date updat:	19-APR-05
Edit statu:	F	Well start:	11-JUL-05
Gravel p 1:	10	Gravel p 2:	27

Utm x:	711440.615171
Utm y:	4059283.35637
Site id:	NV4000000043372

L65
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043375**

Well log:	105159	App:	Not Reported
Notice of :	34564	Waiver no:	Not Reported
Date log r:	07-MAY-08	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-301-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	29-APR-08	Date cmplt:	D
Gravel pac:	Y	Depth seal:	4
Depth dril:	40	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	40
Csng diame:	4		
Csng reduc:	0	Top perf:	7
Bottom per:	40	Perf inter:	5
Static wl:	20		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	4255 W POST RD LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	12-MAY-08
Update use:	DBRANTLEY	Date updat:	09-JUL-08
Edit statu:	F	Well start:	29-APR-08
Gravel p 1:	5	Gravel p 2:	40
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043375		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

L66
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043374**

Well log:	105158	App:	Not Reported
Notice of :	34564	Waiver no:	Not Reported
Date log r:	07-MAY-08	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-301-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	29-APR-08	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	40	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	40
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	40	Perf inter:	1
Static wl:	20		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	4255 W POST RD LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	12-MAY-08
Update use:	DBRANTLEY	Date updat:	09-JUL-08
Edit statu:	F	Well start:	29-APR-08
Gravel p 1:	8	Gravel p 2:	40
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043374		

L67
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043373**

Well log:	97282	App:	Not Reported
Notice of :	26916	Waiver no:	Not Reported
Date log r:	03-AUG-05	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	A
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-301-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	12-JUL-05	Date cmplt:	D
Gravel pac:	Y	Depth seal:	5
Depth dril:	22	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	22
Csng diame:	4		
Csng reduc:	0	Top perf:	7
Bottom per:	22	Perf inter:	1
Static wl:	17		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	05-AUG-05
Update use:	Not Reported	Date updat:	19-APR-05
Edit statu:	F	Well start:	12-JUL-05
Gravel p 1:	5	Gravel p 2:	22
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043373		

L68
South **NV WELLS** **NV4000000043368**
1 - 2 Miles
Lower

Well log:	95880	App:	Not Reported
Notice of :	26906	Waiver no:	Not Reported
Date log r:	13-APR-05	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA

Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-301-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-FEB-05	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	30	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	30	Perf inter:	1
Static wl:	18		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	13-APR-05
Update use:	Not Reported	Date updat:	17-MAR-03
Edit statu:	F	Well start:	07-FEB-05
Gravel p 1:	8	Gravel p 2:	30
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043368		

L69
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043363**

Well log:	87555	App:	Not Reported
Notice of :	24382	Waiver no:	Not Reported
Date log r:	16-JAN-03	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	HIDDEN VALLEY RD		
Owner no:	03		
Parcel no:	042-05-301-022	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-DEC-02	Date cmplt:	D
Gravel pac:	Y	Depth seal:	7
Depth dril:	25	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	25
Csng diame:	4.5		
Csng reduc:	0	Top perf:	10
Bottom per:	25	Perf inter:	1
Static wl:	19		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	53311		
Contract 1:	Not Reported		
Contract 2:	Not Reported		
Contract 3:	0		
Driller li:	2216	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-JAN-03
Update use:	DBRANTLEY	Date updat:	17-MAR-03
Edit statu:	F	Well start:	11-DEC-02
Gravel p 1:	7	Gravel p 2:	25
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043363		

L70
South **NV WELLS** **NV4000000043362**
1 - 2 Miles
Lower

Well log:	87554	App:	Not Reported
Notice of :	24382	Waiver no:	Not Reported
Date log r:	16-JAN-03	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	HIDDEN VALLEY RD		
Owner no:	02		
Parcel no:	042-05-301-022	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-DEC-02	Date cmplt:	D
Gravel pac:	Y	Depth seal:	7
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	4.5		
Csng reduc:	0	Top perf:	10
Bottom per:	25	Perf inter:	1
Static wl:	19		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	53311		
Contract 1:	Not Reported		
Contract 2:	Not Reported		
Contract 3:	0		
Driller li:	2216	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-JAN-03
Update use:	DBRANTLEY	Date updat:	17-MAR-03
Edit statu:	F	Well start:	11-DEC-02
Gravel p 1:	7	Gravel p 2:	25
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043362		

L71
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043361**

Well log:	87553	App:	Not Reported
Notice of :	24382	Waiver no:	Not Reported
Date log r:	16-JAN-03	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	HIDDEN VALLEY RD		
Owner no:	01		
Parcel no:	042-05-301-022	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-DEC-02	Date cmplt:	D
Gravel pac:	Y	Depth seal:	7
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	4.5		
Csng reduc:	0	Top perf:	10
Bottom per:	25	Perf inter:	1
Static wl:	19		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	53311		
Contract 1:	Not Reported		
Contract 2:	Not Reported		
Contract 3:	0		
Driller li:	2216	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-JAN-03
Update use:	DBRANTLEY	Date updat:	17-MAR-03
Edit statu:	F	Well start:	11-DEC-02
Gravel p 1:	7	Gravel p 2:	25

Utm x:	711440.615171
Utm y:	4059283.35637
Site id:	NV4000000043361

L72
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043364**

Well log:	87556	App:	Not Reported
Notice of :	24382	Waiver no:	Not Reported
Date log r:	16-JAN-03	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	HIDDEN VALLEY RD		
Owner no:	04		
Parcel no:	042-05-301-022	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-DEC-02	Date cmplt:	D
Gravel pac:	Y	Depth seal:	7
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	4.5		
Csng reduc:	0	Top perf:	10
Bottom per:	25	Perf inter:	1
Static wl:	19		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	53311		
Contract 1:	Not Reported		
Contract 2:	Not Reported		
Contract 3:	0		
Driller li:	2216	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-JAN-03
Update use:	DBRANTLEY	Date updat:	17-MAR-03
Edit statu:	F	Well start:	11-DEC-02
Gravel p 1:	7	Gravel p 2:	25
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043364		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

L73
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043367**

Well log:	95879	App:	Not Reported
Notice of :	26906	Waiver no:	Not Reported
Date log r:	13-APR-05	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-301-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-FEB-05	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	30	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	30	Perf inter:	1
Static wl:	18		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	13-APR-05
Update use:	Not Reported	Date updat:	17-MAR-03
Edit statu:	F	Well start:	07-FEB-05
Gravel p 1:	8	Gravel p 2:	30
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043367		

L74
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043366**

Well log:	95878	App:	Not Reported
Notice of :	26906	Waiver no:	Not Reported
Date log r:	13-APR-05	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-301-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-FEB-05	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	30	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	30	Perf inter:	1
Static wl:	18		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	13-APR-05
Update use:	Not Reported	Date updat:	17-MAR-03
Edit statu:	F	Well start:	07-FEB-05
Gravel p 1:	8	Gravel p 2:	30
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043366		

L75
South
1 - 2 Miles
Lower

NV WELLS **NV4000000043365**

Well log:	93249	App:	Not Reported
Notice of :	24842	Waiver no:	Not Reported
Date log r:	21-MAY-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA

Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER CO		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-301-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	10-MAY-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	7
Depth dril:	30	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	27
Csng diame:	4		
Csng reduc:	0	Top perf:	7
Bottom per:	27	Perf inter:	1
Static wl:	18		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	DIMICK DRILLING		
Contract 2:	5360 N BONITA VISTA ST LAS VEGAS NV 89129		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	07-JUN-04
Update use:	Not Reported	Date updat:	17-MAR-03
Edit statu:	F	Well start:	10-MAY-04
Gravel p 1:	7	Gravel p 2:	27
Utm x:	711440.615171		
Utm y:	4059283.35637		
Site id:	NV4000000043365		

76
SSW
1 - 2 Miles
Lower

NV WELLS **NV4000000043441**

Well log:	91688	App:	Not Reported
Notice of :	24917	Waiver no:	Not Reported
Date log r:	22-DEC-03	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	BC
Legal quar:	SW NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-06-301-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	08-DEC-03	Date cmplt:	D
Gravel pac:	Y	Depth seal:	5
Depth dril:	25	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	25
Csng diame:	4		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	15		
Temperatur:	93		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	13-JAN-04
Update use:	Not Reported	Date updat:	16-JUN-04
Edit statu:	F	Well start:	08-DEC-03
Gravel p 1:	5	Gravel p 2:	25
Utm x:	709295.224816		
Utm y:	4059631.60743		
Site id:	NV4000000043441		

77
WNW
1 - 2 Miles
Higher

NV WELLS **NV4000000043673**

Well log:	103650	App:	Not Reported
Notice of :	30114	Waiver no:	Not Reported
Date log r:	27-SEP-07	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	H	Drilling m:	H
Sc:	32003	Ha:	219
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	24	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	PEREZ, ALEJANDRO		
Owner addr:	1175 N ED CLARK WY		
Owner no:	Not Reported		
Parcel no:	030-24-301-012	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	03-SEP-07	Date cmplt:	D
Gravel pac:	Y	Depth seal:	50
Depth dril:	410	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	410
Csng diame:	6.5		
Csng reduc:	0	Top perf:	80
Bottom per:	410	Perf inter:	4
Static wl:	130		
Temperatur:	0		
Yield:	25		
Drawdown:	0		
Hours pump:	9		
Test metho:	A	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	28966		
Contract 1:	DAVIS DRILLING & PUMPS		
Contract 2:	HC 61 BOX 54 HIKO NV 89107		
Contract 3:	0		
Driller li:	1191	Source age:	NV003
User id:	SGARDELLA	Date entry:	10-OCT-07
Update use:	Not Reported	Date updat:	10-APR-97
Edit statu:	F	Well start:	27-AUG-07
Gravel p 1:	50	Gravel p 2:	410
Utm x:	708169.253873		
Utm y:	4064044.85487		
Site id:	NV4000000043673		

M78
SSW
1 - 2 Miles
Lower

NV WELLS **NV4000000043333**

Well log:	73953	App:	Not Reported
Notice of :	17345	Waiver no:	MO-2765
Date log r:	22-FEB-99	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-15		
Parcel no:	690-250-032	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	04-FEB-99	Date cmplt:	D
Gravel pac:	Y	Depth seal:	7
Depth dril:	24	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	24
Csng diame:	2		
Csng reduc:	0	Top perf:	9
Bottom per:	24	Perf inter:	1
Static wl:	12.87		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	08-MAR-99
Update use:	Not Reported	Date updat:	01-APR-02
Edit statu:	F	Well start:	04-FEB-99
Gravel p 1:	7	Gravel p 2:	24

Utm x:	710174.148551
Utm y:	4059252.21442
Site id:	NV4000000043333

M79
SSW
1 - 2 Miles
Lower

NV WELLS **NV4000000043332**

Well log:	70940	App:	Not Reported
Notice of :	17139	Waiver no:	Not Reported
Date log r:	01-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-10		
Parcel no:	690-250-032	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	18-MAR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	43
Depth dril:	55	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	55
Csng diame:	2		
Csng reduc:	0	Top perf:	45
Bottom per:	55	Perf inter:	1
Static wl:	21.28		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	29-APR-98
Update use:	Not Reported	Date updat:	01-APR-02
Edit statu:	F	Well start:	16-MAR-98
Gravel p 1:	43	Gravel p 2:	55
Utm x:	710174.148551		
Utm y:	4059252.21442		
Site id:	NV4000000043332		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

M80
SSW
1 - 2 Miles
Lower

NV WELLS **NV4000000043334**

Well log:	73954	App:	Not Reported
Notice of :	17345	Waiver no:	MO-2765
Date log r:	22-FEB-99	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-14		
Parcel no:	690-250-032	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	04-FEB-99	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	21	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	21
Csng diame:	2		
Csng reduc:	0	Top perf:	5
Bottom per:	20	Perf inter:	1
Static wl:	4.85		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	08-MAR-99
Update use:	dsdavis	Date updat:	22-APR-99
Edit statu:	F	Well start:	04-FEB-99
Gravel p 1:	3	Gravel p 2:	21
Utm x:	710174.148551		
Utm y:	4059252.21442		
Site id:	NV4000000043334		

M81
SSW
1 - 2 Miles
Lower

NV WELLS **NV4000000043336**

Well log:	91605	App:	Not Reported
Notice of :	24916	Waiver no:	Not Reported
Date log r:	22-DEC-03	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY MOAPA NV 89025		
Owner no:	Not Reported		
Parcel no:	042-06-701-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	08-DEC-03	Date cmplt:	D
Gravel pac:	Y	Depth seal:	5
Depth dril:	35	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	35
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	35	Perf inter:	1
Static wl:	15		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	09-JAN-04
Update use:	DBRANTLEY	Date updat:	05-MAR-04
Edit statu:	F	Well start:	08-DEC-03
Gravel p 1:	5	Gravel p 2:	35
Utm x:	710174.148551		
Utm y:	4059252.21442		
Site id:	NV4000000043336		

M82
SSW
1 - 2 Miles
Lower

NV WELLS **NV4000000043335**

Well log:	91604	App:	Not Reported
Notice of :	24916	Waiver no:	Not Reported
Date log r:	22-DEC-03	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DB

Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY MOAPA NV 89025		
Owner no:	Not Reported		
Parcel no:	042-06-701-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	08-DEC-03	Date cmplt:	D
Gravel pac:	Y	Depth seal:	5
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	4		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	18		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	09-JAN-04
Update use:	DBRANTLEY	Date updat:	05-MAR-04
Edit statu:	F	Well start:	08-DEC-03
Gravel p 1:	5	Gravel p 2:	25
Utm x:	710174.148551		
Utm y:	4059252.21442		
Site id:	NV4000000043335		

N83
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043398**

Well log:	45647	App:	Not Reported
Notice of :	13119	Waiver no:	MO-2455
Date log r:	02-AUG-94	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	DS-24		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	21-JUL-94	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	0	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	15-NOV-94
Update use:	dsdavis	Date updat:	10-FEB-98
Edit statu:	F	Well start:	21-JUL-94
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043398		

N84
SSE **NV WELLS** **NV4000000043397**
2 - 3 Miles
Lower

Well log:	45646	App:	Not Reported
Notice of :	13119	Waiver no:	MO-2455
Date log r:	02-AUG-94	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	XW-01		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	21-JUL-94	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	0	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	1869		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	15-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	21-JUL-94
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043397		

N85
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043396**

Well log:	45645	App:	Not Reported
Notice of :	13119	Waiver no:	MO-2455
Date log r:	02-AUG-94	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	XW-02		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	21-JUL-94	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	0	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	15-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	21-JUL-94
Gravel p 1:	0	Gravel p 2:	0

Utm x:	711862.771541
Utm y:	4059293.77865
Site id:	NV4000000043396

N86
SSE **NV WELLS** **NV4000000043399**
2 - 3 Miles
Lower

Well log:	45690	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-06		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	13-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2.375		
Csng reduc:	0	Top perf:	10
Bottom per:	25	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	17-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	13-JUN-94
Gravel p 1:	8	Gravel p 2:	25
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043399		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

N87
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043402**

Well log:	45694	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-09		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	7
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	24
Csng diame:	2.37		
Csng reduc:	0	Top perf:	9
Bottom per:	24	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	1869		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	17-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	14-JUN-94
Gravel p 1:	7	Gravel p 2:	24
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043402		

N88
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043401**

Well log:	45693	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-08		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	24
Csng diame:	2.375		
Csng reduc:	0	Top perf:	9
Bottom per:	24	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	17-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	14-JUN-94
Gravel p 1:	7	Gravel p 2:	24
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043401		

N89
SSE **NV WELLS** **NV4000000043400**
2 - 3 Miles
Lower

Well log:	45692	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB

Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-07		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	13-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	7
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	24
Csng diame:	2.37		
Csng reduc:	0	Top perf:	9
Bottom per:	24	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	17-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	13-JUN-94
Gravel p 1:	7	Gravel p 2:	24
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043400		

N90
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043391**

Well log:	45595	App:	Not Reported
Notice of :	13119	Waiver no:	MO-2455
Date log r:	02-AUG-94	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	IMW-17S		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	21-JUL-94	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	0	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	14-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	21-JUL-94
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043391		

N91
SSE **NV WELLS** **NV4000000043390**
2 - 3 Miles
Lower

Well log:	41490	App:	Not Reported
Notice of :	10164	Waiver no:	Not Reported
Date log r:	06-MAY-93	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	R
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER STATION MOAPA		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-APR-93	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	10	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	F

Qual lith :	F		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	CGALEJAN	Date entry:	12-MAY-08
Update use:	dsdavis	Date updat:	31-DEC-96
Edit statu:	F	Well start:	14-APR-93
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043390		

N92
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043389**

Well log:	41489	App:	Not Reported
Notice of :	10163	Waiver no:	Not Reported
Date log r:	06-MAY-93	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	R
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER STATION MOAPA		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-APR-93	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	10	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	F
Qual lith :	F		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	CGALEJAN	Date entry:	12-MAY-08
Update use:	dsdavis	Date updat:	31-DEC-96
Edit statu:	F	Well start:	14-APR-93
Gravel p 1:	0	Gravel p 2:	0

Utm x:	711862.771541
Utm y:	4059293.77865
Site id:	NV4000000043389

N93
SSE **NV WELLS** **NV4000000043392**
2 - 3 Miles
Lower

Well log:	45597	App:	Not Reported
Notice of :	13120	Waiver no:	MO-2455
Date log r:	10-AUG-94	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-18		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	26-JUL-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	4
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2.375		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	14-NOV-94
Update use:	dsdavis	Date updat:	10-FEB-98
Edit statu:	F	Well start:	26-JUL-94
Gravel p 1:	4	Gravel p 2:	25
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043392		

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
N94 **SSE** **2 - 3 Miles** **Lower**	**NV WELLS**	**NV4000000043395**

Well log:	45644	App:	Not Reported
Notice of :	13119	Waiver no:	MO-2455
Date log r:	02-AUG-94	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	XW-03		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	21-JUL-94	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	0	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	15-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	21-JUL-94
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043395		

	Database	EDR ID Number
N95 **SSE** **2 - 3 Miles** **Lower**	**NV WELLS**	**NV4000000043394**

Well log:	45612	App:	Not Reported
Notice of :	13120	Waiver no:	MO-2455
Date log r:	10-AUG-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	H
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	AFMW-02		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	27-JUL-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	118
Depth dril:	180	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	180
Csng diame:	2.375		
Csng reduc:	0	Top perf:	130
Bottom per:	180	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	DON WILSON		
Contract 2:	4670 S POLARIS AVE LV NV 89103		
Contract 3:	1869		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	14-NOV-94
Update use:	dsdavis	Date updat:	10-FEB-98
Edit statu:	F	Well start:	26-JUL-94
Gravel p 1:	118	Gravel p 2:	180
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043394		

N96
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043393**

Well log:	45611	App:	Not Reported
Notice of :	13120	Waiver no:	MO-2455
Date log r:	26-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB

Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-17		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	26-JUL-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	4
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2.375		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	1869		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	14-NOV-94
Update use:	dsdavis	Date updat:	10-FEB-98
Edit statu:	F	Well start:	26-JUL-94
Gravel p 1:	4	Gravel p 2:	25
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043393		

N97
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043403**

Well log:	45707	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-10		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	12
Depth dril:	35	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	35
Csng diame:	2.375		
Csng reduc:	0	Top perf:	15
Bottom per:	35	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	18-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	14-JUN-94
Gravel p 1:	12	Gravel p 2:	35
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043403		

N98
SSE **NV WELLS** **NV4000000043413**
2 - 3 Miles
Lower

Well log:	45718	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-15		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	30-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2.37		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	18-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	30-JUN-94
Gravel p 1:	3	Gravel p 2:	25
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043413		

N99
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043412**

Well log:	45717	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-16		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	30-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2.38		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	18-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	30-JUN-94
Gravel p 1:	3	Gravel p 2:	25

Utm x:	711862.771541
Utm y:	4059293.77865
Site id:	NV4000000043412

N100
SSE **NV WELLS** **NV4000000043411**
2 - 3 Miles
Lower

Well log:	45716	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	SW-01		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	09-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	29
Depth dril:	34	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	34
Csng diame:	2.37		
Csng reduc:	0	Top perf:	31
Bottom per:	34	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	18-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	09-JUN-94
Gravel p 1:	29	Gravel p 2:	34
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043411		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

N101
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043414**

Well log:	45719	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-14		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	30-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2.375		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	18-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	30-JUN-94
Gravel p 1:	3	Gravel p 2:	25
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043414		

N102
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043417**

Well log:	66350	App:	Not Reported
Notice of :	17546	Waiver no:	MO-2309
Date log r:	25-JUN-96	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	MW-01		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	22-APR-96	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	0	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	P
Qual lith :	N		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	KCOON	Date entry:	02-JUL-97
Update use:	dsdavis	Date updat:	20-APR-98
Edit statu:	F	Well start:	22-APR-96
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043417		

N103
SSE **NV WELLS** **NV4000000043416**
2 - 3 Miles
Lower

Well log:	46116	App:	Not Reported
Notice of :	13119	Waiver no:	MO-2455
Date log r:	02-AUG-94	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB

Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-07		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	21-JUL-94	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	0	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	Not Reported		
Contract 2:	4670 S POLARIS AVE LV NV 89103		
Contract 3:	1869		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	02-DEC-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	21-JUL-94
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043416		

N104
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043415**

Well log:	45720	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-13		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	29-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	25	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2.37		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	18-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	29-JUN-94
Gravel p 1:	3	Gravel p 2:	25
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043415		

N105
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043406**

Well log:	45710	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-01		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2.37		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	18-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	07-JUN-94
Gravel p 1:	3	Gravel p 2:	25
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043406		

N106
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043405**

Well log:	45709	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-11		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	7
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	24
Csng diame:	2.37		
Csng reduc:	0	Top perf:	9
Bottom per:	24	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	18-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	14-JUN-94
Gravel p 1:	7	Gravel p 2:	24

Utm x:	711862.771541
Utm y:	4059293.77865
Site id:	NV4000000043405

N107
SSE **NV WELLS** **NV4000000043404**
2 - 3 Miles
Lower

Well log:	45708	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-12		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	29-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2.37		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	18-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	29-JUN-94
Gravel p 1:	3	Gravel p 2:	25
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043404		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

N108
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043407**

Well log:	45712	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-02		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2.37		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	18-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	07-JUN-94
Gravel p 1:	3	Gravel p 2:	25
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043407		

N109
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043410**

Well log:	45715	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-05		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2.37		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	18-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	07-JUN-94
Gravel p 1:	3	Gravel p 2:	25
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043410		

N110
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043409**

Well log:	45714	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB

Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-04		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-JUN-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2.37		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	18-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	07-JUN-94
Gravel p 1:	3	Gravel p 2:	25
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043409		

N111
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043408**

Well log:	45713	App:	Not Reported
Notice of :	13108	Waiver no:	MO-2455
Date log r:	15-JUL-94	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	B-03		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-JUL-94	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	25	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2.37		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	THOMAS HIGH		
Contract 2:	4670 S POLARIS AVE LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	18-NOV-94
Update use:	dsdavis	Date updat:	28-JAN-98
Edit statu:	F	Well start:	07-JUL-94
Gravel p 1:	3	Gravel p 2:	25
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043408		

N112
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043379**

Well log:	41479	App:	Not Reported
Notice of :	10146	Waiver no:	MO-2264
Date log r:	06-MAY-93	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER STATION MOAPA		
Owner no:	MW-04		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	16-APR-93	Date cmplt:	D
Gravel pac:	Y	Depth seal:	15
Depth dril:	30	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4		
Csng reduc:	0	Top perf:	20
Bottom per:	30	Perf inter:	1
Static wl:	25		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	F

Qual lith :	F		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	CGALEJAN	Date entry:	12-MAY-08
Update use:	dsdavis	Date updat:	10-FEB-98
Edit statu:	F	Well start:	16-APR-93
Gravel p 1:	15	Gravel p 2:	30
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043379		

N113
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043380**

Well log:	41480	App:	Not Reported
Notice of :	10147	Waiver no:	MO-2264
Date log r:	06-MAY-93	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER STATION MOAPA		
Owner no:	MW-05		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	18-APR-93	Date cmplt:	D
Gravel pac:	Y	Depth seal:	16
Depth dril:	30	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4		
Csng reduc:	0	Top perf:	20
Bottom per:	30	Perf inter:	1
Static wl:	20		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	F
Qual lith :	F		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	CGALEJAN	Date entry:	12-MAY-08
Update use:	dsdavis	Date updat:	10-FEB-98
Edit statu:	F	Well start:	18-APR-93
Gravel p 1:	16	Gravel p 2:	30

Utm x:	711862.771541
Utm y:	4059293.77865
Site id:	NV4000000043380

N114
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043381**

Well log:	41481	App:	Not Reported
Notice of :	10148	Waiver no:	MO-2264
Date log r:	06-MAY-93	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER STATION MOAPA		
Owner no:	MW-06		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	15-APR-93	Date cmplt:	D
Gravel pac:	Y	Depth seal:	16
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	4		
Csng reduc:	0	Top perf:	20
Bottom per:	25	Perf inter:	1
Static wl:	12		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	F
Qual lith :	F		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	CGALEJAN	Date entry:	12-MAY-08
Update use:	dsdavis	Date updat:	10-FEB-98
Edit statu:	F	Well start:	15-APR-93
Gravel p 1:	16	Gravel p 2:	25
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043381		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

N115
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043376**

Well log:	40857	App:	Not Reported
Notice of :	23723	Waiver no:	MO-2259
Date log r:	02-APR-93	Date log 1:	D
Site type:	N	Work type:	S
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	MOAPA NV		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	19-MAR-93	Date cmplt:	D
Gravel pac:	Y	Depth seal:	7
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	25	Perf inter:	1
Static wl:	16		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	KLOHAIR	Date entry:	12-MAY-08
Update use:	DBRANTLEY	Date updat:	01-SEP-00
Edit statu:	F	Well start:	29-APR-08
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043376		

N116
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043377**

Well log:	40858	App:	Not Reported
Notice of :	23724	Waiver no:	MO-2259
Date log r:	02-APR-93	Date log 1:	D
Site type:	N	Work type:	S
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	MOAPA NV		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	19-MAR-93	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	20	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	20
Csng diame:	4		
Csng reduc:	0	Top perf:	5
Bottom per:	20	Perf inter:	1
Static wl:	8		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	KLOHAIR	Date entry:	12-MAY-08
Update use:	DBRANTLEY	Date updat:	01-SEP-00
Edit statu:	F	Well start:	29-APR-08
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043377		

N117
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043378**

Well log:	40859	App:	Not Reported
Notice of :	23725	Waiver no:	MO-2259
Date log r:	02-APR-93	Date log 1:	D
Site type:	N	Work type:	S
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	184
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB

Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	MOAPA NV		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	20-MAR-93	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	78	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	65
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	65	Perf inter:	1
Static wl:	45		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	KLOHAIR	Date entry:	12-MAY-08
Update use:	DBRANTLEY	Date updat:	01-SEP-00
Edit statu:	F	Well start:	29-APR-08
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043378		

N118
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043382**

Well log:	41482	App:	Not Reported
Notice of :	10149	Waiver no:	MO-2264
Date log r:	06-MAY-93	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER STATION MOAPA		
Owner no:	MW-08		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	15-APR-93	Date cmplt:	D
Gravel pac:	Y	Depth seal:	16
Depth dril:	30	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4		
Csng reduc:	0	Top perf:	20
Bottom per:	30	Perf inter:	1
Static wl:	18		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	F
Qual lith :	F		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	CGALEJAN	Date entry:	12-MAY-08
Update use:	dsdavis	Date updat:	10-FEB-98
Edit statu:	F	Well start:	15-APR-93
Gravel p 1:	16	Gravel p 2:	30
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043382		

N119
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043386**

Well log:	41486	App:	Not Reported
Notice of :	10168	Waiver no:	Not Reported
Date log r:	06-MAY-93	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	R
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER STATION MOAPA		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-APR-93	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	10	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	F

Qual lith :	F		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	CGALEJAN	Date entry:	12-MAY-08
Update use:	dsdavis	Date updat:	31-DEC-96
Edit statu:	F	Well start:	14-APR-93
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043386		

N120
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043387**

Well log:	41487	App:	Not Reported
Notice of :	10166	Waiver no:	Not Reported
Date log r:	06-MAY-93	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	R
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER STATION MOAPA		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-APR-93	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	10	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	F
Qual lith :	F		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	CGALEJAN	Date entry:	12-MAY-08
Update use:	dsdavis	Date updat:	31-DEC-96
Edit statu:	F	Well start:	14-APR-93
Gravel p 1:	0	Gravel p 2:	0

Utm x:	711862.771541
Utm y:	4059293.77865
Site id:	NV4000000043387

N121
SSE **NV WELLS** **NV4000000043388**
2 - 3 Miles
Lower

Well log:	41488	App:	Not Reported
Notice of :	10165	Waiver no:	Not Reported
Date log r:	06-MAY-93	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	R
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER STATION MOAPA		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-APR-93	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	10	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	F
Qual lith :	F		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	CGALEJAN	Date entry:	12-MAY-08
Update use:	dsdavis	Date updat:	31-DEC-96
Edit statu:	F	Well start:	14-APR-93
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043388		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

N122
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043383**

Well log:	41483	App:	Not Reported
Notice of :	10150	Waiver no:	MO-2264
Date log r:	06-MAY-93	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER STATION MOAPA		
Owner no:	MW-09		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	15-APR-93	Date cmplt:	D
Gravel pac:	Y	Depth seal:	16
Depth dril:	35	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	35
Csng diame:	4		
Csng reduc:	0	Top perf:	25
Bottom per:	35	Perf inter:	1
Static wl:	15		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	F
Qual lith :	F		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	CGALEJAN	Date entry:	12-MAY-08
Update use:	dsdavis	Date updat:	10-FEB-98
Edit statu:	F	Well start:	15-APR-93
Gravel p 1:	16	Gravel p 2:	35
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043383		

N123
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043384**

Well log:	41484	App:	Not Reported
Notice of :	10151	Waiver no:	MO-2264
Date log r:	06-MAY-93	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB
Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER STATION MOAPA		
Owner no:	MW-10		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-APR-93	Date cmplt:	D
Gravel pac:	Y	Depth seal:	16
Depth dril:	30	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	30
Csng diame:	4		
Csng reduc:	0	Top perf:	20
Bottom per:	30	Perf inter:	1
Static wl:	12		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	F
Qual lith :	F		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	CGALEJAN	Date entry:	12-MAY-08
Update use:	dsdavis	Date updat:	10-FEB-98
Edit statu:	F	Well start:	14-APR-93
Gravel p 1:	16	Gravel p 2:	30
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043384		

N124
SSE
2 - 3 Miles
Lower

NV WELLS **NV4000000043385**

Well log:	41485	App:	Not Reported
Notice of :	10167	Waiver no:	Not Reported
Date log r:	06-MAY-93	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	G	Drilling m:	R
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	DB

Legal quar:	NW SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER STATION MOAPA		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	14-APR-93	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	10	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	0
Csng diame:	0		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	0
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	F
Qual lith :	F		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	RICHARD LEBLANC		
Contract 2:	4670 S POLARIS AVE LV NV		
Contract 3:	0		
Driller li:	1817	Source age:	NV003
User id:	CGALEJAN	Date entry:	12-MAY-08
Update use:	dsdavis	Date updat:	31-DEC-96
Edit statu:	F	Well start:	14-APR-93
Gravel p 1:	0	Gravel p 2:	0
Utm x:	711862.771541		
Utm y:	4059293.77865		
Site id:	NV4000000043385		

125
South
2 - 3 Miles
Lower

FED USGS **USGS40000753885**

Org. Identifier:	USGS-NV		
Formal name:	USGS Nevada Water Science Center		
Monloc Identifier:	USGS-364051114384501		
Monloc name:	218 S15 E66 06 1		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	15010012	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	36.6563603
Longitude:	-114.646658	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	minutes
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1580.00
Vert measure units:	feet	Vertacc measure val:	1
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	19500101	Welldepth:	100
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1950-01-01	1.00	

O126
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043322**

Well log:	94073	App:	Not Reported
Notice of :	26638	Waiver no:	DW-1182
Date log r:	22-SEP-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	D	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	C
Legal quar:	SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	COMMONSITE INC		
Owner addr:	501 WALLY KAY WY		
Owner no:	03		
Parcel no:	042-05-401-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	10-SEP-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	29	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	29
Csng diame:	14		
Csng reduc:	0	Top perf:	10
Bottom per:	29	Perf inter:	1
Static wl:	4		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	18917		
Contract 1:	ALLEN DRILLING INC		
Contract 2:	4847 S VALLEY VIEW LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	2161	Source age:	NV003
User id:	DBRANTLEY	Date entry:	25-OCT-04
Update use:	Not Reported	Date updat:	16-FEB-01
Edit statu:	F	Well start:	09-SEP-04
Gravel p 1:	0	Gravel p 2:	29

Utm x:	711246.509881
Utm y:	4059093.53981
Site id:	NV4000000043322

O127
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043323**

Well log:	94403	App:	Not Reported
Notice of :	26657	Waiver no:	Not Reported
Date log r:	15-NOV-04	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	D	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	C
Legal quar:	SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	COMMONSITE INC		
Owner addr:	501 WALLY KAY WY		
Owner no:	01		
Parcel no:	042-05-401-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	04-NOV-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	29	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	29
Csng diame:	14		
Csng reduc:	0	Top perf:	10
Bottom per:	29	Perf inter:	1
Static wl:	4		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	18917		
Contract 1:	ALLEN DRILLING INC		
Contract 2:	4847 S VALLEY VIEW LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1301	Source age:	NV003
User id:	DBRANTLEY	Date entry:	16-NOV-04
Update use:	DBRANTLEY	Date updat:	05-JAN-05
Edit statu:	F	Well start:	04-NOV-04
Gravel p 1:	0	Gravel p 2:	29
Utm x:	711246.509881		
Utm y:	4059093.53981		
Site id:	NV4000000043323		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

O128
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043320**

Well log:	94071	App:	Not Reported
Notice of :	26638	Waiver no:	DW-1182
Date log r:	22-SEP-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	D	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	C
Legal quar:	SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	COMMONSITE INC		
Owner addr:	501 WALLY KAY WY		
Owner no:	01		
Parcel no:	042-05-401-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	10-SEP-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	29	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	29
Csng diame:	14		
Csng reduc:	0	Top perf:	10
Bottom per:	29	Perf inter:	1
Static wl:	4		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	18917		
Contract 1:	ALLEN DRILLING INC		
Contract 2:	4847 S VALLEY VIEW LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	2161	Source age:	NV003
User id:	DBRANTLEY	Date entry:	25-OCT-04
Update use:	Not Reported	Date updat:	16-FEB-01
Edit statu:	F	Well start:	09-SEP-04
Gravel p 1:	0	Gravel p 2:	29
Utm x:	711246.509881		
Utm y:	4059093.53981		
Site id:	NV4000000043320		

O129
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043321**

Well log:	94072	App:	Not Reported
Notice of :	26638	Waiver no:	DW-1182
Date log r:	22-SEP-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	D	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	C
Legal quar:	SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	COMMONSITE INC		
Owner addr:	501 WALLY KAY WY		
Owner no:	02		
Parcel no:	042-05-401-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	10-SEP-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	29	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	29
Csng diame:	14		
Csng reduc:	0	Top perf:	10
Bottom per:	29	Perf inter:	1
Static wl:	4		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	18917		
Contract 1:	ALLEN DRILLING INC		
Contract 2:	4847 S VALLEY VIEW LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	2161	Source age:	NV003
User id:	DBRANTLEY	Date entry:	25-OCT-04
Update use:	Not Reported	Date updat:	16-FEB-01
Edit statu:	F	Well start:	09-SEP-04
Gravel p 1:	0	Gravel p 2:	29
Utm x:	711246.509881		
Utm y:	4059093.53981		
Site id:	NV4000000043321		

O130
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043326**

Well log:	94406	App:	Not Reported
Notice of :	26657	Waiver no:	Not Reported
Date log r:	15-NOV-04	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	D	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	C

Legal quar:	SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	COMMONSITE INC		
Owner addr:	501 WALLY KAY WY		
Owner no:	04		
Parcel no:	042-05-401-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	04-NOV-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	29	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	29
Csng diame:	14		
Csng reduc:	0	Top perf:	10
Bottom per:	29	Perf inter:	1
Static wl:	4		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	18917		
Contract 1:	ALLEN DRILLING INC		
Contract 2:	4847 S VALLEY VIEW LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1301	Source age:	NV003
User id:	DBRANTLEY	Date entry:	16-NOV-04
Update use:	DBRANTLEY	Date updat:	05-JAN-05
Edit statu:	F	Well start:	04-NOV-04
Gravel p 1:	0	Gravel p 2:	29
Utm x:	711246.509881		
Utm y:	4059093.53981		
Site id:	NV4000000043326		

O131
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043327**

Well log:	94604	App:	Not Reported
Notice of :	26638	Waiver no:	DW-1182
Date log r:	22-SEP-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	D	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	C
Legal quar:	SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	COMMONSITE INC		
Owner addr:	501 WALLY KAY WY		
Owner no:	04		
Parcel no:	042-05-401-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	10-SEP-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	29	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	29
Csng diame:	14		
Csng reduc:	0	Top perf:	10
Bottom per:	29	Perf inter:	1
Static wl:	4		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	18917		
Contract 1:	ALLEN DRILLING INC		
Contract 2:	4847 S VALLEY VIEW LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	2161	Source age:	NV003
User id:	SGARDELLA	Date entry:	21-DEC-04
Update use:	Not Reported	Date updat:	05-JAN-05
Edit statu:	F	Well start:	09-SEP-04
Gravel p 1:	0	Gravel p 2:	29
Utm x:	711246.509881		
Utm y:	4059093.53981		
Site id:	NV4000000043327		

O132
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043324**

Well log:	94404	App:	Not Reported
Notice of :	26657	Waiver no:	Not Reported
Date log r:	15-NOV-04	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	D	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	C
Legal quar:	SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	COMMONSITE INC		
Owner addr:	501 WALLY KAY WY		
Owner no:	02		
Parcel no:	042-05-401-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	04-NOV-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	29	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	29
Csng diame:	14		
Csng reduc:	0	Top perf:	10
Bottom per:	29	Perf inter:	1
Static wl:	4		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	18917		
Contract 1:	ALLEN DRILLING INC		
Contract 2:	4847 S VALLEY VIEW LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1301	Source age:	NV003
User id:	DBRANTLEY	Date entry:	16-NOV-04
Update use:	DBRANTLEY	Date updat:	05-JAN-05
Edit statu:	F	Well start:	04-NOV-04
Gravel p 1:	0	Gravel p 2:	29
Utm x:	711246.509881		
Utm y:	4059093.53981		
Site id:	NV4000000043324		

O133
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043325**

Well log:	94405	App:	Not Reported
Notice of :	26657	Waiver no:	Not Reported
Date log r:	15-NOV-04	Date log 1:	D
Site type:	E	Work type:	P
Work type :	Not Reported		
Proposed u:	D	Drilling m:	U
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	C
Legal quar:	SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	COMMONSITE INC		
Owner addr:	501 WALLY KAY WY		
Owner no:	03		
Parcel no:	042-05-401-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	04-NOV-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	29	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	29
Csng diame:	14		
Csng reduc:	0	Top perf:	10
Bottom per:	29	Perf inter:	1
Static wl:	4		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	18917		
Contract 1:	ALLEN DRILLING INC		
Contract 2:	4847 S VALLEY VIEW LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	1301	Source age:	NV003
User id:	DBRANTLEY	Date entry:	16-NOV-04
Update use:	DBRANTLEY	Date updat:	05-JAN-05
Edit statu:	F	Well start:	04-NOV-04
Gravel p 1:	0	Gravel p 2:	29

Utm x:	711246.509881
Utm y:	4059093.53981
Site id:	NV4000000043325

134
WNW
2 - 3 Miles
Lower

NV WELLS **NV4000000043651**

Well log:	102957	App:	Not Reported
Notice of :	30609	Waiver no:	Not Reported
Date log r:	07-MAY-07	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	H	Drilling m:	A
Sc:	32003	Ha:	219
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	24	Sec quarte:	CC
Legal quar:	SW SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	ROBINSON, SAMUEL		
Owner addr:	MCKNIGHT AVE & VORIS ST		
Owner no:	Not Reported		
Parcel no:	030-24-401-006	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-APR-07	Date cmplt:	D
Gravel pac:	N	Depth seal:	50
Depth dril:	220	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	220
Csng diame:	6.5		
Csng reduc:	0	Top perf:	180
Bottom per:	220	Perf inter:	1
Static wl:	150		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	10062		
Contract 1:	DIMICK DRILLING		
Contract 2:	5360 N BONITA VISTA ST LAS VEGAS NV 89129		
Contract 3:	0		
Driller li:	552	Source age:	NV003
User id:	SGARDELLA	Date entry:	21-JUN-07
Update use:	SGARDELLA	Date updat:	14-JAN-08
Edit statu:	F	Well start:	23-MAR-07
Gravel p 1:	0	Gravel p 2:	0
Utm x:	707757.063607		
Utm y:	4063633.94677		
Site id:	NV4000000043651		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

135
ENE
2 - 3 Miles
Lower

FED USGS **USGS40000753929**

Org. Identifier:	USGS-NV		
Formal name:	USGS Nevada Water Science Center		
Monloc Identifier:	USGS-364151114362001		
Monloc name:	205 S14 E66 21DD 1		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	15010013	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	36.6974717
Longitude:	-114.6063779	Sourcemap scale:	24000
Horiz Acc measure:	10	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1600.
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	79
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1990-04-06	44.0	

Note: A nearby site that taps the same aquifer was being pumped.

P136
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043304**

Well log:	94809	App:	Not Reported
Notice of :	26899	Waiver no:	Not Reported
Date log r:	15-DEC-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CC
Legal quar:	SW SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-401-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	30-NOV-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	60
Depth dril:	75	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	75
Csng diame:	2		
Csng reduc:	0	Top perf:	65
Bottom per:	75	Perf inter:	1
Static wl:	18		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #140 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-JAN-05
Update use:	Not Reported	Date updat:	05-AUG-05
Edit statu:	F	Well start:	30-NOV-04
Gravel p 1:	60	Gravel p 2:	75
Utm x:	711028.320702		
Utm y:	4058872.29699		
Site id:	NV4000000043304		

P137
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043305**

Well log:	94810	App:	Not Reported
Notice of :	26899	Waiver no:	Not Reported
Date log r:	15-DEC-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CC
Legal quar:	SW SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-401-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	16-NOV-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	35	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	35
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	35	Perf inter:	1
Static wl:	18		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #140 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-JAN-05
Update use:	Not Reported	Date updat:	05-AUG-05
Edit statu:	F	Well start:	16-NOV-04
Gravel p 1:	8	Gravel p 2:	35
Utm x:	711028.320702		
Utm y:	4058872.29699		
Site id:	NV4000000043305		

Q138
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043300**

Well log:	91603	App:	Not Reported
Notice of :	24915	Waiver no:	Not Reported
Date log r:	22-DEC-03	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DD
Legal quar:	SE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY MOAPA NV 89025		
Owner no:	Not Reported		
Parcel no:	042-05-401-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	09-DEC-03	Date cmplt:	D
Gravel pac:	Y	Depth seal:	5
Depth dril:	35	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	35
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	35	Perf inter:	1
Static wl:	15		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	09-JAN-04
Update use:	Not Reported	Date updat:	05-AUG-05
Edit statu:	F	Well start:	09-DEC-03
Gravel p 1:	5	Gravel p 2:	35

Utm x:	710606.145405
Utm y:	4058861.91674
Site id:	NV4000000043300

Q139
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043299**

Well log:	70941	App:	Not Reported
Notice of :	17140	Waiver no:	Not Reported
Date log r:	01-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DD
Legal quar:	SE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-07		
Parcel no:	690-250-013	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	17-MAR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	48
Depth dril:	60	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	60
Csng diame:	2		
Csng reduc:	0	Top perf:	50
Bottom per:	60	Perf inter:	1
Static wl:	9.94		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	29-APR-98
Update use:	Not Reported	Date updat:	05-AUG-05
Edit statu:	F	Well start:	13-MAR-98
Gravel p 1:	48	Gravel p 2:	60
Utm x:	710606.145405		
Utm y:	4058861.91674		
Site id:	NV4000000043299		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

Q140
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043298**

Well log:	1152	App:	12803
Notice of :	0	Waiver no:	Not Reported
Date log r:	30-DEC-49	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	I	Drilling m:	C
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DD
Legal quar:	SE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	SEARLES, KENNETH		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	03-SEP-49	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	292	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	188
Csng diame:	0		
Csng reduc:	0	Top perf:	94
Bottom per:	186	Perf inter:	1
Static wl:	12		
Temperatur:	0		
Yield:	125		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	MARTIN & SONS		
Contract 2:	BOX 1889 LAS VEGAS NV		
Contract 3:	0		
Driller li:	79	Source age:	NV003
User id:	KCOON	Date entry:	02-MAY-97
Update use:	Not Reported	Date updat:	05-AUG-05
Edit statu:	F	Well start:	09-JUL-49
Gravel p 1:	0	Gravel p 2:	0
Utm x:	710606.145405		
Utm y:	4058861.91674		
Site id:	NV4000000043298		

Q141
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043303**

Well log:	94813	App:	Not Reported
Notice of :	26900	Waiver no:	Not Reported
Date log r:	15-DEC-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DD
Legal quar:	SE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-06-801-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	18-NOV-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	35	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	35
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	35	Perf inter:	1
Static wl:	18		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #140 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-JAN-05
Update use:	Not Reported	Date updat:	05-AUG-05
Edit statu:	F	Well start:	18-NOV-04
Gravel p 1:	8	Gravel p 2:	35
Utm x:	710606.145405		
Utm y:	4058861.91674		
Site id:	NV4000000043303		

Q142
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043302**

Well log:	94812	App:	Not Reported
Notice of :	26900	Waiver no:	Not Reported
Date log r:	15-DEC-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DD

Legal quar:	SE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-06-801-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	17-NOV-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	35	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	35
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	35	Perf inter:	1
Static wl:	18		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #140 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-JAN-05
Update use:	Not Reported	Date updat:	05-AUG-05
Edit statu:	F	Well start:	17-NOV-04
Gravel p 1:	8	Gravel p 2:	35
Utm x:	710606.145405		
Utm y:	4058861.91674		
Site id:	NV4000000043302		

Q143
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043301**

Well log:	94811	App:	Not Reported
Notice of :	26900	Waiver no:	Not Reported
Date log r:	15-DEC-04	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	DD
Legal quar:	SE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-06-801-001	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	17-NOV-04	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	35	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	35
Csng diame:	4		
Csng reduc:	0	Top perf:	10
Bottom per:	35	Perf inter:	1
Static wl:	18		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #140 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-JAN-05
Update use:	Not Reported	Date updat:	05-AUG-05
Edit statu:	F	Well start:	17-NOV-04
Gravel p 1:	8	Gravel p 2:	35
Utm x:	710606.145405		
Utm y:	4058861.91674		
Site id:	NV4000000043301		

R144
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043307**

Well log:	71025	App:	Not Reported
Notice of :	17136	Waiver no:	Not Reported
Date log r:	27-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CD
Legal quar:	SE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-03D		
Parcel no:	690-250-025	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	09-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	58
Depth dril:	70	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	70
Csng diame:	2		
Csng reduc:	0	Top perf:	60
Bottom per:	70	Perf inter:	1
Static wl:	1.81		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-MAY-98
Update use:	dsdavis	Date updat:	21-MAY-98
Edit statu:	F	Well start:	25-MAR-98
Gravel p 1:	58	Gravel p 2:	70
Utm x:	711450.496414		
Utm y:	4058882.69807		
Site id:	NV4000000043307		

R145
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043306**

Well log:	71024	App:	Not Reported
Notice of :	17136	Waiver no:	Not Reported
Date log r:	27-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CD
Legal quar:	SE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-03M		
Parcel no:	690-250-025	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	09-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	38
Depth dril:	50	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	50
Csng diame:	2		
Csng reduc:	0	Top perf:	40
Bottom per:	50	Perf inter:	1
Static wl:	1.7		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-MAY-98
Update use:	Not Reported	Date updat:	05-AUG-05
Edit statu:	F	Well start:	30-MAR-98
Gravel p 1:	38	Gravel p 2:	50

Utm x:	711450.496414
Utm y:	4058882.69807
Site id:	NV4000000043306

R146
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043309**

Well log:	97280	App:	Not Reported
Notice of :	26916	Waiver no:	Not Reported
Date log r:	03-AUG-05	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	A
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CA
Legal quar:	NE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	501 WALLY KAY WY		
Owner no:	Not Reported		
Parcel no:	042-05-301-005	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	11-JUL-05	Date cmplt:	D
Gravel pac:	Y	Depth seal:	10
Depth dril:	27	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	27
Csng diame:	4		
Csng reduc:	0	Top perf:	12
Bottom per:	27	Perf inter:	1
Static wl:	17		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	54931		
Contract 1:	ELITE DRILLING INC		
Contract 2:	5115 S INDUSTRIAL RD #104 LAS VEGAS NV 89118		
Contract 3:	0		
Driller li:	1869	Source age:	NV003
User id:	DBRANTLEY	Date entry:	05-AUG-05
Update use:	DBRANTLEY	Date updat:	28-SEP-05
Edit statu:	F	Well start:	11-JUL-05
Gravel p 1:	10	Gravel p 2:	27
Utm x:	711450.496414		
Utm y:	4058882.69807		
Site id:	NV4000000043309		

Map ID Direction Distance Elevation		Database	EDR ID Number
R147 **South** **2 - 3 Miles** **Lower**		**NV WELLS**	**NV4000000043308**

Well log:	71026	App:	Not Reported
Notice of :	17136	Waiver no:	Not Reported
Date log r:	27-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	05	Sec quarte:	CD
Legal quar:	SE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-03S		
Parcel no:	690-250-025	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	09-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	5.76		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-MAY-98
Update use:	Not Reported	Date updat:	21-MAY-98
Edit statu:	F	Well start:	30-MAR-98
Gravel p 1:	3	Gravel p 2:	25
Utm x:	711450.496414		
Utm y:	4058882.69807		
Site id:	NV4000000043308		

148 **WNW** **2 - 3 Miles** **Lower**		**FED USGS**	**USGS40000753928**

Org. Identifier:	USGS-NV		
Formal name:	USGS Nevada Water Science Center		
Monloc Identifier:	USGS-364146114403901		
Monloc name:	218 S14 E65 26AAAB1		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	15010012	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	36.696082
Longitude:	-114.6783262	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1700.
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	70
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 2

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1990-03-29					
Note: The well was destroyed (no water level is recorded).					
1985-03-15	7.01				

S149
ENE
2 - 3 Miles
Lower

NV WELLS **NV4000000043632**

Well log:	13273	App:	27264
Notice of :	0	Waiver no:	Not Reported
Date log r:	22-JAN-73	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	I	Drilling m:	H
Sc:	32003	Ha:	205
Twn:	S14	Legal twn:	14S
Rng:	E66	Legal rng:	66E
Sec:	27	Sec quarte:	BB
Legal quar:	NW NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	COLE, JOE		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	13-JAN-73	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	215	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	215
Csng diame:	8.625		
Csng reduc:	0	Top perf:	60
Bottom per:	215	Perf inter:	1
Static wl:	61		
Temperatur:	0		
Yield:	200		
Drawdown:	50		
Hours pump:	8		
Test metho:	B	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	10791		
Contract 1:	CHAPARRAL DRLG		
Contract 2:	4161 CANAL LAS VEGAS NV		
Contract 3:	0		
Driller li:	692	Source age:	NV003
User id:	MTHORSON	Date entry:	11-JUL-05
Update use:	Not Reported	Date updat:	16-AUG-96
Edit statu:	F	Well start:	12-JAN-73
Gravel p 1:	0	Gravel p 2:	215
Utm x:	714344.346992		
Utm y:	4063395.4345		
Site id:	NV4000000043632		

S150
ENE **NV WELLS** **NV4000000043633**
2 - 3 Miles
Lower

Well log:	61510	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	22-JAN-73	Date log 1:	Not Reported
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	I	Drilling m:	H
Sc:	32003	Ha:	205
Twn:	S14	Legal twn:	14S
Rng:	E66	Legal rng:	66E
Sec:	27	Sec quarte:	BB
Legal quar:	NW NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	BALLOW, JOE		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	22-MAR-73	Date cmplt:	D
Gravel pac:	Y	Depth seal:	0
Depth dril:	219	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	219
Csng diame:	8.62		
Csng reduc:	0	Top perf:	100
Bottom per:	219	Perf inter:	1
Static wl:	76		
Temperatur:	0		
Yield:	100		
Drawdown:	0		
Hours pump:	0		
Test metho:	B	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	10791		
Contract 1:	CHAPARRAL DRILLING & PUMPS		
Contract 2:	4161 CANAL ST LAS VEGAS NV		
Contract 3:	0		
Driller li:	692	Source age:	NV003
User id:	DBRANTLEY	Date entry:	24-FEB-97
Update use:	Not Reported	Date updat:	16-AUG-96
Edit statu:	F	Well start:	15-MAR-73
Gravel p 1:	0	Gravel p 2:	219
Utm x:	714344.346992		
Utm y:	4063395.4345		
Site id:	NV4000000043633		

S151
ENE
2 - 3 Miles
Lower

NV WELLS **NV4000000043634**

Well log:	76087	App:	63481
Notice of :	15899	Waiver no:	Not Reported
Date log r:	09-JUL-99	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	I	Drilling m:	H
Sc:	32003	Ha:	205
Twn:	S14	Legal twn:	14S
Rng:	E66	Legal rng:	66E
Sec:	27	Sec quarte:	BB
Legal quar:	NW NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	COX, BURTON		
Owner addr:	950 ISOLA DR		
Owner no:	Not Reported		
Parcel no:	690-150-010	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	01-JUN-99	Date cmplt:	D
Gravel pac:	Y	Depth seal:	100
Depth dril:	185	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	185
Csng diame:	8.62		
Csng reduc:	0	Top perf:	125
Bottom per:	185	Perf inter:	1
Static wl:	41		
Temperatur:	0		
Yield:	32		
Drawdown:	9		
Hours pump:	6		
Test metho:	B	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	28966		
Contract 1:	DAVIS DRILLING & PUMPS		
Contract 2:	H C 61 BOX 54 HIKO NV 89017		
Contract 3:	0		
Driller li:	1191	Source age:	NV003
User id:	DBRANTLEY	Date entry:	09-AUG-99
Update use:	Not Reported	Date updat:	16-AUG-96
Edit statu:	F	Well start:	25-MAY-99
Gravel p 1:	100	Gravel p 2:	185

Utm x:	714344.346992
Utm y:	4063395.4345
Site id:	NV4000000043634

152
NW
2 - 3 Miles
Lower

NV WELLS **NV4000000043731**

Well log:	61483	App:	Not Reported
Notice of :	1032	Waiver no:	Not Reported
Date log r:	05-APR-84	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	H	Drilling m:	H
Sc:	32003	Ha:	218
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	24	Sec quarte:	BA
Legal quar:	NE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	PERKINS, DAVE		
Owner addr:	P O BOX 132 MOAPA NV		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	03-APR-84	Date cmplt:	D
Gravel pac:	Y	Depth seal:	50
Depth dril:	221	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	221
Csng diame:	8.62		
Csng reduc:	0	Top perf:	181
Bottom per:	221	Perf inter:	1
Static wl:	100		
Temperatur:	0		
Yield:	37		
Drawdown:	100		
Hours pump:	1		
Test metho:	B	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	15972		
Contract 1:	BRUCE ROBINSON DRILLING CO		
Contract 2:	PO BOX 8307 PAHRUMP NV 89041		
Contract 3:	0		
Driller li:	944	Source age:	NV003
User id:	DBRANTLEY	Date entry:	24-FEB-97
Update use:	Not Reported	Date updat:	13-NOV-06
Edit statu:	F	Well start:	30-MAR-84
Gravel p 1:	50	Gravel p 2:	221
Utm x:	708198.646546		
Utm y:	4064878.19851		
Site id:	NV4000000043731		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

T153
SSW
2 - 3 Miles
Lower

NV WELLS **NV4000000043297**

Well log:	79355	App:	Not Reported
Notice of :	19530	Waiver no:	Not Reported
Date log r:	10-APR-00	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	CD
Legal quar:	SE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-19		
Parcel no:	690-250-030	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	28-FEB-00	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2		
Csng reduc:	0	Top perf:	10
Bottom per:	25	Perf inter:	1
Static wl:	18.5		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	11-MAY-00
Update use:	Not Reported	Date updat:	05-AUG-05
Edit statu:	F	Well start:	28-FEB-00
Gravel p 1:	8	Gravel p 2:	25
Utm x:	709786.629833		
Utm y:	4058841.82626		
Site id:	NV4000000043297		

154
WNW
2 - 3 Miles
Lower

NV WELLS **NV4000000043650**

Well log:	61372	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	13-SEP-78	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	H	Drilling m:	H
Sc:	32003	Ha:	219
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	23	Sec quarte:	DD
Legal quar:	SE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	HAFNER, HARLAND		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	10-AUG-78	Date cmplt:	D
Gravel pac:	Y	Depth seal:	50
Depth dril:	150	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	150
Csng diame:	8		
Csng reduc:	0	Top perf:	50
Bottom per:	150	Perf inter:	1
Static wl:	60		
Temperatur:	0		
Yield:	60		
Drawdown:	0		
Hours pump:	2		
Test metho:	B	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	10791		
Contract 1:	C M ROBINSON JR		
Contract 2:	P O BOX 470 PANACA NV		
Contract 3:	0		
Driller li:	904	Source age:	NV003
User id:	DBRANTLEY	Date entry:	21-FEB-97
Update use:	Not Reported	Date updat:	16-AUG-96
Edit statu:	F	Well start:	02-AUG-78
Gravel p 1:	50	Gravel p 2:	150
Utm x:	707384.769304		
Utm y:	4063624.91974		
Site id:	NV4000000043650		

T155
SSW
2 - 3 Miles
Lower

NV WELLS **NV4000000043294**

Well log:	70937	App:	Not Reported
Notice of :	17138	Waiver no:	Not Reported
Date log r:	01-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	CD

Legal quar:	SE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-1D		
Parcel no:	690-250-030	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	17-MAR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	63
Depth dril:	75	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	75
Csng diame:	2		
Csng reduc:	0	Top perf:	65
Bottom per:	75	Perf inter:	1
Static wl:	17.44		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	29-APR-98
Update use:	Not Reported	Date updat:	05-AUG-05
Edit statu:	F	Well start:	25-FEB-98
Gravel p 1:	63	Gravel p 2:	75
Utm x:	709761.796052		
Utm y:	4058841.21868		
Site id:	NV4000000043294		

T156
SSW
2 - 3 Miles
Lower

NV WELLS **NV4000000043293**

Well log:	70936	App:	Not Reported
Notice of :	17138	Waiver no:	Not Reported
Date log r:	01-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	CD
Legal quar:	SE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-1I		
Parcel no:	690-250-030	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	18-MAR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	35
Depth dril:	47	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	47
Csng diame:	2		
Csng reduc:	0	Top perf:	37
Bottom per:	47	Perf inter:	1
Static wl:	10.32		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	29-APR-98
Update use:	Not Reported	Date updat:	05-AUG-05
Edit statu:	F	Well start:	10-MAR-98
Gravel p 1:	35	Gravel p 2:	47
Utm x:	709761.796052		
Utm y:	4058841.21868		
Site id:	NV4000000043293		

T157
SSW
2 - 3 Miles
Lower

NV WELLS **NV4000000043296**

Well log:	70939	App:	Not Reported
Notice of :	17138	Waiver no:	Not Reported
Date log r:	01-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	CD
Legal quar:	SE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-1S		
Parcel no:	690-250-030	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	17-MAR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	8
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2		
Csng reduc:	0	Top perf:	10
Bottom per:	25	Perf inter:	1
Static wl:	20.38		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	29-APR-98
Update use:	Not Reported	Date updat:	05-AUG-05
Edit statu:	F	Well start:	06-MAR-98
Gravel p 1:	8	Gravel p 2:	25
Utm x:	709761.796052		
Utm y:	4058841.21868		
Site id:	NV4000000043296		

T158
SSW
2 - 3 Miles
Lower

NV WELLS **NV4000000043295**

Well log:	70938	App:	Not Reported
Notice of :	17138	Waiver no:	Not Reported
Date log r:	01-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	06	Sec quarte:	CD
Legal quar:	SE SW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-1M		
Parcel no:	690-250-030	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	17-MAR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	38
Depth dril:	50	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	50
Csng diame:	2		
Csng reduc:	0	Top perf:	40
Bottom per:	50	Perf inter:	1
Static wl:	20		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	29-APR-98
Update use:	Not Reported	Date updat:	05-AUG-05
Edit statu:	F	Well start:	09-MAR-98
Gravel p 1:	38	Gravel p 2:	50

Utm x:	709761.796052
Utm y:	4058841.21868
Site id:	NV4000000043295

159
SE
2 - 3 Miles
Lower

NV WELLS **NV4000000043507**

Well log:	1720	App:	12803
Notice of :	0	Waiver no:	Not Reported
Date log r:	07-MAY-51	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	I	Drilling m:	C
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	04	Sec quarte:	AA
Legal quar:	NE NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	SEARLES, KENNETH		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	10-AUG-50	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	0
Depth dril:	178	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	40
Csng diame:	20		
Csng reduc:	0	Top perf:	0
Bottom per:	0	Perf inter:	1
Static wl:	0		
Temperatur:	75		
Yield:	15		
Drawdown:	0		
Hours pump:	36		
Test metho:	P	Qual const:	G
Qual lith :	G		
Remarks:	ARTESIAN FLOW		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	H D MARTIN		
Contract 2:	PO BOX 1881 LAS VEGAS NV		
Contract 3:	0		
Driller li:	0	Source age:	NV003
User id:	MTHORSON	Date entry:	11-JUL-05
Update use:	MTHORSON	Date updat:	14-JUL-05
Edit statu:	F	Well start:	05-AUG-50
Gravel p 1:	0	Gravel p 2:	0

Utm x:	713927.957685
Utm y:	4060177.7246
Site id:	NV4000000043507

160
East
2 - 3 Miles
Lower

NV WELLS **NV4000000043602**

Well log:	13280	App:	26990
Notice of :	0	Waiver no:	Not Reported
Date log r:	03-FEB-72	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	H	Drilling m:	H
Sc:	32003	Ha:	205
Twn:	S14	Legal twn:	14S
Rng:	E66	Legal rng:	66E
Sec:	27	Sec quarte:	ACA
Legal quar:	NE SW NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	Not Reported
Lat long a:	M		
Owner curr:	EMBRY, MILT		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	28-DEC-71	Date cmplt:	D
Gravel pac:	Y	Depth seal:	70
Depth dril:	181	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	181
Csng diame:	8.625		
Csng reduc:	0	Top perf:	75
Bottom per:	181	Perf inter:	1
Static wl:	28		
Temperatur:	0		
Yield:	90		
Drawdown:	12		
Hours pump:	2		
Test metho:	B	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	10791		
Contract 1:	CHAPARRAL DLRG AND PUMP		
Contract 2:	4161 CANAL ST LAS VEGAS NV		
Contract 3:	0		
Driller li:	638	Source age:	NV003
User id:	MTHORSON	Date entry:	08-JUL-05
Update use:	APALMER	Date updat:	08-FEB-06
Edit statu:	F	Well start:	26-DEC-71
Gravel p 1:	70	Gravel p 2:	181
Utm x:	714664.60682		
Utm y:	4062509.10925		
Site id:	NV4000000043602		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

U161
WNW
2 - 3 Miles
Lower

NV WELLS **NV4000000043671**

Well log:	61451	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	22-JAN-76	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	H	Drilling m:	H
Sc:	32003	Ha:	219
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	23	Sec quarte:	DA
Legal quar:	NE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	MCDONALD, WILLIAM		
Owner addr:	P O BOX 99 MOAPA NV		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	20-DEC-75	Date cmplt:	D
Gravel pac:	Y	Depth seal:	30
Depth dril:	60	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	60
Csng diame:	8.62		
Csng reduc:	0	Top perf:	30
Bottom per:	60	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	3		
Drawdown:	60		
Hours pump:	0		
Test metho:	B	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	4286A		
Contract 1:	THOMPSON DRILLING CO INC		
Contract 2:	4185 W HARMON LAS VEGAS NV 89103		
Contract 3:	0		
Driller li:	581	Source age:	NV003
User id:	DBRANTLEY	Date entry:	24-FEB-97
Update use:	dsdavis	Date updat:	10-APR-97
Edit statu:	F	Well start:	18-DEC-75
Gravel p 1:	30	Gravel p 2:	60
Utm x:	707399.881317		
Utm y:	4064026.1782		
Site id:	NV4000000043671		

U162
WNW
2 - 3 Miles
Lower

NV WELLS **NV4000000043672**

Well log:	61482	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	23-JUN-78	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	H	Drilling m:	C
Sc:	32003	Ha:	219
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	23	Sec quarte:	DA
Legal quar:	NE SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	WRIGHT, TOM		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	01-JUN-78	Date cmplt:	D
Gravel pac:	N	Depth seal:	40
Depth dril:	120	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	120
Csng diame:	8		
Csng reduc:	0	Top perf:	100
Bottom per:	120	Perf inter:	1
Static wl:	0		
Temperatur:	70		
Yield:	4		
Drawdown:	0		
Hours pump:	4		
Test metho:	U	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	10015		
Contract 1:	GRANT W COX		
Contract 2:	P O BOX 1184 LAS VEGAS NV 89125		
Contract 3:	0		
Driller li:	803	Source age:	NV003
User id:	DBRANTLEY	Date entry:	24-FEB-97
Update use:	dsdavis	Date updat:	10-APR-97
Edit statu:	F	Well start:	18-DEC-75
Gravel p 1:	0	Gravel p 2:	0
Utm x:	707399.881317		
Utm y:	4064026.1782		
Site id:	NV4000000043672		

163
WNW
2 - 3 Miles
Lower

FED USGS **USGS40000753940**

Org. Identifier:	USGS-NV		
Formal name:	USGS Nevada Water Science Center		
Monloc Identifier:	USGS-364212114403901		
Monloc name:	218 S14 E65 23DAAB1		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	15010012	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	36.7033042
Longitude:	-114.6783262	Sourcemap scale:	24000

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1705.
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	65
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 2

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1990-03-29	11.7		1985-03-15	8.08	

V164
South
2 - 3 Miles
Lower

FED USGS **USGS40000753832**

Org. Identifier:	USGS-NV		
Formal name:	USGS Nevada Water Science Center		
Monloc Identifier:	USGS-363902114384401		
Monloc name:	218 S15 E66 07AB 1 Nevada Power Company		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	15010012	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	36.650527
Longitude:	-114.6463802	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1745.
Vert measure units:	feet	Vertacc measure val:	30
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1990-03-30	167.2	

V165
South
2 - 3 Miles
Lower

FED USGS **USGS40000753833**

Org. Identifier:	USGS-NV		
Formal name:	USGS Nevada Water Science Center		
Monloc Identifier:	USGS-363902114384402		
Monloc name:	218 S15 E66 07AB 2 Nevada Power Company		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	15010012	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	36.650527
Longitude:	-114.6463802	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1743.
Vert measure units:	feet	Vertacc measure val:	30
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1990-03-30	164.8	

W166
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043274**

Well log:	71216	App:	Not Reported
Notice of :	17119	Waiver no:	Not Reported
Date log r:	13-MAY-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	07	Sec quarte:	AA
Legal quar:	NE NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-12		
Parcel no:	690-260-004	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	30-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	144
Depth dril:	165	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	165
Csng diame:	2		
Csng reduc:	0	Top perf:	145
Bottom per:	165	Perf inter:	1
Static wl:	148		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	KCOON	Date entry:	21-MAY-98
Update use:	user15	Date updat:	03-JUN-98
Edit statu:	F	Well start:	20-APR-98
Gravel p 1:	144	Gravel p 2:	165
Utm x:	710640.821286		
Utm y:	4058461.86944		
Site id:	NV4000000043274		

W167
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043275**

Well log:	85602	App:	Not Reported
Notice of :	23357	Waiver no:	Not Reported
Date log r:	25-FEB-02	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	H
Sc:	32003	Ha:	212
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	07	Sec quarte:	AA
Legal quar:	NE NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	1 WALLY KAY WY		
Owner no:	LMW-04		
Parcel no:	42-07-002	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	28-JAN-02	Date cmplt:	D
Gravel pac:	Y	Depth seal:	114
Depth dril:	157	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	157
Csng diame:	4		
Csng reduc:	0	Top perf:	116
Bottom per:	146	Perf inter:	1
Static wl:	130.46		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	48947		
Contract 1:	CONVERSE CONSULTANTS		
Contract 2:	731 PILOT RD STE H LAS VEGAS NV 89119		
Contract 3:	0		
Driller li:	1944	Source age:	NV003
User id:	DBRANTLEY	Date entry:	08-MAR-02
Update use:	Not Reported	Date updat:	03-JUN-98
Edit statu:	F	Well start:	27-JAN-02
Gravel p 1:	114	Gravel p 2:	157
Utm x:	710640.821286		
Utm y:	4058461.86944		
Site id:	NV4000000043275		

W168
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043272**

Well log:	70942	App:	Not Reported
Notice of :	17141	Waiver no:	Not Reported
Date log r:	01-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	07	Sec quarte:	AA
Legal quar:	NE NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-08		
Parcel no:	690-260-004	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	17-MAR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	56
Depth dril:	68	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	68
Csng diame:	2		
Csng reduc:	0	Top perf:	58
Bottom per:	68	Perf inter:	1
Static wl:	16.61		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	29-APR-98
Update use:	Not Reported	Date updat:	19-OCT-98
Edit statu:	F	Well start:	11-MAR-98
Gravel p 1:	56	Gravel p 2:	68

Utm x:	710640.821286
Utm y:	4058461.86944
Site id:	NV4000000043272

W169
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043273**

Well log:	70943	App:	Not Reported
Notice of :	17141	Waiver no:	Not Reported
Date log r:	01-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	07	Sec quarte:	AA
Legal quar:	NE NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-09		
Parcel no:	690-260-004	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	17-MAR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	47
Depth dril:	60	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	60
Csng diame:	2		
Csng reduc:	0	Top perf:	50
Bottom per:	60	Perf inter:	1
Static wl:	7.99		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	29-APR-98
Update use:	Not Reported	Date updat:	19-OCT-98
Edit statu:	F	Well start:	12-MAR-98
Gravel p 1:	47	Gravel p 2:	60
Utm x:	710640.821286		
Utm y:	4058461.86944		
Site id:	NV4000000043273		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

W170
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043278**

Well log:	85605	App:	Not Reported
Notice of :	23357	Waiver no:	Not Reported
Date log r:	25-FEB-02	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	H
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	07	Sec quarte:	AA
Legal quar:	NE NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	1 WALLY KAY WY		
Owner no:	LMW-06		
Parcel no:	42-07-002	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	31-JAN-02	Date cmplt:	D
Gravel pac:	Y	Depth seal:	125
Depth dril:	177	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	171
Csng diame:	4		
Csng reduc:	0	Top perf:	131
Bottom per:	161	Perf inter:	1
Static wl:	155		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	48947		
Contract 1:	CONVERSE CONSULTANTS		
Contract 2:	731 PILOT RD STE H LAS VEGAS NV 89119		
Contract 3:	0		
Driller li:	1944	Source age:	NV003
User id:	DBRANTLEY	Date entry:	08-MAR-02
Update use:	Not Reported	Date updat:	03-JUN-98
Edit statu:	F	Well start:	30-JAN-02
Gravel p 1:	125	Gravel p 2:	177
Utm x:	710640.821286		
Utm y:	4058461.86944		
Site id:	NV4000000043278		

W171
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043279**

Well log:	85606	App:	Not Reported
Notice of :	23357	Waiver no:	Not Reported
Date log r:	25-FEB-02	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	H
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	07	Sec quarte:	AA
Legal quar:	NE NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	1 WALLY KAY WY		
Owner no:	LMW-08		
Parcel no:	42-07-002	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	01-FEB-02	Date cmplt:	D
Gravel pac:	Y	Depth seal:	70
Depth dril:	112	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	108
Csng diame:	4		
Csng reduc:	0	Top perf:	73
Bottom per:	103	Perf inter:	1
Static wl:	90.1		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	48947		
Contract 1:	CONVERSE CONSULTANTS		
Contract 2:	731 PILOT RD STE H LAS VEGAS NV 89119		
Contract 3:	0		
Driller li:	1944	Source age:	NV003
User id:	DBRANTLEY	Date entry:	08-MAR-02
Update use:	Not Reported	Date updat:	03-JUN-98
Edit statu:	F	Well start:	31-JAN-02
Gravel p 1:	70	Gravel p 2:	112
Utm x:	710640.821286		
Utm y:	4058461.86944		
Site id:	NV4000000043279		

W172
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043276**

Well log:	85603	App:	Not Reported
Notice of :	23357	Waiver no:	Not Reported
Date log r:	25-FEB-02	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	H
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	07	Sec quarte:	AA

Legal quar:	NE NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	1 WALLY KAY WY		
Owner no:	LMW-03		
Parcel no:	42-07-002	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	02-FEB-02	Date cmplt:	D
Gravel pac:	Y	Depth seal:	68
Depth dril:	115	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	108
Csng diame:	4		
Csng reduc:	0	Top perf:	73
Bottom per:	103	Perf inter:	1
Static wl:	95.35		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	48947		
Contract 1:	CONVERSE CONSULTANTS		
Contract 2:	731 PILOT RD STE H LAS VEGAS NV 89119		
Contract 3:	0		
Driller li:	1944	Source age:	NV003
User id:	DBRANTLEY	Date entry:	08-MAR-02
Update use:	Not Reported	Date updat:	03-JUN-98
Edit statu:	F	Well start:	01-FEB-02
Gravel p 1:	68	Gravel p 2:	115
Utm x:	710640.821286		
Utm y:	4058461.86944		
Site id:	NV4000000043276		

W173
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043277**

Well log:	85604	App:	Not Reported
Notice of :	23357	Waiver no:	Not Reported
Date log r:	25-FEB-02	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	H
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	07	Sec quarte:	AA
Legal quar:	NE NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	1 WALLY KAY WY		
Owner no:	LMW-05		
Parcel no:	42-07-002	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	26-JAN-02	Date cmplt:	D
Gravel pac:	Y	Depth seal:	111
Depth dril:	157	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	147
Csng diame:	4		
Csng reduc:	0	Top perf:	112
Bottom per:	142	Perf inter:	1
Static wl:	125.5		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	48947		
Contract 1:	CONVERSE CONSULTANTS		
Contract 2:	731 PILOT RD STE H LAS VEGAS NV 89119		
Contract 3:	0		
Driller li:	1944	Source age:	NV003
User id:	DBRANTLEY	Date entry:	08-MAR-02
Update use:	Not Reported	Date updat:	03-JUN-98
Edit statu:	F	Well start:	24-JAN-02
Gravel p 1:	111	Gravel p 2:	157
Utm x:	710640.821286		
Utm y:	4058461.86944		
Site id:	NV4000000043277		

174
WNW
2 - 3 Miles
Lower

NV WELLS **NV4000000043663**

Well log:	61479	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	11-MAY-77	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	H	Drilling m:	C
Sc:	32003	Ha:	219
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	23	Sec quarte:	D
Legal quar:	SE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	M		
Owner curr:	SAVELA, S E & GAYNELL		
Owner addr:	3800 S DECATUR BLVD LV NV		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	10-MAY-77	Date cmplt:	D
Gravel pac:	Y	Depth seal:	30
Depth dril:	100	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	100
Csng diame:	8.62		
Csng reduc:	0	Top perf:	50
Bottom per:	100	Perf inter:	1
Static wl:	18		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	3768		
Contract 1:	EFFINGER DRILLING & PUMP SVC		
Contract 2:	P O BOX 579 LAS VEGAS NV		
Contract 3:	0		
Driller li:	212	Source age:	NV003
User id:	DBRANTLEY	Date entry:	24-FEB-97
Update use:	Not Reported	Date updat:	17-MAR-97
Edit statu:	F	Well start:	04-MAY-77
Gravel p 1:	30	Gravel p 2:	95
Utm x:	707206.556039		
Utm y:	4063805.63126		
Site id:	NV4000000043663		

X175
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043282**

Well log:	71017	App:	Not Reported
Notice of :	17137	Waiver no:	Not Reported
Date log r:	27-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	08	Sec quarte:	BA
Legal quar:	NE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-04M		
Parcel no:	690-260-007	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	37
Depth dril:	50	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	49
Csng diame:	2		
Csng reduc:	0	Top perf:	39
Bottom per:	49	Perf inter:	1
Static wl:	1.31		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-MAY-98
Update use:	dsdavis	Date updat:	01-MAY-98
Edit statu:	F	Well start:	27-MAR-98
Gravel p 1:	37	Gravel p 2:	49

Utm x:	711485.211856
Utm y:	4058482.65242
Site id:	NV4000000043282

X176
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043283**

Well log:	71018	App:	Not Reported
Notice of :	17137	Waiver no:	Not Reported
Date log r:	27-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	08	Sec quarte:	BA
Legal quar:	NE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-04D		
Parcel no:	690-260-007	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	55
Depth dril:	67	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	67
Csng diame:	2		
Csng reduc:	0	Top perf:	57
Bottom per:	67	Perf inter:	1
Static wl:	2.22		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-MAY-98
Update use:	Not Reported	Date updat:	01-MAY-98
Edit statu:	F	Well start:	25-MAR-98
Gravel p 1:	55	Gravel p 2:	67
Utm x:	711485.211856		
Utm y:	4058482.65242		
Site id:	NV4000000043283		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

X177
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043280**

Well log:	71015	App:	Not Reported
Notice of :	17137	Waiver no:	Not Reported
Date log r:	27-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	08	Sec quarte:	BA
Legal quar:	NE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-05M		
Parcel no:	690-260-007	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	38
Depth dril:	50	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	50
Csng diame:	2		
Csng reduc:	0	Top perf:	40
Bottom per:	50	Perf inter:	1
Static wl:	1		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-MAY-98
Update use:	dsdavis	Date updat:	01-MAY-98
Edit statu:	F	Well start:	06-APR-98
Gravel p 1:	38	Gravel p 2:	50
Utm x:	711485.211856		
Utm y:	4058482.65242		
Site id:	NV4000000043280		

X178
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043281**

Well log:	71016	App:	Not Reported
Notice of :	17137	Waiver no:	Not Reported
Date log r:	27-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	08	Sec quarte:	BA
Legal quar:	NE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-04S		
Parcel no:	690-260-007	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	2.63		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-MAY-98
Update use:	dsdavis	Date updat:	01-MAY-98
Edit statu:	F	Well start:	30-MAR-98
Gravel p 1:	3	Gravel p 2:	25
Utm x:	711485.211856		
Utm y:	4058482.65242		
Site id:	NV4000000043281		

X179
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043284**

Well log:	71019	App:	Not Reported
Notice of :	17137	Waiver no:	Not Reported
Date log r:	27-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	08	Sec quarte:	BA

Legal quar:	NE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-05D		
Parcel no:	690-260-007	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	63
Depth dril:	75	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	75
Csng diame:	2		
Csng reduc:	0	Top perf:	65
Bottom per:	75	Perf inter:	1
Static wl:	1.2		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-MAY-98
Update use:	Not Reported	Date updat:	01-MAY-98
Edit statu:	F	Well start:	30-MAR-98
Gravel p 1:	63	Gravel p 2:	75
Utm x:	711485.211856		
Utm y:	4058482.65242		
Site id:	NV4000000043284		

X180
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043287**

Well log:	71022	App:	Not Reported
Notice of :	17137	Waiver no:	Not Reported
Date log r:	27-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	08	Sec quarte:	BA
Legal quar:	NE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-06M		
Parcel no:	690-290-007	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	38
Depth dril:	50	Depth bedr:	0

Aquifer de:	Not Reported	Depth case:	50
Csng diame:	2		
Csng reduc:	0	Top perf:	40
Bottom per:	50	Perf inter:	1
Static wl:	4.08		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-MAY-98
Update use:	dsdavis	Date updat:	21-MAY-98
Edit statu:	F	Well start:	03-APR-98
Gravel p 1:	38	Gravel p 2:	50
Utm x:	711485.211856		
Utm y:	4058482.65242		
Site id:	NV4000000043287		

X181
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043288**

Well log:	71023	App:	Not Reported
Notice of :	17137	Waiver no:	Not Reported
Date log r:	27-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	08	Sec quarte:	BA
Legal quar:	NE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-06S		
Parcel no:	690-260-007	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	3.88		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G

Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-MAY-98
Update use:	Not Reported	Date updat:	21-MAY-98
Edit statu:	F	Well start:	03-APR-98
Gravel p 1:	3	Gravel p 2:	25
Utm x:	711485.211856		
Utm y:	4058482.65242		
Site id:	NV4000000043288		

X182
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043285**

Well log:	71020	App:	Not Reported
Notice of :	17137	Waiver no:	Not Reported
Date log r:	27-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	08	Sec quarte:	BA
Legal quar:	NE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-01S		
Parcel no:	690-260-007	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	3
Depth dril:	25	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	25
Csng diame:	2		
Csng reduc:	0	Top perf:	5
Bottom per:	25	Perf inter:	1
Static wl:	1.22		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-MAY-98
Update use:	Not Reported	Date updat:	01-MAY-98
Edit statu:	F	Well start:	06-APR-98
Gravel p 1:	3	Gravel p 2:	25

Utm x:	711485.211856
Utm y:	4058482.65242
Site id:	NV4000000043285

X183
South
2 - 3 Miles
Lower

NV WELLS **NV4000000043286**

Well log:	71021	App:	Not Reported
Notice of :	17137	Waiver no:	Not Reported
Date log r:	27-APR-98	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	G	Drilling m:	B
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	08	Sec quarte:	BA
Legal quar:	NE NW	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	REID GARDNER FACILITY		
Owner no:	KMW-06D		
Parcel no:	690-260-007	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	07-APR-98	Date cmplt:	D
Gravel pac:	Y	Depth seal:	61
Depth dril:	73	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	73
Csng diame:	2		
Csng reduc:	0	Top perf:	63
Bottom per:	73	Perf inter:	1
Static wl:	3.9		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	34699		
Contract 1:	SPECTRUM EXPLORATION INC		
Contract 2:	5015 SHOREHAM PL SAN DIEGO CA 92122		
Contract 3:	0		
Driller li:	2059	Source age:	NV003
User id:	DBRANTLEY	Date entry:	01-MAY-98
Update use:	Not Reported	Date updat:	01-MAY-98
Edit statu:	F	Well start:	31-MAR-98
Gravel p 1:	61	Gravel p 2:	73
Utm x:	711485.211856		
Utm y:	4058482.65242		
Site id:	NV4000000043286		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

184
WNW
2 - 3 Miles
Lower | **NV WELLS** | **NV4000000043630**

Well log:	61491	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	29-JAN-75	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	S	Drilling m:	H
Sc:	32003	Ha:	218
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	26	Sec quarte:	AB
Legal quar:	NW NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	PERKINS, LAWRENCE		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	20-MAY-74	Date cmplt:	D
Gravel pac:	Y	Depth seal:	35
Depth dril:	80	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	80
Csng diame:	6		
Csng reduc:	0	Top perf:	40
Bottom per:	80	Perf inter:	1
Static wl:	4		
Temperatur:	0		
Yield:	10		
Drawdown:	37		
Hours pump:	2		
Test metho:	B	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	7381		
Contract 1:	B & B DRILLING CO		
Contract 2:	P O BOX 111 BEAVER UT 84713		
Contract 3:	0		
Driller li:	756	Source age:	NV003
User id:	DBRANTLEY	Date entry:	24-FEB-97
Update use:	Not Reported	Date updat:	16-AUG-96
Edit statu:	F	Well start:	20-APR-74
Gravel p 1:	35	Gravel p 2:	80
Utm x:	706997.342726		
Utm y:	4063214.65221		
Site id:	NV4000000043630		

185
South
2 - 3 Miles
Lower | **NV WELLS** | **NV4000000043271**

Well log:	27959	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	29-OCT-86	Date log 1:	D
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	X	Drilling m:	H
Sc:	32003	Ha:	218
Twn:	S15	Legal twn:	15S
Rng:	E66	Legal rng:	66E
Sec:	07	Sec quarte:	AB
Legal quar:	NW NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	NEVADA POWER COMPANY		
Owner addr:	6226 W SAHARA LAS VEGAS NV		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	10-JUL-86	Date cmplt:	D
Gravel pac:	N	Depth seal:	655
Depth dril:	1000	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	1000
Csng diame:	12.75		
Csng reduc:	0	Top perf:	660
Bottom per:	1000	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	JAMES R MURRAY		
Contract 2:	8301 E ILIFF DENVER CO 80231		
Contract 3:	0		
Driller li:	1227	Source age:	NV003
User id:	NAFLECKS	Date entry:	20-JUN-05
Update use:	dsdavis	Date updat:	19-OCT-98
Edit statu:	F	Well start:	14-APR-86
Gravel p 1:	0	Gravel p 2:	0
Utm x:	710218.626622		
Utm y:	4058451.50917		
Site id:	NV4000000043271		

Y186
WNW
2 - 3 Miles
Lower

NV WELLS **NV4000000043685**

Well log:	61454	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	29-JAN-75	Date log 1:	Not Reported
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	H	Drilling m:	H
Sc:	32003	Ha:	219
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	23	Sec quarte:	AD

Legal quar:	SE NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	PERKINS, LAWRENCE		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	20-MAY-74	Date cmplt:	D
Gravel pac:	Y	Depth seal:	37
Depth dril:	225	Depth bedr:	0
Aquifer de:	Not Reported	Depth case:	225
Csng diame:	0		
Csng reduc:	0	Top perf:	160
Bottom per:	225	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	10		
Drawdown:	72		
Hours pump:	8		
Test metho:	B	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	7381		
Contract 1:	B & B DRILLING CO		
Contract 2:	P O BOX 111 BEAVER UT 84713		
Contract 3:	0		
Driller li:	739	Source age:	NV003
User id:	DBRANTLEY	Date entry:	24-FEB-97
Update use:	dsdavis	Date updat:	10-APR-97
Edit statu:	F	Well start:	20-APR-74
Gravel p 1:	160	Gravel p 2:	225
Utm x:	707414.99018		
Utm y:	4064427.43698		
Site id:	NV4000000043685		

Y187
WNW
2 - 3 Miles
Lower

NV WELLS **NV4000000043686**

Well log:	61477	App:	Not Reported
Notice of :	0	Waiver no:	Not Reported
Date log r:	29-JAN-75	Date log 1:	Not Reported
Site type:	N	Work type:	N
Work type :	Not Reported		
Proposed u:	S	Drilling m:	C
Sc:	32003	Ha:	219
Twn:	S14	Legal twn:	14S
Rng:	E65	Legal rng:	65E
Sec:	23	Sec quarte:	AD
Legal quar:	SE NE	Quarters s:	Not Reported
Ref:	MD	Latitude:	36
Longitude:	114	Lat long s:	NV003
Lat long a:	T		
Owner curr:	REBEL YOUTH CENTER		
Owner addr:	Not Reported		
Owner no:	Not Reported		
Parcel no:	Not Reported	Subdivisio:	Not Reported
Lot no:	Not Reported	Block no:	Not Reported
Well finis:	25-SEP-67	Date cmplt:	D
Gravel pac:	Not Reported	Depth seal:	60
Depth dril:	76	Depth bedr:	0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer de:	Not Reported	Depth case:	76
Csng diame:	8		
Csng reduc:	0	Top perf:	28
Bottom per:	60	Perf inter:	1
Static wl:	0		
Temperatur:	0		
Yield:	0		
Drawdown:	0		
Hours pump:	0		
Test metho:	Not Reported	Qual const:	G
Qual lith :	G		
Remarks ad:	Not Reported		
Contractor:	Not Reported		
Contract 1:	Not Reported		
Contract 2:	Not Reported		
Contract 3:	0		
Driller li:	458	Source age:	NV003
User id:	DBRANTLEY	Date entry:	24-FEB-97
Update use:	Not Reported	Date updat:	10-APR-97
Edit statu:	F	Well start:	23-SEP-67
Gravel p 1:	0	Gravel p 2:	0
Utm x:	707414.99018		
Utm y:	4064427.43698		
Site id:	NV4000000043686		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: NV Radon

Radon Test Results

# Tests	# < 4 pci/L	# > 4 pCi/L	% > 4 pCi/L	Average	Max
2	2	0	0	1.4	2.3

Federal EPA Radon Zone for CLARK County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 89040

Number of sites tested: 3

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	-0.067 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

RADON

State Database: NV Radon
Source: State Health Division
Telephone: 775-687-7531
Radon Test Results By Zip Code

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

Appendix I

Air Emission Calculations

Aiya Solar Project

Construction Emissions Partial Year (3 months)

Construction Emission Category	NOx (tons)	CO (tons)	SO2 (tons)	VOC (tons)	PM10 (tons)	PM2.5 (tons)	CO2 (tons)	N2O (tons)	CH4 (tons)	CO2e (metric tons)	TOTAL HAP (tons)
Construction Equipment Exhaust	2.39	1.26	0.003	0.28	0.22	0.21	-	-	-	-	-
On-Road Vehicle Exhaust - Heavy Duty Vehicles	0.70	0.17	0.001	0.04	0.02	0.02	154.28	0.000	0.003	140.08	0.01
On-Road Vehicle Exhaust - Commute Vehicles	1.28	6.98	0.016	0.17	0.02	0.02	808.91	0.005	0.012	735.33	0.05
Fugitive Dust from Travel on Paved Roads	-	-	-	-	2.71	0.66	-	-	-	-	-
Fugitive Dust from Travel on Unpaved Roads	-	-	-	-	0.57	0.06	-	-	-	-	-
Fugitive Dust from Construction Activities	-	-	-	-	4.46	0.93	-	-	-	-	-
Total	**4.37**	**8.410**	**0.021**	**0.49**	**8.00**	**1.90**	**963.20**	**0.005**	**0.015**	**875.41**	**0.06**

Construction Emissions Full Year

Construction Emission Category	NOx (tons)	CO (tons)	SO2 (tons)	VOC (tons)	PM10 (tons)	PM2.5 (tons)	CO2 (tons)	N2O (tons)	CH4 (tons)	CO2e (metric tons)	TOTAL HAP (tons)
Construction Equipment Exhaust	8.41	4.37	0.012	1.02	0.73	0.71	-	-	-	-	-
On-Road Vehicle Exhaust - Heavy Duty Vehicles	2.38	0.61	0.006	0.13	0.08	0.07	630.18	0.001	0.014	572.17	0.03
On-Road Vehicle Exhaust - Commute Vehicles	4.52	30.65	0.065	0.59	0.06	0.05	3235.82	0.016	0.050	2940.83	0.17
Fugitive Dust from Travel on Paved Roads	-	-	-	-	10.74	2.64	-	-	-	-	-
Fugitive Dust from Travel on Unpaved Roads	-	-	-	-	2.27	0.23	-	-	-	-	-
Fugitive Dust from Construction Activities	-	-	-	-	0.03	0.01	-	-	-	-	-
Total	**15.31**	**35.63**	**0.082**	**1.74**	**13.91**	**3.70**	**3866.00**	**0.016**	**0.064**	**3513.00**	**0.19**

Aiya Solar Project
On-Road Vehicle Exhaust - Heavy Duty Vehicles

Construction Duration	Y1	66 days
Construction Duration	Y2	262 days
Daily Activity		12 hours
Activity		792 hours
Activity		3,144 hours

				2015 Construction Equipment Emission Factors (g/hp-hr)						2015 Heavy Duty Vehicle Emissions (tons)					
Model Equipment Types	**Fuel Type**	**Horsepower (hp)**	**Number**	**NOx**	**CO**	**SOx**	**VOC**	**PM10**	**PM2.5**	**NOx**	**CO**	**SOx**	**VOC**	**PM10**	**PM2.5**
Aerial Lifts	Diesel	50	1	4.021	1.189	0.004	0.226	0.189	0.183	0.176	0.052	0.000	0.010	0.008	0.008
Concrete/Industrial Saws	Diesel	50	1	4.053	1.230	0.004	0.230	0.197	0.191	0.177	0.054	0.000	0.010	0.009	0.008
Cranes	Diesel	175	1	2.485	0.647	0.003	0.209	0.156	0.151	0.380	0.099	0.000	0.032	0.024	0.023
Dumpers/Tenders	Diesel	50	1	5.381	5.592	0.004	1.379	0.849	0.823	0.235	0.244	0.000	0.060	0.037	0.036
Excavators	Diesel	175	2	1.824	0.797	0.003	0.174	0.192	0.186	0.557	0.243	0.001	0.053	0.059	0.057
Off-Highway Trucks	Diesel	300	1	1.135	0.274	0.003	0.141	0.045	0.043	0.297	0.072	0.001	0.037	0.012	0.011
Rough Terrain Forklifts	Diesel	75	1	3.734	2.535	0.004	0.284	0.294	0.285	0.244	0.166	0.000	0.019	0.019	0.019
Tractors/Loaders/Backhoes	Diesel	75	1	4.998	5.028	0.004	0.879	0.728	0.706	0.327	0.329	0.000	0.058	0.048	0.046
Total										**2.393**	**1.259**	**0.003**	**0.278**	**0.215**	**0.209**

				2016 Construction Equipment Emission Factors (g/hp-hr)						2016 Heavy Duty Vehicle Emissions (tons)					
Aerial Lifts	Diesel	50	1	3.810	0.985	0.003	0.205	0.153	0.149	0.660	0.171	0.001	0.036	0.027	0.026
Concrete/Industrial Saws	Diesel	50	1	3.853	1.030	0.003	0.210	0.161	0.157	0.668	0.178	0.001	0.036	0.028	0.027
Cranes	Diesel	175	1	2.138	0.573	0.003	0.193	0.140	0.135	1.297	0.347	0.002	0.117	0.085	0.082
Dumpers/Tenders	Diesel	50	1	5.188	5.077	0.004	1.236	0.777	0.754	0.899	0.880	0.001	0.214	0.135	0.131
Excavators	Diesel	175	2	1.492	0.650	0.003	0.163	0.154	0.149	1.810	0.788	0.004	0.197	0.187	0.181
Off-Highway Trucks	Diesel	300	1	0.859	0.203	0.003	0.137	0.029	0.028	0.893	0.211	0.003	0.142	0.030	0.029
Rough Terrain Forklifts	Diesel	75	1	3.595	2.265	0.004	0.257	0.256	0.249	0.934	0.589	0.001	0.067	0.067	0.065
Tractors/Loaders/Backhoes	Diesel	75	1	4.792	4.631	0.004	0.795	0.662	0.642	1.246	1.204	0.001	0.207	0.172	0.167
Total										**8.407**	**4.368**	**0.012**	**1.016**	**0.729**	**0.707**

Notes:
1 - Per the Project, construction of the SPGF, from site preparation and grading to commercial operation, will be expected to take 15 months (last quarter-2015-end 2016). Construction will generally occur between 7 a.m. and 7 p.m., Monday through Friday.
2 - Construction equipment emission factors developed using EPA MOVES2014-20141021 model for nonroad sources for 2015 and 2016.
3 - Construction equipment number, type, and HP rating was assumed: A mid-range HP value was chosen for each equipment category.

Aiya Solar Project
On-Road Vehicle Exhaust - Heavy Duty Vehicles

Construction Duration 66 days

Heavy Duty Vehicle Details	Maximum Quantity per day	Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)	Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)	2015 Heavy Duty Vehicle Emission Factors (g/mi)						2015 Heavy Duty Vehicle Emissions (tons)					
				NOx	CO	SOx	VOC	PM10	PM2.5	NOx	CO	SOx	VOC	PM10	PM2.5
Concrete Delivery Truck for General Construction	2	80	0	5.750	1.440	0.011	0.322	0.194	0.178	0.067	0.017	0.000	0.004	0.002	0.002
Dump Truck	1	0	2.5	5.750	1.440	0.011	0.322	0.194	0.178	0.001	0.000	0.000	0.000	0.000	0.000
Flatbed Truck	5	0	2.5	5.750	1.440	0.011	0.322	0.194	0.178	0.005	0.001	0.000	0.000	0.000	0.000
Staff & Security Truck	4	0	2.5	5.750	1.440	0.011	0.322	0.194	0.178	0.004	0.001	0.000	0.000	0.000	0.000
Pickup Truck	10	0	2.5	5.750	1.440	0.011	0.322	0.194	0.178	0.010	0.003	0.000	0.001	0.000	0.000
Road Preparation Materials Truck	10	15	0	5.750	1.440	0.011	0.322	0.194	0.178	0.063	0.016	0.000	0.004	0.002	0.002
General Materials Delivery Truck for General Construction	1	100	0	5.750	1.440	0.011	0.322	0.194	0.178	0.042	0.010	0.000	0.002	0.001	0.001
PV Module, Tracker, & Electrical Component Delivery	12	100	0	5.750	1.440	0.011	0.322	0.194	0.178	0.502	0.126	0.001	0.028	0.017	0.016
Water Delivery Truck	2	0	2.5	5.750	1.440	0.011	0.322	0.194	0.178	0.002	0.001	0.000	0.000	0.000	0.000
Total										**0.697**	**0.174**	**0.001**	**0.039**	**0.023**	**0.022**

Heavy Duty Vehicle Details				2015 Heavy Duty Vehicle Emission Factors (g/mi)			2015 Heavy Duty Vehicle Emissions (tons)			
Concrete Delivery Truck for General Construction	2	80	0	1273.645	0.002	0.028	14.826	1.82E-05	3.24E-04	13.461
Dump Truck	1	0	2.5	1273.645	0.002	0.028	0.232	2.84E-07	5.07E-06	0.210
Flatbed Truck	5	0	2.5	1273.645	0.002	0.028	1.158	1.42E-06	2.54E-05	1.052
Staff & Security Truck	4	0	2.5	1273.645	0.002	0.028	0.927	1.14E-06	2.03E-05	0.841
Pickup Truck	10	0	2.5	1273.645	0.002	0.028	2.317	2.84E-06	5.07E-05	2.103
Road Preparation Materials Truck	10	15	0	1273.645	0.002	0.028	13.899	1.71E-05	3.04E-04	12.620
General Materials Delivery Truck for General Construction	1	100	0	1273.645	0.002	0.028	9.266	1.14E-05	2.03E-04	8.413
PV Module, Tracker, & Electrical component Delivery	12	100	0	1273.645	0.002	0.028	111.194	1.36E-04	2.43E-03	100.957
Water Delivery Truck	2	0	2.5	1273.645	0.002	0.028	0.463	5.68E-07	1.01E-05	0.421
Total							**154.281**	**0.0002**	**0.003**	**140.078**

Aiya Solar Project
On-Road Vehicle Exhaust - Heavy Duty Vehicles - – Continued

Construction Duration 66 days

				2015 Heavy Duty Vehicle Emission Factors (g/mi)															
Heavy Duty Vehicle Details	**Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)**	**Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)**	**Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)**	**Benzene**	**Ethanol**	**MTBE**	**1,3-Butadiene**	**Form-aldehyde**	**Acet-aldehyde**	**Acrolein**	**2,2,4-Trimethyl-pentane**	**Ethyl Benzene**	**Hexane**	**Propion-aldehyde**	**Styrene**	**Toluene**	**Xylene**	**Naph-thalene**	**PAH (less Naph-thalene)**
Concrete Delivery Truck for General Construction	2	80	0	0.003	0.002	0.000	0.001	0.029	0.012	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.001
Dump Truck	1	0	2.5	0.003	0.002	0.000	0.001	0.029	0.012	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.001
Flatbed Truck	5	0	2.5	0.003	0.002	0.000	0.001	0.029	0.012	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.001
Staff & Security Truck	4	0	2.5	0.003	0.002	0.000	0.001	0.029	0.012	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.001
Pickup Truck	10	0	2.5	0.003	0.002	0.000	0.001	0.029	0.012	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.001
Road Preparation Materials Truck	10	15	0	0.003	0.002	0.000	0.001	0.029	0.012	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.001
General Materials Delivery Truck for General Construction	1	100	0	0.003	0.002	0.000	0.001	0.029	0.012	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.001
PV Module, Tracker, & Electrical component Delivery	12	100	0	0.003	0.002	0.000	0.001	0.029	0.012	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.001
Water Delivery Truck	2	0	2.5	0.003	0.002	0.000	0.001	0.029	0.012	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.001

	2015 Heavy Duty Vehicle Emissions (tons)																
Heavy Duty Vehicle Details	**Benzene**	**Ethanol**	**MTBE**	**1,3-Butadiene**	**Form-aldehyde**	**Acet-aldehyde**	**Acrolein**	**2,2,4-Trimethyl-pentane**	**Ethyl Benzene**	**Hexane**	**Propion-aldehyde**	**Styrene**	**Toluene**	**Xylene**	**Naph-thalene**	**PAH (less Naph-thalene)**	**Total HAPs**
Concrete Delivery Truck for General Construction	3.09E-05	2.87E-05	0.00E+00	1.03E-05	3.34E-04	1.43E-04	2.58E-05	8.54E-06	1.10E-05	8.40E-06	1.71E-05	4.53E-06	2.38E-05	2.43E-05	3.61E-05	6.60E-06	7.14E-04
Dump Truck	4.82E-07	4.49E-07	0.00E+00	1.61E-07	5.22E-06	2.24E-06	4.04E-07	1.33E-07	1.72E-07	1.31E-07	2.67E-07	7.09E-08	3.72E-07	3.79E-07	5.64E-07	1.03E-07	1.12E-05
Flatbed Truck	2.41E-06	2.24E-06	0.00E+00	8.06E-07	2.61E-05	1.12E-05	2.02E-06	6.67E-07	8.62E-07	6.56E-07	1.34E-06	3.54E-07	1.86E-06	1.90E-06	2.82E-06	5.16E-07	5.58E-05
Staff & Security Truck	1.93E-06	1.80E-06	0.00E+00	6.45E-07	2.09E-05	8.96E-06	1.61E-06	5.34E-07	6.89E-07	5.25E-07	1.07E-06	2.83E-07	1.49E-06	1.52E-06	2.25E-06	4.13E-07	4.46E-05
Pickup Truck	4.82E-06	4.49E-06	0.00E+00	1.61E-06	5.22E-05	2.24E-05	4.04E-06	1.33E-06	1.72E-06	1.31E-06	2.67E-06	7.09E-07	3.72E-06	3.79E-06	5.64E-06	1.03E-06	1.12E-04
Road Preparation Materials Truck	2.89E-05	2.69E-05	0.00E+00	9.68E-06	3.13E-04	1.34E-04	2.42E-05	8.01E-06	1.03E-05	7.87E-06	1.60E-05	4.25E-06	2.23E-05	2.27E-05	3.38E-05	6.19E-06	6.69E-04
General Materials Delivery Truck for General Construction	1.93E-05	1.80E-05	0.00E+00	6.45E-06	2.09E-04	8.96E-05	1.61E-05	5.34E-06	6.89E-06	5.25E-06	1.07E-05	2.83E-06	1.49E-05	1.52E-05	2.25E-05	4.13E-06	4.46E-04
PV Module, Tracker, & Electrical component Delivery	2.32E-04	2.15E-04	0.00E+00	7.74E-05	2.51E-03	1.07E-03	1.94E-04	6.41E-05	8.27E-05	6.30E-05	1.28E-04	3.40E-05	1.78E-04	1.82E-04	2.71E-04	4.95E-05	5.35E-03
Water Delivery Truck	9.65E-07	8.98E-07	0.00E+00	3.23E-07	1.04E-05	4.48E-06	8.07E-07	2.67E-07	3.45E-07	2.62E-07	5.34E-07	1.42E-07	7.43E-07	7.58E-07	1.13E-06	2.06E-07	2.23E-05
Total	**0.0003**	**0.0003**	**0.0000**	**0.0001**	**0.0035**	**0.0015**	**0.0003**	**0.0001**	**0.0001**	**0.0001**	**0.0002**	**0.0000**	**0.0002**	**0.0003**	**0.0004**	**0.0001**	**0.0074**

Aiya Solar Project
On-Road Vehicle Exhaust - Heavy Duty Vehicles

Construction Duration 262 days

Heavy Duty Vehicle Details	Maximum Quantity per day	Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)	Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)	2016 Heavy Duty Vehicle Emission Factors (g/mi)						2016 Heavy Duty Vehicle Emissions (tons)					
				NOx	CO	SOx	VOC	PM10	PM2.5	NOx	CO	SOx	VOC	PM10	PM2.5
Concrete Delivery Truck for General Construction	2	80	0	4.953	1.260	0.012	0.276	0.166	0.153	0.229	0.058	0.001	0.013	0.008	0.007
Dump Truck	1	0	2.5	4.953	1.260	0.012	0.276	0.166	0.153	0.004	0.001	0.000	0.000	0.000	0.000
Flatbed Truck	5	0	2.5	4.953	1.260	0.012	0.276	0.166	0.153	0.018	0.005	0.000	0.001	0.001	0.001
Staff & Security Truck	4	0	2.5	4.953	1.260	0.012	0.276	0.166	0.153	0.014	0.004	0.000	0.001	0.000	0.000
Pickup Truck	10	0	2.5	4.953	1.260	0.012	0.276	0.166	0.153	0.036	0.009	0.000	0.002	0.001	0.001
Road Preparation Materials Truck	10	15	0	4.953	1.260	0.012	0.276	0.166	0.153	0.215	0.055	0.001	0.012	0.007	0.007
General Materials Delivery Truck for General Construction	1	100	0	4.953	1.260	0.012	0.276	0.166	0.153	0.143	0.036	0.000	0.008	0.005	0.004
PV Module, Tracker, & Electrical component Delivery	12	100	0	4.953	1.260	0.012	0.276	0.166	0.153	1.717	0.437	0.004	0.096	0.058	0.053
Water Delivery Truck	2	0	2.5	4.953	1.260	0.012	0.276	0.166	0.153	0.007	0.002	0.000	0.000	0.000	0.000
Total										**2.382**	**0.606**	**0.006**	**0.133**	**0.080**	**0.073**

Heavy Duty Vehicle Details				2016 Heavy Duty Vehicle Emission Factors (g/mi)			2016 Heavy Duty Vehicle Emissions (tons)			
Concrete Delivery Truck for General Construction	2	80	0	1310.517	0.002	0.029	60.558	0.000	0.001	54.983
Dump Truck	1	0	2.5	1310.517	0.002	0.029	0.946	0.000	0.000	0.859
Flatbed Truck	5	0	2.5	1310.517	0.002	0.029	4.731	0.000	0.000	4.296
Staff & Security Truck	4	0	2.5	1310.517	0.002	0.029	3.785	0.000	0.000	3.436
Pickup Truck	10	0	2.5	1310.517	0.002	0.029	9.462	0.000	0.000	8.591
Road Preparation Materials Truck	10	15	0	1310.517	0.002	0.029	56.773	0.000	0.001	51.547
General Materials Delivery Truck for General Construction	1	100	0	1310.517	0.002	0.029	37.849	0.000	0.001	34.364
PV Module, Tracker, & Electrical component Delivery	12	100	0	1310.517	0.002	0.029	454.184	0.001	0.010	412.373
Water Delivery Truck	2	0	2.5	1310.517	0.002	0.029	1.892	0.000	0.000	1.718
Total							**630.180**	**0.001**	**0.014**	**572.168**

Aiya Solar Project
On-Road Vehicle Exhaust - Heavy Duty Vehicles - 2016 – Continued

Construction Duration 262 days

				2016 Heavy Duty Vehicle Emission Factors (g/mi)															
Heavy Duty Vehicle Details	**Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)**	**Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)**	**Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)**	**Benzene**	**Ethanol**	**MTBE**	**1,3-Butadiene**	**Form-aldehyde**	**Acet-aldehyde**	**Acrolein**	**2,2,4-Trimethyl-pentane**	**Ethyl Benzene**	**Hexane**	**Propion-aldehyde**	**Styrene**	**Toluene**	**Xylene**	**Naph-thalene**	**PAH (less Naph-thalene)**
Concrete Delivery Truck for General Construction	2	80	0	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000
Dump Truck	1	0	2.5	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000
Flatbed Truck	5	0	2.5	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000
Staff & Security Truck	4	0	2.5	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000
Pickup Truck	10	0	2.5	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000
Road Preparation Materials Truck	10	15	0	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000
General Materials Delivery Truck for General Construction	1	100	0	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000
PV Module, Tracker, & Electrical component Delivery	12	100	0	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000
Water Delivery Truck	2	0	2.5	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000

	2016 Heavy Duty Vehicle Emissions (tons)																
Heavy Duty Vehicle Details	**Benzene**	**Ethanol**	**MTBE**	**1,3-Butadiene**	**Form-aldehyde**	**Acet-aldehyde**	**Acrolein**	**2,2,4-Trimethyl-pentane**	**Ethyl Benzene**	**Hexane**	**Propion-aldehyde**	**Styrene**	**Toluene**	**Xylene**	**Naph-thalene**	**PAH (less Naph-thalene)**	**Total HAPs**
Concrete Delivery Truck for General Construction	1.06E-04	9.62E-05	0.00E+00	3.46E-05	1.17E-03	4.95E-04	8.86E-05	3.05E-05	3.84E-05	2.94E-05	5.77E-05	1.51E-05	8.70E-05	9.07E-05	1.24E-04	2.20E-05	2.49E-03
Dump Truck	1.66E-06	1.50E-06	0.00E+00	5.40E-07	1.83E-05	7.74E-06	1.38E-06	4.76E-07	5.99E-07	4.59E-07	9.01E-07	2.36E-07	1.36E-06	1.42E-06	1.94E-06	3.44E-07	3.88E-05
Flatbed Truck	8.29E-06	7.51E-06	0.00E+00	2.70E-06	9.14E-05	3.87E-05	6.92E-06	2.38E-06	3.00E-06	2.29E-06	4.51E-06	1.18E-06	6.80E-06	7.08E-06	9.71E-06	1.72E-06	1.94E-04
Staff & Security Truck	6.63E-06	6.01E-06	0.00E+00	2.16E-06	7.31E-05	3.09E-05	5.54E-06	1.90E-06	2.40E-06	1.84E-06	3.61E-06	9.43E-07	5.44E-06	5.67E-06	7.77E-06	1.38E-06	1.55E-04
Pickup Truck	1.66E-05	1.50E-05	0.00E+00	5.40E-06	1.83E-04	7.74E-05	1.38E-05	4.76E-06	5.99E-06	4.59E-06	9.01E-06	2.36E-06	1.36E-05	1.42E-05	1.94E-05	3.44E-06	3.88E-04
Road Preparation Materials Truck	9.95E-05	9.02E-05	0.00E+00	3.24E-05	1.10E-03	4.64E-04	8.30E-05	2.86E-05	3.60E-05	2.75E-05	5.41E-05	1.41E-05	8.16E-05	8.50E-05	1.17E-04	2.06E-05	2.33E-03
General Materials Delivery Truck for General Construction	6.63E-05	6.01E-05	0.00E+00	2.16E-05	7.31E-04	3.09E-04	5.54E-05	1.90E-05	2.40E-05	1.84E-05	3.61E-05	9.43E-06	5.44E-05	5.67E-05	7.77E-05	1.38E-05	1.55E-03
PV Module, Tracker, & Electrical component Delivery	7.96E-04	7.21E-04	0.00E+00	2.59E-04	8.77E-03	3.71E-03	6.64E-04	2.29E-04	2.88E-04	2.20E-04	4.33E-04	1.13E-04	6.53E-04	6.80E-04	9.32E-04	1.65E-04	1.86E-02
Water Delivery Truck	3.32E-06	3.01E-06	0.00E+00	1.08E-06	3.66E-05	1.55E-05	2.77E-06	9.52E-07	1.20E-06	9.18E-07	1.80E-06	4.72E-07	2.72E-06	2.83E-06	3.89E-06	6.88E-07	7.77E-05
Total	**0.0011**	**0.0010**	**0.0000**	**0.0004**	**0.0122**	**0.0052**	**0.0009**	**0.0003**	**0.0004**	**0.0003**	**0.0006**	**0.0002**	**0.0009**	**0.0009**	**0.0013**	**0.0002**	**0.0259**

Notes:
1 - Per the Project, construction of the SPGF, from site preparation and grading to commercial operation, will be expected to take 15 months (last quarter-2015-end 2016). Construction will generally occur between 7 a.m. and 7 p.m., Monday through Friday.
2 - Emission factors developed using MOVES2014-20141021.
3 - Heavy duty vehicle emission factors based on the MOVES2014 default Clark County,NV mix of single-unit and combination long and short-haul trucks for years 2015 and 2016 travelling at an average speed of 35 mph.
4 - The type of heavy duty vehicle, maximum quantity per day, and Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day) provided from the K Road Solar Project.
5 - Roundtrip mileage for Max Daily Onsite Roundtrip Distance per Vehicle (miles/day) based on (1) information from draft EIS: 200 ft gravel access road connecting the project to the existing paved highway 168 (assumed to be negligible), and (2) the assumption that the on-site distance per day = 2.5 miles per roundtrip (distance traveled in and out on 900 acre site if site is 1.25 miles X 1.25 miles).

Aiya Solar Project
On-Road Vehicle Exhaust - Commute Vehicles

66 days

		2015 Worker Commute Emission Factors (g/mi)						2015 Worker Commute Emission Factors (g/mi)					
Worker Passenger Vehicles	Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)	NOx	CO	SOx	VOC	PM10	PM2.5	NOx	CO	SOx	VOC	PM10	PM2.5
300	100	0.587	3.197	0.007	0.077	0.008	0.007	**1.280**	**6.977**	**0.016**	**0.169**	**0.018**	**0.016**

		2015 Worker Commute Emission Factors (g/mi)			2015 Worker Commute Emission Factors (g/mi)			
Worker Passenger Vehicles	Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)	CO2	N2O	CH4	CO2	N2O	CH4	CO2e (metric tons)
300	100	370.622	0.002	0.005	**808.915**	**0.005**	**0.012**	**735.334**

		2015 Worker Commute Emission Factors (g/mi)															
Worker Passenger Vehicles	Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)	Benzene	Ethanol	MTBE	1,3-Butadiene	Form-aldehyde	Acet-aldehyde	Acrolein	2,2,4-Trimethyl-pentane	Ethyl Benzene	Hexane	Propion-aldehyde	Styrene	Toluene	Xylene	Naph-thalene	PAH (less Naph-thalene)
300	100	2.86E-03	2.46E-04	0.00E+00	2.79E-04	1.09E-03	8.97E-04	5.13E-05	1.37E-03	1.46E-03	1.37E-03	6.26E-05	8.07E-05	6.54E-03	5.33E-03	1.60E-04	4.77E-05

2015 Heavy Duty Vehicle Emissions (tons)																
Benzene	Ethanol	MTBE	1,3-Butadiene	Form-aldehyde	Acet-aldehyde	Acrolein	2,2,4-Trimethyl-pentane	Ethyl Benzene	Hexane	Propion-aldehyde	Styrene	Toluene	Xylene	Naph-thalene	PAH (less Naph-thalene)	Total HAPs
0.0063	**0.0005**	**0.0000**	**0.0006**	**0.0024**	**0.0020**	**0.0001**	**0.0030**	**0.0032**	**0.0030**	**0.0001**	**0.0002**	**0.0143**	**0.0116**	**0.0003**	**0.0001**	**0.0477**

Aiya Solar Project
On-Road Vehicle Exhaust - Commute Vehicles

Construction Duration 262 days

		2016 Worker Commute Emission Factors (g/mi)						2016 Worker Commute Emission Factors (g/mi)					
Worker Passenger Vehicles	Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)	NOx	CO	SOx	VOC	PM10	PM2.5	NOx	CO	SOx	VOC	PM10	PM2.5
300	100	0.522	3.538	0.007	0.069	0.007	0.006	**4.520**	**30.651**	**0.065**	**0.594**	**0.060**	**0.053**

		2016 Worker Commute Emission Factors (g/mi)			2016 Worker Commute Emission Factors (g/mi)			
Worker Passenger Vehicles	Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)	CO2	N2O	CH4	CO2	N2O	CH4	CO2e (metric tons)
300	100	373.470	0.002	0.006	**3235.820**	**0.016**	**0.050**	**2940.833**

		2016 Worker Commute Emission Factors (g/mi)															
Worker Passenger Vehicles	Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)	Benzene	Ethanol	MTBE	1,3-Butadiene	Form-aldehyde	Acet-aldehyde	Acrolein	2,2,4-Trimethyl-pentane	Ethyl Benzene	Hexane	Propion-aldehyde	Styrene	Toluene	Xylene	Naph-thalene	PAH (less Naph-thalene)
300	100	2.69E-03	2.31E-04	0.00E+00	2.45E-04	9.93E-04	7.54E-04	4.61E-05	1.20E-03	1.28E-03	1.25E-03	5.42E-05	7.42E-05	5.75E-03	4.69E-03	1.42E-04	4.11E-05

2016 Worker Commute Emissions (tons)																
Benzene	Ethanol	MTBE	1,3-Butadiene	Form-aldehyde	Acet-aldehyde	Acrolein	2,2,4-Trimethyl-pentane	Ethyl Benzene	Hexane	Propion-aldehyde	Styrene	Toluene	Xylene	Naph-thalene	PAH (less Naph-thalene)	Total HAPs
0.0233	**0.0020**	**0.0000**	**0.0021**	**0.0086**	**0.0065**	**0.0004**	**0.0104**	**0.0111**	**0.0108**	**0.0005**	**0.0006**	**0.0498**	**0.0407**	**0.0012**	**0.0004**	**0.1684**

Notes:
1 - Per the Project, construction of the SPGF, from site preparation and grading to commercial operation, will be expected to take 15 months (last quarter-2015-end 2016). Construction will generally occur between 7 a.m. and 7 p.m., Monday through Friday.
2 - Emission factors developed using MOVES2014-20141021
3 - Worker commute emission factors are based on the default MOVES2014-20141021 national mix of passenger cars and trucks for years 2015 and 2016 travelling at an average speed of 35 mph.
4 - The number of worker passenger vehicles, and the Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day) provided from the K Road Solar Project.

Aiya Solar Project
Paved Road Fugitive Dust - Commute Vehicles

Paved Roads emission factors from AP-42, Section 13.2.1: Paved Roads (Final Section 1/11)

E= k(sL)^0.91 * (W)^1.02
where:

E=		Particulate emission factor (lb/vmt)
k =	0.0022	lb/VMT [Table 13.2.1-1, particle size multiplier for PM10]
k =	0.00054	lb/VMT [Table 13.2.1-1, particle size multiplier for PM2.5]
sL =	0.6	Road surface silt loading (grams per square meter (g/m2)), [Table 13.2.1-2] Assumed less than 500 average daily traffic to represent the project.
W =		Vehicle weight (tons)

Construction Duration 66 days

Vehicle Details	W (tons)	Maximum Quantity per day	Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)	Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)	E_PM10 (lb/vmt)	E_PM2.5 (lb/vmt)	Total Vehicle Miles Traveled on Paved Roads (VMT)	2015 Emissions (tons) PM10 Emissions (tons)	2015 Emissions (tons) PM2.5 Emissions (tons)
Concrete Delivery Truck for General Construction	20	2	80	0	0.0293	0.0072	10,560	0.155	0.038
Dump Truck	20	1	0	2	0.0293	0.0072	132	0.002	0.000
Flatbed Truck	10	5	0	2	0.0145	0.0036	660	0.005	0.001
Staff & Security Truck	2.25	4	0	2	0.0032	0.0008	528	0.001	0.000
Pickup Truck	4	10	0	2	0.0057	0.0014	1,320	0.004	0.001
Road Preparation Materials Truck	20	10	15	0	0.0293	0.0072	9,900	0.145	0.036
General Materials Delivery Truck for General Construction	20	1	100	0	0.0293	0.0072	6,600	0.097	0.024
PV Module, Tracker, & Electrical component Delivery	10	12	100	0	0.0145	0.0036	79,200	0.573	0.141
Water Delivery Truck	30	2	0	2	0.0444	0.0109	264	0.006	0.001
Worker Passenger Vehicles	1.25	300	100	0	0.0017	0.0004	1,980,000	1.718	0.422
Total							**2,089,164**	**2.705**	**0.664**

2016 Construction Duration 262 days

Vehicle Details	W (tons)	Maximum Quantity per day	Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)	Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)	E_PM10 (lb/vmt)	E_PM2.5 (lb/vmt)	Total Vehicle Miles Traveled on Paved Roads (VMT)	2016 Emissions (tons) PM10 Emissions (tons)	2016 Emissions (tons) PM2.5 Emissions (tons)
Concrete Delivery Truck for General Construction	20	2	80	0	0.0293	0.0072	41,920	0.615	0.151
Dump Truck	20	1	0	2	0.0293	0.0072	524	0.008	0.002
Flatbed Truck	10	5	0	2	0.0145	0.0036	2,620	0.019	0.005
Staff & Security Truck	2.25	4	0	2	0.0032	0.0008	2,096	0.003	0.001
Pickup Truck	4	10	0	2	0.0057	0.0014	5,240	0.015	0.004
Road Preparation Materials Truck	20	10	15	0	0.0293	0.0072	39,300	0.577	0.142
General Materials Delivery Truck for General Construction	20	1	100	0	0.0293	0.0072	26,200	0.384	0.094
PV Module, Tracker, & Electrical component Delivery	10	12	100	0	0.0145	0.0036	314,400	2.275	0.558
Water Delivery Truck	30	2	0	2	0.0444	0.0109	1,048	0.023	0.006
Worker Passenger Vehicles	1.25	300	100	0	0.0017	0.0004	7,860,000	6.820	1.674
Total							**8,293,348**	**10.739**	**2.636**

Notes:
1 - Per the Project, construction of the SPGF, from site preparation and grading to commercial operation, will be expected to take 15 months (last quarter-2015-end 2016). Construction will generally occur between 7 a.m. and 7 p.m., Monday through Friday.
2 - The type of heavy duty vehicle, maximum quantity per day, vehicle weight, and Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day) provided from the K Road Solar Project.
3 - Roundtrip mileage for Max Daily Onsite Roundtrip Distance per Vehicle (miles/day) based on (1) information from draft EIS: 200 ft gravel access road connecting the project to the existing paved highway 168 (assumed to be negligible), and (2) the assumption that the on-site distance per day = 2.5 miles per roundtrip (distance traveled in and out on 900 acre site if site is 1.25 miles X 1.25 miles).
4 - Assumed that 2 miles of of the onsite roads will be paved as access roads.

Aiya Solar Project
Unpaved Road Fugitive Dust - Commute Vehicles

Unpaved Roads emission factor from AP-42, Section 13.2.2: Unpaved Roads (11/06)

E =		k(s/12)a(W/3)b
where:		
E=		Particulate emission factor (lb/vmt)
s =	8.5	Surface material silt content (%) [Table 13.2.2-1, Construction sites mean silt content
W =		Vehicle weight (tons)
k =	1.5	lb/VMT [Table 13.2.2-2, for PM10]
k =	0.15	lb/VMT [Table 13.2.2-2, for PM2.5]
a =	0.9	constant [Table 13.2.2-2, for PM10 and PM2.5]
b =	0.45	constant [Table 13.2.2-2, for PM10 and PM2.5]

Construction Duration 66 days

							2015 Emissions (tons)	
Vehicle Details	**W (tons)**	**Maximum Quantity per day**	**Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)**	**E_PM10 (lb/vmt)**	**E_PM2.5 (lb/vmt)**	**Total Vehicle Miles Traveled on Unpaved Roads (VMT)**	**PM10 Emissions (tons)**	**PM2.5 Emissions (tons)**
Concrete Delivery Truck for General Construction	20	2	0	2.583	0.258	0	0.000	0.000
Dump Truck	20	1	0.5	2.583	0.258	33	0.043	0.004
Flatbed Truck	10	5	0.5	1.891	0.189	165	0.156	0.016
Staff & Security Truck	2.25	4	0.5	0.966	0.097	132	0.064	0.006
Pickup Truck	4	10	0.5	1.252	0.125	330	0.207	0.021
Road Preparation Materials Truck	20	10	0	2.583	0.258	0	0.000	0.000
General Materials Delivery Truck for General Construction	20	1	0	2.583	0.258	0	0.000	0.000
PV Module, Tracker, & Electrical component Delivery	20	1	0	2.583	0.258	0	0.000	0.000
Water Delivery Truck	30	2	0.5	3.100	0.310	66	0.102	0.010
Worker Passenger Vehicles	1.25	300	0	0.742	0.074	0	0.000	0.000
Total						**726**	**0.571**	**0.057**

2016 Construction Duration 262 days

							2016 Emissions (tons)	
Vehicle Details	**W (tons)**	**Maximum Quantity per day**	**Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)**	**E_PM10 (lb/vmt)**	**E_PM2.5 (lb/vmt)**	**Total Vehicle Miles Traveled on Unpaved Roads (VMT)**	**PM10 Emissions (tons)**	**PM2.5 Emissions (tons)**
Concrete Delivery Truck for General Construction	20	2	0	2.583	0.258	0	0.000	0.000
Dump Truck	20	1	0.5	2.583	0.258	131	0.169	0.017
Flatbed Truck	10	5	0.5	1.891	0.189	655	0.619	0.062
Staff & Security Truck	2.25	4	0.5	0.966	0.097	524	0.253	0.025
Pickup Truck	4	10	0.5	1.252	0.125	1,310	0.820	0.082
Road Preparation Materials Truck	20	10	0	2.583	0.258	0	0.000	0.000
General Materials Delivery Truck for General Construction	20	1	0	2.583	0.258	0	0.000	0.000
PV Module, Tracker, & Electrical component Delivery	10	12	0	1.891	0.189	0	0.000	0.000
Water Delivery Truck	30	2	0.5	3.100	0.310	262	0.406	0.041
Worker Passenger Vehicles	1.25	300	0	0.742	0.074	0	0.000	0.000
Total						**2,882**	**2.267**	**0.227**

Notes:
1 - Per the Project, construction of the SPGF, from site preparation and grading to commercial operation, will be expected to take 15 months (last quarter-2015-end 2016). Construction will generally occur between 7 a.m. and 7 p.m., Monday through Friday.
2 - The type of heavy duty vehicle, maximum quantity per day, vehicle weight, and Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day) provided from the K Road Solar Project.
3 - Roundtrip mileage for Max Daily Onsite Roundtrip Distance per Vehicle (miles/day) based on (1) information from draft EIS: 200 ft gravel access road connecting the project to the existing paved highway 168 (assumed to be negligible), and (2) the assumption that the on-site distance per day = 2.5 miles per roundtrip (distance traveled in and out on 900 acre site if site is 1.25 miles X 1.25 miles).
4 - Assumed that 0.5 miles of of the onsite roads will be paved as access roads.

Aiya Solar Project
Fugitive Dust from Construction Activities

Area conversion	43,560	sq ft/acre
Soil density	100	lb/cf
PM2.5 factor	20.8%	Percent of PM10

							2015 Emissions	
Construction Activity	**Area Disturbed (acres)**	**Disturbance Depth (ft)**	**Amount of Soil Disturbed (tons)**	**PM10 Emission Factor (lb/ton)**	**PM10 Emissions (tons)**	**Dust Control Efficiency (%)**	**PM10 (tons)**	**PM2.5 (tons)**
Access Road Construction	1	1	2,178	0.058	0.063	50%	0.032	0.007
Parking and Laydown	100	0.5	108,900	0.058	3.158	50%	1.579	0.328
Site Grading	180	0.5	196,020	0.058	5.685	50%	2.842	0.591
Total							**4.453**	**0.926**

fraction of excavation activity $= \frac{88}{131 + 261} =$ 0.224489796

fraction of excavation activity $= \frac{262}{131 + 261} =$ 0.668367347

								2015 Emissions		2016 Emissions	
Construction Activity	**Amount of Soil Excavated (cf)**	**Amount of Soil Excavated (tons)**	**Amount of Soil Backfilled (tons)**	**Total Amount of Soil (tons)**	**PM10 Emission Factor (lb/ton)**	**PM10 Emissions (tons)**	**Dust Control Efficiency (%)**	**PM10 (tons)**	**PM2.5 (tons)**	**PM10 (tons)**	**PM2.5 (tons)**
Excavation	31,500	1,575	1,575	3,150	0.058	0.091	50%	0.010	0.002	0.031	0.006
Total								**0.010**	**0.002**	**0.031**	**0.006**
Grand Total								**4.463**	**0.928**	**0.031**	**0.006**

Notes:

1 - Area disturbed for access road construction assumed to be 20% of 900 acre site, 10% for parking and laydown, and 20% for site grading. Depth disturbed for access road construction assumed to 12 inches, 6 inches for parking and laydown, and 6 inches for site grading. Access road construction, parking and laydown, and site grading assumed to occur in 2015. Amount of soil disturbed uses 100 lb/cf soil density and conversion of 43,560 sq ft = 1 acre.

2 - Assumption that can be made: 15,000 cf per mile of transmission line based on an average volume excavated from a recent transmission line project for 4.5 structures per mile of 345 kV double circuit lattice tower and 5.5 structures per mile of 230 kV double circuit tubular poles. Using info from draft EIS, approximately 2.1 miles of single-circuit 230-kV overhead transmission line from the SPGF to the Reid Gardner 230-kV substation. 2.1 * 15,000 cf per mile of transmission line = 31,500 cf of soil excavated.

3 - Disturbance emission factors from AP-42, Table 11.9-4 (dated 7/98), assuming 100% of TSP is PM10.

4 - PM10 emissions are conservatively assumed to be 100% of TSP.

5 - PM2.5 emissions were calculated following the SCAQMD Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology, October 2006. For construction and demolition fugitive dust sources, 20.8% of the PM10 would be PM2.5.

6 - PM emissions are controlled by watering or use of other tackifier, control efficiency assumed to be 50%

Aiya Solar Project
Summary of Operational Emissions

Operation Emission Category	NOx (tons)	CO (tons)	SO2 (tons)	VOC (tons)	PM10 (tons)	PM2.5 (tons)	CO2 (tons)	N2O (tons)	CH4 (tons)	SF6 (tons)	CO2e (metric tons)	TOTAL HAP (tons)
Paved Roads Fugitive Dust	-	-	-	-	0.496	0.122	-	-	-	-	-	-
Unpaved Roads Fugitive Dust	-	-	-	-	1.479	0.148	-	-	-	-	-	-
On-Road Vehicle Exhaust - Heavy Duty Vehicles	0.006	0.041	0.000	0.001	0.000	0.000	4.314	0.000	0.000	-	3.921	0.0002
On-Road Vehicle Exhaust - Commute Vehicles	0.301	2.043	0.004	0.040	0.004	0.004	215.721	0.001	0.003	-	196.056	0.0112
Circuit Breaker SF6 Emissions	-	-	-	-	-	-	-	-	-	0.005	97.567	-
Diesel Fire-Pump Emissions	0.221	0.048	0.015	0.018	0.016	0.016	7.396	0.019	0.006	-	7.421	0.0005
Diesel Generator Emissions	0.639	0.138	0.042	0.051	0.045	0.045	21.448	0.054	0.018	-	21.521	0.0014
Total	**1.167**	**2.270**	**0.061**	**0.109**	**2.040**	**0.334**	**248.880**	**0.074**	**0.028**	**0.005**	**326.485**	**0.0134**

Aiya Solar Project
SF6 Emissions from Circuit Breaker Leakage - Operations

Circuit Breakers

SF6 GWP = 23900

	SF6 Leak Rate Range (lb/yr)	
Circuit Breaker Size (kV)	**Low**	**High**
230	1.5	3

		SF6	CO2e
Number	**Size**	**(ton/yr)**	**(metric ton/yr)**
3	230 kV	0.0045	97.57

Notes:
1 - Assumption: 230kV Breakers: 160 lbs. gas, leaking about 1.5 to 3 lbs. of gas per year
2 - High end of leak rate range used in calculations.
3 - Example calculation: # of circuit breakers * lbs SF6/yr for kV / 2000 lb/yr
4 - The Climate Registry Electric Power Sector Protocol, Version 1.1, March 2009.

Aiya Solar Project
Diesel Fire-Pump Emissions - Operations

Heat Input = 2 MMbtu/hr

Criteria and HAP PTE

Pollutant	EF Source	Emission Factor	Units	Emissions (lb/hr)	Operating Hours	Emissions (ton/yr)
NOx	AP-42, Table 3.3-1	4.41	lb/MMBtu	8.82	50	0.221
CO	AP-42, Table 3.3-1	0.95	lb/MMBtu	1.90	50	0.048
SO2	AP-42, Table 3.3-1	0.29	lb/MMBtu	0.58	50	0.015
VOC	AP-42, Table 3.3-2	0.35	lb/MMBtu	0.70	50	0.018
PM	AP-42, Table 3.3-1	3.10E-01	lb/MMBtu	0.62	50	0.016
HCHO	AP-42, Table 3.3-2	1.18E-03	lb/MMBtu	2.36E-03	50	5.90E-05
Acetaldehyde	AP-42, Table 3.3-2	7.67E-04	lb/MMBtu	1.53E-03	50	3.84E-05
Acrolein	AP-42, Table 3.3-2	9.25E-05	lb/MMBtu	1.85E-04	50	4.63E-06
Benzene	AP-42, Table 3.3-2	9.33E-04	lb/MMBtu	1.87E-03	50	4.67E-05
Propylene	AP-42, Table 3.3-2	2.58E-03	lb/MMBtu	5.16E-03	50	1.29E-04
Toluene	AP-42, Table 3.3-2	4.09E-04	lb/MMBtu	8.18E-04	50	2.05E-05
Naphthalene	AP-42, Table 3.3-2	8.48E-05	lb/MMBtu	1.70E-04	50	4.24E-06
Xylene	AP-42, Table 3.3-2	2.85E-04	lb/MMBtu	5.70E-04	50	1.43E-05
Methanol	AP-42, Table 3.3-2	2.50E-03	lb/MMBtu	5.00E-03	50	1.25E-04
n-Hexane	AP-42, Table 3.3-2	1.11E-03	lb/MMBtu	2.22E-03	50	5.55E-05
1,3-Butadiene	AP-42, Table 3.3-2	3.91E-05	lb/MMBtu	7.82E-05	50	1.96E-06
Total HAPs						**4.99E-04**

Greenhouse Gas PTE

Pollutant	EF Source	Emission Factor	Units	Emissions (lb/hr)	Operating Hours	Emissions (ton/yr)
CO2	EPA MRR Table C-1	73.96	kg/MMBtu	147.92	50	7.396
N2O (as CO2e)	EPA MRR Table C-2	0.0006	kg/MMBtu	0.37	50	0.019
CH4 (as CO2e)	EPA MRR Table C-2	0.003	kg/MMBtu	0.13	50	0.006
CO2e						**7.421**

Notes: Emission factors as per 40 CFR Part 98, Tables C-1 and C-2

Aiya Solar Project
Diesel Generator Emissions - Operations

Heat Input = 5.8 MMbtu/hr

Criteria and HAP PTE

Pollutant	EF Source	Emission Factor	Units	Emissions (lb/hr)	Operating Hours	Emissions (ton/yr)
NOx	AP-42, Table 3.3-1	4.41	lb/MMBtu	25.58	50	0.639
CO	AP-42, Table 3.3-1	0.95	lb/MMBtu	5.51	50	0.138
SO2	AP-42, Table 3.3-1	0.29	lb/MMBtu	1.68	50	0.042
VOC	AP-42, Table 3.3-2	0.35	lb/MMBtu	2.03	50	0.051
PM	AP-42, Table 3.3-1	3.10E-01	lb/MMBtu	1.80	50	0.045
HCHO	AP-42, Table 3.3-2	1.18E-03	lb/MMBtu	6.84E-03	50	1.71E-04
Acetaldehyde	AP-42, Table 3.3-2	7.67E-04	lb/MMBtu	4.45E-03	50	1.11E-04
Acrolein	AP-42, Table 3.3-2	9.25E-05	lb/MMBtu	5.37E-04	50	1.34E-05
Benzene	AP-42, Table 3.3-2	9.33E-04	lb/MMBtu	5.41E-03	50	1.35E-04
Propylene	AP-42, Table 3.3-2	2.58E-03	lb/MMBtu	1.50E-02	50	3.74E-04
Toluene	AP-42, Table 3.3-2	4.09E-04	lb/MMBtu	2.37E-03	50	5.93E-05
Naphthalene	AP-42, Table 3.3-2	8.48E-05	lb/MMBtu	4.92E-04	50	1.23E-05
Xylene	AP-42, Table 3.3-2	2.85E-04	lb/MMBtu	1.65E-03	50	4.13E-05
Methanol	AP-42, Table 3.3-2	2.50E-03	lb/MMBtu	1.45E-02	50	3.63E-04
n-Hexane	AP-42, Table 3.3-2	1.11E-03	lb/MMBtu	6.44E-03	50	1.61E-04
1,3-Butadiene	AP-42, Table 3.3-2	3.91E-05	lb/MMBtu	2.27E-04	50	5.67E-06
Total HAPs						**1.45E-03**

Greenhouse Gas PTE

Pollutant	EF Source	Emission Factor	Units	Emissions (lb/hr)	Operating Hours	Emissions (ton/yr)
CO2	EPA MRR Table C-1	73.96	kg/MMBtu	428.97	50	21.448
N2O (as CO2e)	EPA MRR Table C-2	0.0006	kg/MMBtu	1.08	50	0.054
CH4 (as CO2e)	EPA MRR Table C-2	0.003	kg/MMBtu	0.37	50	0.018
CO2e						**21.521**

Notes: Emission factors as per 40 CFR Part 98, Tables C-1 and C-2

Aiya Solar Project
On-Road Vehicle Exhaust - Heavy Duty Vehicles - Operations

Annual Operations 262 days

				2016 Heavy Duty Vehicle Emission Factors (g/mi)						2016 Heavy Duty Vehicle Emissions (tons)					
Heavy Duty Vehicle Details	**Maximum Quantity per day**	**Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)**	**Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)**	**NOx**	**CO**	**SOx**	**VOC**	**PM10**	**PM2.5**	**NOx**	**CO**	**SOx**	**VOC**	**PM10**	**PM2.5**
Staff & Security Truck	4	0	2.5	0.522	3.538	0.007	0.069	0.007	0.006	0.002	0.010	0.00002	0.00020	0.00002	0.00002
Pickup Truck	10	0	2.5	0.522	3.538	0.007	0.069	0.007	0.006	0.004	0.026	0.00005	0.00050	0.00005	0.00004
Water Delivery Truck	2	0	2.5	0.522	3.538	0.007	0.069	0.007	0.006	0.001	0.005	0.00001	0.00010	0.00001	0.00001
Total										**0.006**	**0.041**	**0.00009**	**0.00079**	**0.00008**	**0.00007**

				2016 Heavy Duty Vehicle			2016 Heavy Duty Vehicle Emissions (tons)			
Heavy Duty Vehicle Details	**Maximum Quantity per day**	**Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)**	**Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)**	**CO2**	**N2O**	**CH4**	**CO2**	**N2O**	**CH4**	**CO2e (metric tons)**
Staff & Security Truck	4	0	2.5	373.470	0.002	0.006	1.079	0.00001	0.00002	0.980
Pickup Truck	10	0	2.5	373.470	0.002	0.006	2.697	0.00001	0.00004	2.451
Water Delivery Truck	2	0	2.5	373.470	0.002	0.006	0.539	0.00000	0.00001	0.490
Total							**4.314**	**0.00002**	**0.00007**	**3.921**

Aiya Solar Project
On-Road Vehicle Exhaust - Heavy Duty Vehicles - Operations - Continued

Annual Operations 262 days

				2016 Heavy Duty Vehicle Emission Factors (g/mi)														
Heavy Duty Vehicle Details	**Maximum Quantity per day**	**Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)**	**Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)**	**Benzene**	**Ethanol**	**MTBE**	**1,3-Butadiene**	**Form-aldehyde**	**Acet-aldehyde**	**Acrolein**	**2,2,4-Trimethyl-pentane**	**Ethyl Benzene**	**Hexane**	**Propion-aldehyde**	**Styrene**	**Toluene**	**Xylene**	**Naph-thalene**
Staff & Security Truck	4	0	2.5	0.003	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.001	0.001	0.000	0.000	0.006	0.005	0.000
Pickup Truck	10	0	2.5	0.003	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.001	0.001	0.000	0.000	0.006	0.005	0.000
Water Delivery Truck	2	0	2.5	0.003	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.001	0.001	0.000	0.000	0.006	0.005	0.000

	2016 Heavy Duty Vehicle Emissions (tons)																
Heavy Duty Vehicle Details	**Benzene**	**Ethanol**	**MTBE**	**1,3-Butadiene**	**Form-aldehyde**	**Acet-aldehyde**	**Acrolein**	**2,2,4-Trimethyl-pentane**	**Ethyl Benzene**	**Hexane**	**Propion-aldehyde**	**Styrene**	**Toluene**	**Xylene**	**Naph-thalene**	**PAH (less Naph-thalene)**	**Total HAPs**
Staff & Security Truck	7.77E-06	6.67E-07	0.00E+00	7.08E-07	2.87E-06	2.18E-06	1.33E-07	3.46E-06	3.70E-06	3.61E-06	1.56E-07	2.14E-07	1.66E-05	1.36E-05	4.10E-07	1.19E-07	5.61E-05
Pickup Truck	1.94E-05	1.67E-06	0.00E+00	1.77E-06	7.17E-06	5.44E-06	3.33E-07	8.64E-06	9.25E-06	9.03E-06	3.91E-07	5.35E-07	4.15E-05	3.39E-05	1.02E-06	2.97E-07	1.40E-04
Water Delivery Truck	3.88E-06	3.34E-07	0.00E+00	3.54E-07	1.43E-06	1.09E-06	6.66E-08	1.73E-06	1.85E-06	1.81E-06	7.82E-08	1.07E-07	8.30E-06	6.78E-06	2.05E-07	5.93E-08	2.81E-05
Total	**3.11E-05**	**2.67E-06**	**0.00E+00**	**2.83E-06**	**1.15E-05**	**8.71E-06**	**5.33E-07**	**1.38E-05**	**1.48E-05**	**1.44E-05**	**6.26E-07**	**8.57E-07**	**6.64E-05**	**5.42E-05**	**1.64E-06**	**4.74E-07**	**2.25E-04**

Notes:
1 - Operation assumed to be 7 a.m. and 7 p.m., Monday through Friday.
2 - Emission factors developed using MOVES2014-20141021. Year 2016 was used.
3 - Heavy duty vehicle emission factors based on the default MOVES2014-20141021 national mix of single-unit and combination long- and short-haul trucks for year 2016 travelling at an average speed of 35 mph.
4 - The type of heavy duty vehicle, maximum quantity per day, and Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day) provided from the K Road Solar Project and modified into assumptions for operation.
5 - Roundtrip mileage for Max Daily Onsite Roundtrip Distance per Vehicle (miles/day) based on (1) information from draft EIS: 200 ft gravel access road connecting the project to the existing paved highway 168 (assumed to be negligible), and (2) the assumption that the on-site distance per day = 2.5 miles per roundtrip (distance traveled in and out on 900 acre site if site is 1.25 miles X 1.25 miles).

Aiya Solar Project
On-Road Vehicle Exhaust - Commute Vehicles - Operations

Annual Operations 262 days

		2016 Worker Commute Emission Factors (g/mi)						2016 Worker Commute Emissions (tpy)					
Worker Passenger Vehicles	Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)	NOx	CO	SOx	VOC	PM10	PM2.5	NOx	CO	SOx	VOC	PM10	PM2.5
20	100	0.522	3.538	0.007	0.069	0.007	0.006	**0.301**	**2.043**	**0.004**	**0.040**	**0.004**	**0.004**

		2016 Worker Commute Emission Factors (g/mi)			2016 Worker Commute Emission Factors (g/mi)			
Worker Passenger Vehicles	Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)	CO2	N2O	CH4	CO2	N2O	CH4	CO2e (metric tons)
20	100	373.470	0.002	0.006	**215.721**	**0.001**	**0.003**	**196.056**

		2016 Worker Commute Emission Factors (g/mi)															
Worker Passenger Vehicles	Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)	Benzene	Ethanol	MTBE	1,3-Butadiene	Form-aldehyde	Acet-aldehyde	Acrolein	2,2,4-Trimethyl-pentane	Ethyl Benzene	Hexane	Propion-aldehyde	Styrene	Toluene	Xylene	Naph-thalene	PAH (less Naph-thalene)
20	100	0.0027	0.0002	0.0000	0.0002	0.0010	0.0008	0.0000	0.0012	0.0013	0.0013	0.0001	0.0001	0.0057	0.0047	0.0001	0.0000

2016 Worker Commute Emissions (tons)															
Benzene	Ethanol	MTBE	1,3-Butadiene	Form-aldehyde	Acet-aldehyde	Acrolein	2,2,4-Trimethyl-pentane	Ethyl Benzene	Hexane	Propion-aldehyde	Styrene	Toluene	Xylene	Naph-thalene	PAH (less Naph-thalene)	Total HAPs
0.0016	**0.0001**	**0.0000**	**0.0001**	**0.0006**	**0.0004**	**0.0000**	**0.0007**	**0.0007**	**0.0007**	**0.0000**	**0.0000**	**0.0033**	**0.0027**	**0.0001**	**0.0000**	**0.0112**

Notes:
1 - Operation assumed to be 7 a.m. and 7 p.m., Monday through Friday.
2 - Emission factors developed using MOVES2014-20141021. Year 2016 was used.
3 - Worker commute emission factors are based on the default MOVES2014-20141021 national mix of passenger cars and trucks for year 2016 travelling at an average speed of 35 mph.
4 - The type of vehicle, maximum quantity per day, and Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day) provided from the K Road Solar Project and modified into assumptions for operation.

Aiya Solar Project
Paved Road Fugitive Dust - Operations

Paved Roads emission factors from AP-42, Section 13.2.1: Paved Roads (Final Section 1/11)

E= k(sL)^0.91 * (W)^1.02

where:

E=		Particulate emission factor (lb/vmt)
k =	0.0022	lb/VMT [Table 13.2.1-1, particle size multiplier for PM10]
k =	0.00054	lb/VMT [Table 13.2.1-1, particle size multiplier for PM2.5]
sL =	0.6	Road surface silt loading (grams per square meter (g/m2)), [Table 13.2.1-2] Assumed less than 500 average daily traffic to represent the project.
W =		Vehicle weight (tons)

Annual Operations 262 days

								2016 Emissions (tons)	
Vehicle Details	**W (tons)**	**Maximum Quantity per day**	**Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)**	**Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)**	**E_PM10 (lb/vmt)**	**E_PM2.5 (lb/vmt)**	**Total Vehicle Miles Traveled on Paved Roads (VMT)**	**PM10 Emissions (tons)**	**PM2.5 Emissions (tons)**
Staff & Security Truck	2.25	4	0	2	0.0032	0.0008	2,096	0.003	0.001
Pickup Truck	4	10	0	2	0.0057	0.0014	5,240	0.015	0.004
Water Delivery Truck	30	2	0	2	0.0444	0.0109	1,048	0.023	0.006
Worker Passenger Vehicles	1.25	20	100	0	0.0017	0.0004	524,000	0.455	0.112
Total							**532,384**	**0.496**	**0.122**

Notes:

1 - Per the Project, construction of the SPGF, from site preparation and grading to commercial operation, will be expected to take 15 months (last quarter-2015-end 2016). Construction will generally occur between 7 a.m. and 7 p.m., Monday through Friday.

2 - The type of heavy duty vehicle, maximum quantity per day, vehicle weight, and Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day) provided from the K Road Solar Project.

3 - Roundtrip mileage for Max Daily Onsite Roundtrip Distance per Vehicle (miles/day) based on (1) information from draft EIS: 200 ft gravel access road connecting the project to the existing paved highway 168 (assumed to be negligible), and (2) the assumption that the on-site distance per day = 2.5 miles per roundtrip (distance traveled in and out on 900 acre site if site is 1.25 miles X 1.25 miles).

4 - Assumed that 2 miles of of the onsite roads will be paved as access roads.

Aiya Solar Project
Unpaved Road Fugitive Dust - Operations

Unpaved Roads emission factor from AP-42, Section 13.2.2: Unpaved Roads (11/06)

E =		k(s/12)a(W/3)b
where:		
E=		Particulate emission factor (lb/vmt)
s =	8.5	Surface material silt content (%) [Table 13.2.2-1, Construction sites mean silt content %]
W =		Vehicle weight (tons)
k =	1.5	lb/VMT [Table 13.2.2-2, for PM10]
k =	0.15	lb/VMT [Table 13.2.2-2, for PM2.5]
a =	0.9	constant [Table 13.2.2-2, for PM10 and PM2.5]
b =	0.45	constant [Table 13.2.2-2, for PM10 and PM2.5]

Annual Operations 262 days

							2016 Emissions (tons)	
Vehicle Details	**W (tons)**	**Maximum Quantity per day**	**Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)**	**E_PM10 (lb/vmt)**	**E_PM2.5 (lb/vmt)**	**Total Vehicle Miles Traveled on Unpaved Roads (VMT)**	**PM10 Emissions (tons)**	**PM2.5 Emissions (tons)**
Staff & Security Truck	2.25	4	0.5	0.966	0.097	524	0.253	0.025
Pickup Truck	4	10	0.5	1.252	0.125	1,310	0.820	0.082
Water Delivery Truck	30	2	0.5	3.100	0.310	262	0.406	0.041
Worker Passenger Vehicles	1.25	20	0	0.742	0.074	0	0.000	0.000
Total						**2,096**	**1.479**	**0.148**

Notes:

1 - Operation assumed to be 7 a.m. and 7 p.m., Monday through Friday.

2 - The type of heavy duty vehicle, maximum quantity per day, vehicle weight, and Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day) provided from the K Road Solar Project.

3 - Roundtrip mileage for Max Daily Onsite Roundtrip Distance per Vehicle (miles/day) based on (1) information from draft EIS: 200 ft gravel access road connecting the project to the existing paved highway 168 (assumed to be negligible), and (2) the assumption that the on-site distance per day = 2.5 miles per roundtrip (distance traveled in and out on 900 acre site if site is 1.25 miles X 1.25 miles).

4 - Assumed that 0.5 miles of of the onsite roads will be paved as access roads.

Aiya Solar Project
Summary of Decommission Emissions

Decommission Emission Category	NOx (tons)	CO (tons)	SO2 (tons)	VOC (tons)	PM10 (tons)	PM2.5 (tons)	CO2 (tons)	N2O (tons)	CH4 (tons)	CO2e (metric tons)	TOTAL HAP (tons)
Construction Equipment Exhaust	0.706	0.367	0.001	0.085	0.061	0.059	-	-	-	-	-
On-Road Vehicle Exhaust - Heavy Duty Vehicles	0.019	0.005	0.0000	0.001	0.001	0.001	4.926	0.00001	0.0001	4.473	0.000
On-Road Vehicle Exhaust - Commute Vehicles	0.063	0.429	0.001	0.008	0.001	0.001	45.285	0.0002	0.0007	41.157	0.002
Fugitive Dust from Travel on Paved Roads	-	-	-	-	0.133	0.033	-	-	-	-	-
Fugitive Dust from Travel on Unpaved Roads	-	-	-	-	0.190	0.019	-	-	-	-	-
Total	**0.788**	**0.800**	**0.002**	**0.095**	**0.387**	**0.112**	**50.211**	**0.0002**	**0.001**	**45.629**	**0.003**

Aiya Solar Project
Off-Road Vehicle Exhaust - Heavy Duty Vehicles - Decommissioning

Decommissioning Duration	22	days
Daily Activity	12	hours
Hourly Activity	264	hours

				Construction Equipment Emission Factors (g/hp-hr)						Heavy Duty Vehicle Emissions (tons)					
Model Equipment Types	**Fuel Type**	**Horsepower**	**Number**	**NOx**	**CO**	**SOx**	**VOC**	**PM10**	**PM2.5**	**NOx**	**CO**	**SOx**	**VOC**	**PM10**	**PM2.5**
Aerial Lifts	Diesel	50	1	3.810	0.985	0.003	0.205	0.153	0.149	0.055	0.014	0.000	0.003	0.002	0.002
Concrete/Industrial Saws	Diesel	50	1	3.853	1.030	0.003	0.210	0.161	0.157	0.056	0.015	0.000	0.003	0.002	0.002
Cranes	Diesel	175	1	2.138	0.573	0.003	0.193	0.140	0.135	0.109	0.029	0.000	0.010	0.007	0.007
Dumpers/Tenders	Diesel	50	1	5.188	5.077	0.004	1.236	0.777	0.754	0.075	0.074	0.000	0.018	0.011	0.011
Excavators	Diesel	175	2	1.492	0.650	0.003	0.163	0.154	0.149	0.152	0.066	0.000	0.017	0.016	0.015
Off-Highway Trucks	Diesel	300	1	0.859	0.203	0.003	0.137	0.029	0.028	0.075	0.018	0.000	0.012	0.003	0.002
Rough Terrain Forklifts	Diesel	75	1	3.595	2.265	0.004	0.257	0.256	0.249	0.078	0.049	0.000	0.006	0.006	0.005
Tractors/Loaders/Backhoes	Diesel	75	1	4.792	4.631	0.004	0.795	0.662	0.642	0.105	0.101	0.000	0.017	0.014	0.014
Total										**0.706**	**0.367**	**0.001**	**0.085**	**0.061**	**0.059**

Notes:
1 - Decommission assumed to last 1 month, 7 a.m. and 7 p.m., Monday through Friday.
2 - Construction equipment emission factors developed using EPA MOVES2014-20141021 model for nonroad sources. Year 2016 was used because decommission year not yet known.
3 - Construction equipment number, type, and HP rating was assumed: A mid-range HP value was chosen for each equipment category.

Aiya Solar Project
On-Road Vehicle Exhaust - Heavy Duty Vehicles - Decommissioning

Decommissioning Duration 22 days

				Heavy Duty Vehicle Emission Factors (g/mi)						Heavy Duty Vehicle Emissions (tons)					
Heavy Duty Vehicle Details	**Maximum Quantity per day**	**Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)**	**Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)**	**NOx**	**CO**	**SOx**	**VOC**	**PM10**	**PM2.5**	**NOx**	**CO**	**SOx**	**VOC**	**PM10**	**PM2.5**
Dump Truck	1	0	2.5	4.953	1.260	0.012	0.276	0.166	0.153	0.000	0.000	0.000	0.000	0.000	0.000
Flatbed Truck	5	0	2.5	4.953	1.260	0.012	0.276	0.166	0.153	0.002	0.000	0.000	0.000	0.000	0.000
Staff & Security Truck	4	0	2.5	4.953	1.260	0.012	0.276	0.166	0.153	0.001	0.000	0.000	0.000	0.000	0.000
Pickup Truck	10	0	2.5	4.953	1.260	0.012	0.276	0.166	0.153	0.003	0.001	0.000	0.000	0.000	0.000
General Materials Delivery Truck	1	100	0	4.953	1.260	0.012	0.276	0.166	0.153	0.012	0.003	0.000	0.001	0.000	0.000
Water Delivery Truck	2	0	2.5	4.953	1.260	0.012	0.276	0.166	0.153	0.001	0.000	0.000	0.000	0.000	0.000
Total										**0.019**	**0.005**	**0.000**	**0.001**	**0.001**	**0.001**

				Heavy Duty Vehicle Emission Factors (g/mi)			Heavy Duty Vehicle Emissions (tons)			
Heavy Duty Vehicle Details	**Maximum Quantity per day**	**Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)**	**Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)**	**CO2**	**N2O**	**CH4**	**CO2**	**N2O**	**CH4**	**CO2e (metric tons)**
Dump Truck	1	0	2.5	1310.517	0.002	0.029	0.079	0.000	0.000	0.072
Flatbed Truck	5	0	2.5	1310.517	0.002	0.029	0.397	0.000	0.000	0.361
Staff & Security Truck	4	0	2.5	1310.517	0.002	0.029	0.318	0.000	0.000	0.289
Pickup Truck	10	0	2.5	1310.517	0.002	0.029	0.795	0.000	0.000	0.721
General Materials Delivery Truck	1	100	0	1310.517	0.002	0.029	3.178	0.000	0.000	2.886
Water Delivery Truck	2	0	2.5	1310.517	0.002	0.029	0.159	0.000	0.000	0.144
Total							**4.926**	**0.000**	**0.000**	**4.473**

Aiya Solar Project
On-Road Vehicle Exhaust - Heavy Duty Vehicles - Decommissioning – Continued

Decommissioning Duration 22 days

				Heavy Duty Vehicle Emission Factors (g/mi)															
Heavy Duty Vehicle Details	**Maximum Quantity per day**	**Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)**	**Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)**	**Benzene**	**Ethanol**	**MTBE**	**1,3-Butadiene**	**Form-aldehyde**	**Acet-aldehyde**	**Acrolein**	**2,2,4-Trimethyl-pentane**	**Ethyl Benzene**	**Hexane**	**Propion-aldehyde**	**Styrene**	**Toluene**	**Xylene**	**Naph-thalene**	**PAH (less Naph-thalene)**
Dump Truck	1	0	2.5	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000
Flatbed Truck	5	0	2.5	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000
Staff & Security Truck	4	0	2.5	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000
Pickup Truck	10	0	2.5	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000
General Materials Delivery Truck	1	100	0	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000
Water Delivery Truck	2	0	2.5	0.002	0.002	0.000	0.001	0.025	0.011	0.002	0.001	0.001	0.001	0.001	0.000	0.002	0.002	0.003	0.000

	Heavy Duty Vehicle Emissions (tons)																
Heavy Duty Vehicle Details	**Benzene**	**Ethanol**	**MTBE**	**1,3-Butadiene**	**Form-aldehyde**	**Acet-aldehyde**	**Acrolein**	**2,2,4-Trimethyl-pentane**	**Ethyl Benzene**	**Hexane**	**Propion-aldehyde**	**Styrene**	**Toluene**	**Xylene**	**Naph-thalene**	**PAH (less Naph-thalene)**	**Total HAPs**
Dump Truck	1.39E-07	1.26E-07	0.00E+00	4.53E-08	1.53E-06	6.50E-07	1.16E-07	4.00E-08	5.03E-08	3.85E-08	7.57E-08	1.98E-08	1.14E-07	1.19E-07	1.63E-07	2.89E-08	3.26E-06
Flatbed Truck	6.96E-07	6.31E-07	0.00E+00	2.27E-07	7.67E-06	3.25E-06	5.81E-07	2.00E-07	2.52E-07	1.93E-07	3.78E-07	9.90E-08	5.71E-07	5.95E-07	8.16E-07	1.44E-07	1.63E-05
Staff & Security Truck	5.57E-07	5.05E-07	0.00E+00	1.81E-07	6.14E-06	2.60E-06	4.65E-07	1.60E-07	2.01E-07	1.54E-07	3.03E-07	7.92E-08	4.57E-07	4.76E-07	6.52E-07	1.16E-07	1.30E-05
Pickup Truck	1.39E-06	1.26E-06	0.00E+00	4.53E-07	1.53E-05	6.50E-06	1.16E-06	4.00E-07	5.03E-07	3.85E-07	7.57E-07	1.98E-07	1.14E-06	1.19E-06	1.63E-06	2.89E-07	3.26E-05
General Materials Delivery Truck	5.57E-06	5.05E-06	0.00E+00	1.81E-06	6.14E-05	2.60E-05	4.65E-06	1.60E-06	2.01E-06	1.54E-06	3.03E-06	7.92E-07	4.57E-06	4.76E-06	6.52E-06	1.16E-06	1.30E-04
Water Delivery Truck	2.79E-07	2.52E-07	0.00E+00	9.07E-08	3.07E-06	1.30E-06	2.32E-07	8.00E-08	1.01E-07	7.70E-08	1.51E-07	3.96E-08	2.28E-07	2.38E-07	3.26E-07	5.78E-08	6.52E-06
Total	**8.63E-06**	**7.82E-06**	**0.00E+00**	**2.81E-06**	**9.51E-05**	**4.03E-05**	**7.21E-06**	**2.48E-06**	**3.12E-06**	**2.39E-06**	**4.69E-06**	**1.23E-06**	**7.08E-06**	**7.38E-06**	**1.01E-05**	**1.79E-06**	**2.02E-04**

Notes:
1 - Decommission assumed to last 1 month, 7 a.m. and 7 p.m., Monday through Friday.
2 - Emission factors developed using MOVES2014-20141021. Year 2016 was used because decommission year not yet known.
3 - Heavy duty vehicle emission factors based on the default MOVES2014-20141021 national mix of single-unit and combination long- and short-haul trucks for year 2014 travelling at an average speed of 35 mph.
4 - The type of heavy duty vehicle, maximum quantity per day, and Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day) provided from the K Road Solar Project and modified into assumptions for decommissioning.
5 - Roundtrip mileage for Max Daily Onsite Roundtrip Distance per Vehicle (miles/day) based on (1) information from draft EIS: 200 ft gravel access road connecting the project to the existing paved highway 168 (assumed to be negligible), and (2) the assumption that

Aiya Solar Project
On-Road Vehicle Exhaust - Commute Vehicles - Decommissioning

Decommissioning Duration 22 days

		Worker Commute Emission Factors (g/mi)						Worker Commute Emissions (tpy)					
Worker Passenger Vehicles	Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)	NOx	CO	SOx	VOC	PM10	PM2.5	NOx	CO	SOx	VOC	PM10	PM2.5
50	100	0.522	3.538	0.007	0.069	0.007	0.006	**0.063**	**0.429**	**0.001**	**0.008**	**0.001**	**0.001**

		Worker Commute Emission			Worker Commute Emission Factors (g/mi)			
Worker Passenger Vehicles	Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)	CO2	N2O	CH4	CO2	N2O	CH4	CO2e (metric tons)
50	100	373.470	0.002	0.006	**45.285**	**0.000**	**0.001**	**41.157**

		Worker Commute Emission Factors (g/mi)															
Worker Passenger Vehicles	Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)	Benzene	Ethanol	MTBE	1,3-Butadiene	Form-aldehyde	Acet-aldehyde	Acrolein	2,2,4-Trimethyl-pentane	Ethyl Benzene	Hexane	Propion-aldehyde	Styrene	Toluene	Xylene	Naph-thalene	PAH (less Naph-thalene)
50	100	0.003	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.001	0.001	0.000	0.000	0.006	0.005	0.000	0.000

Worker Commute Emissions (tons)															
Benzene	Ethanol	MTBE	1,3-Butadiene	Form-aldehyde	Acet-aldehyde	Acrolein	2,2,4-Trimethyl-pentane	Ethyl Benzene	Hexane	Propion-aldehyde	Styrene	Toluene	Xylene	Naph-thalene	PAH (less Naph-thalene)	Total HAPs
0.0003	**0.0000**	**0.0000**	**0.0000**	**0.0001**	**0.0001**	**0.0000**	**0.0001**	**0.0002**	**0.0002**	**0.0000**	**0.0000**	**0.0007**	**0.0006**	**0.0000**	**0.0000**	**0.0024**

Aiya Solar Project
Paved Road Fugitive Dust - Decommissioning

Paved Roads emission factors from AP-42, Section 13.2.1: Paved Roads (Final Section 1/11)

E= k(sL)^0.91 * (W)^1.02
where:

E=		Particulate emission factor (lb/vmt)
k =	0.0022	lb/VMT [Table 13.2.1-1, particle size multiplier for PM10]
k =	0.00054	lb/VMT [Table 13.2.1-1, particle size multiplier for PM2.5]
sL =	0.6	Road surface silt loading (grams per square meter (g/m2)), [Table 13.2.1-2] Assumed less than 500 average daily traffic to represent the project.
W=		Vehicle weight (tons)

Decommissioning Duration 22 days

								Emissions (tons)	
Vehicle Details	**W (tons)**	**Maximum Quantity per day**	**Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day)**	**Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)**	**E_PM10 (lb/vmt)**	**E_PM2.5 (lb/vmt)**	**Total Vehicle Miles Traveled on Paved Roads (VMT)**	**PM10 Emissions (tons)**	**PM2.5 Emissions (tons)**
Dump Truck	20	1	0	2	0.0293	0.0072	44	0.00065	0.00016
Flatbed Truck	10	5	0	2	0.0145	0.0036	220	0.00159	0.00039
Staff & Security Truck	2.25	4	0	2	0.0032	0.0008	176	0.00028	0.00007
Pickup Truck	4	10	0	2	0.0057	0.0014	440	0.00125	0.00031
General Materials Delivery Truck	20	1	100	0	0.0293	0.0072	2,200	0.03228	0.00792
Water Delivery Truck	30	2	0	2	0.0444	0.0109	88	0.00195	0.00048
Worker Passenger Vehicles	1.25	50	100	0	0.0017	0.0004	110,000	0.09544	0.02343
Total							**113,168**	**0.133**	**0.033**

Notes:

1 - Decommission assumed to last 1 month, 7 a.m. and 7 p.m., Monday through Friday.

2 - The type of vehicle, maximum quantity per day, vehicle weight, and Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day) provided from the K Road Solar Project and modified into assumptions for decommissioning (i.e. 50 workers).

3 - Roundtrip mileage for Max Daily Onsite Roundtrip Distance per Vehicle (miles/day) based on (1) information from draft EIS: 200 ft gravel access road connecting the project to the existing paved highway 168 (assumed to be negligible), and (2) the assumption that the on-site distance per day = 2.5 miles per roundtrip (distance traveled in and out on 900 acre site if site is 1.25 miles X 1.25 miles).

4 - Assumed that 2 miles of of the onsite roads will be paved as access roads.

Aiya Solar Project
Unpaved Road Fugitive Dust - Decommissioning

Unpaved Roads emission factor from AP-42, Section 13.2.2: Unpaved Roads (11/06)

E =		k(s/12)a(W/3)b
where:		
E=		Particulate emission factor (lb/vmt)
s =	8.5	Surface material silt content (%) [Table 13.2.2-1, Construction sites mean silt content %]
W =		Vehicle weight (tons)
k =	1.5	lb/VMT [Table 13.2.2-2, for PM10]
k =	0.15	lb/VMT [Table 13.2.2-2, for PM2.5]
a =	0.9	constant [Table 13.2.2-2, for PM10 and PM2.5]
b =	0.45	constant [Table 13.2.2-2, for PM10 and PM2.5]

Decommissioning Duration 22 days

							Emissions (tons)	
Vehicle Details	**W (tons)**	**Maximum Quantity per day**	**Max Daily Onsite Roundtrip Distance per Vehicle (miles/day)**	**E_PM10 (lb/vmt)**	**E_PM2.5 (lb/vmt)**	**Total Vehicle Miles Traveled on Unpaved Roads**	**PM10 Emissions (tons)**	**PM2.5 Emissions (tons)**
Dump Truck	20	1	0.5	2.583	0.258	11	0.014	0.001
Flatbed Truck	10	5	0.5	1.891	0.189	55	0.052	0.005
Staff & Security Truck	2.25	4	0.5	0.966	0.097	44	0.021	0.002
Pickup Truck	4	10	0.5	1.252	0.125	110	0.069	0.007
General Materials Delivery Truck	20	1	0	2.583	0.258	0	0.000	0.000
Water Delivery Truck	30	2	0.5	3.100	0.310	22	0.034	0.003
Worker Passenger Vehicles	1.25	50	0	0.742	0.074	0	0.000	0.000
Total						**242**	**0.190**	**0.019**

Notes:
1 - Decommission assumed to last 1 month, 7 a.m. and 7 p.m., Monday through Friday.
2 - The type of vehicle, maximum quantity per day, vehicle weight, and Max Daily Offsite Roundtrip Distance per Vehicle within general area (miles/day) provided from the K Road Solar Project and modified into assumptions for decommissioning (i.e. 50 workers).
3 - Roundtrip mileage for Max Daily Onsite Roundtrip Distance per Vehicle (miles/day) based on (1) information from draft EIS: 200 ft gravel access road connecting the project to the existing paved highway 168 (assumed to be negligible), and (2) the assumption that the on-site distance per day = 2.5 miles per roundtrip (distance traveled in and out on 900 acre site if site is 1.25 miles X 1.25 miles).
4 - Assumed that 0.5 miles of of the onsite roads will be paved as access roads.

Appendix J

Raven Control Plan

RAVEN CONTROL PLAN

AIYA SOLAR PROJECT

CLARK COUNTY, NEVADA

April 2015

Table of Contents

FIGURES

TABLES

APPENDICES

Acronyms and Abbreviations

ACEC	Area of Critical Environmental Concern
APLIC	Avian Power Line Interaction Committee
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CRMP	Common Raven Management Plan for Energy Development within the BLM Southern Nevada District
EIS	Environmental Impact Statement
I-15	Interstate 15
kV	Kilovolt
MBTA	Migratory Bird Treaty Act
Mph	Miles per Hour
MW	Megawatt
NDOW	Nevada Department of Wildlife
RCP	Raven Control Plan
ROW	Right of way
SPGP	Solar Power Generation Plant
USFWS	U.S. Fish and Wildlife Service

1 Introduction

1.1 Purpose of the Plan

This Raven Control Plan (RCP) addresses activities at the proposed Aiya Solar Power, LLC project (the project) that will occur during construction and operation that may attract the common raven (Corvus corax) as a nuisance species. As summarized below and in the body of this RCP, for activities and structures along the gen-tie line, the project will follow the Common Raven Management Plan for Energy Development within the BLM Southern Nevada District (CRMP) (BLM 2014a). The portions of the project on Moapa River Indian Reservation (Reservation) controlled and private lands will primarily follow the CRMP; the Bird and Bat Conservation Strategy (BBCS) prepared and approved for the project, and the project-specific mitigation measures identified in the EIS for the Project. References to "raven" or "common raven" in this RCP should be interpreted to mean the common raven and other avian scavengers.

The desert tortoise (Gopherus agassizii) is a federally-listed threatened species known to occur in and proximal to the project area. The proposed project area is not located in designated Critical Habitat for the desert tortoise or in any BLM Area of Critical Environmental Concern (ACEC). This RCP has been developed as a mitigation measure to reduce the effects of common raven and other avian predation on the desert tortoise and other native wildlife species as a result of increased human presence, the addition of potential roost and nest site structures, increased availability of water sources and facility operation.

The following list summarizes the raven-control mitigation measures that will be utilized in the design, construction, and operational phases of the Project, and are explained in further detail in the body of this RCP.

- Employee, contractor, and visitor education
- Prohibitions on feeding wildlife
- Trash and litter control
- Limiting availability of water
- Annual inspections/reporting during construction and operational phases
- Anti-perching and nesting – design of transmission line support and other facility structures
- Removal of nesting material – inactive nests
- Structure removal at the end of Project

The boundaries of the Project's solar power generation facility (SPGF) portion, temporary water delivery pipeline, and access roads are entirely located on the Moapa River Indian Reservation (Reservation); the Project gen-tie line would include about 0.8 to 1.1 miles located on the Reservation, about 0.7 to 0.9 miles on Federal lands administered by Bureau of Land Management (BLM), and about 0.5 miles on private lands.

The following table summarizes the best management practices (BMPs) that the Project will utilize to address each mitigation measure as well as the CRMP guidelines; references to Sections of this RCP to consult for further detail on each BMP are also included in the matrix.

TABLE 1-1: AIYA RAVEN CONTROL MITIGATION MATRIX

BMP#	*Site Procedure(s)*	*RCP Section, Task Assignment and Schedule*
1	**Education:** personnel involved with on-site construction, O&M, and commissioning will be presented a special status species (e.g., desert tortoise) and environmental awareness program prior to initiation of activities.	5.1 – Training will be provided to all employees prior to start of work on site
2	**Prohibition on Intentionally Feeding Ravens and Other Wildlife:** All workers (construction, O&M, and decommissioning) are prohibited from intentionally feeding ravens and other wildlife on and in the vicinity of the project site; this will be communicated in the environmental awareness training program.	5.2 – All employees will be instructed on this measure through the awareness program and will be responsible for complying with this measure
3	**Trash:** Trash and food items will be disposed properly in predator-proof containers with resealing lids. To reduce the possibility of ravens or other scavengers, such as coyotes, from ripping into the bags and exposing waste, plastic bags containing waste will not be left out for pickup. Instead, small portable waste containers will be emptied and removed daily from the project area and/or placed into metal, predator-proof containers/dumpsters.	5.2.1 – Project management will ensure appropriate trash containers are readily available and all employees will be trained on the proper trash management policies and procedures
4	**Control of Standing Rainwater, Ponding Water, and Construction/Decommissioning Water Storage Pond(s):** Open containers that may collect rainwater will be removed or stored in a secure or covered location to not attract birds. Ponding water associated with dust control, irrigation, and truck washing will be avoided. Open water storage or evaporation ponds will monitored for raven use and will be lined.	5.2.3 – All employees will be trained on and expected to follow the proper water control policies and procedures
5	**Anti-Perching and Anti Nesting**: 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 APLIC guidelines (APLIC 2006) and the Avian Power Line Interaction Committee (APLIC 2006) and Reducing Avian Collisions with Power Lines by the U.S. Fish and Wildlife Service and the APLIC (APLIC 2012)[1]. Similar measures will be used to deter nesting if lattice structures are utilized. Exact locations of perch deterrent poles would be determined in consultation with wildlife agencies prior to construction of the line. For the gen-tie line on BLM land, the applicant will provide BLM the design plan indicating which deterrent types will be used, and BLM will approve the final design based on the best available science.	5.3, 5.4 – The project shall incorporate these designs as required

[1] Transmission line design will be consistent with recommendations for reducing negative impacts of power lines on birds found in Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 by Edison Electric Institute and the Avian Power Line Interaction Committee (APLIC 2006), and their more recent publication "Reducing Avian Collisions with Power Lines (APLIC 2012).

TABLE 1-1: AIYA RAVEN CONTROL MITIGATION MATRIX

BMP#	*Site Procedure(s)*	*RCP Section, Task Assignment and Schedule*
6	**Inspections/Monitoring (Construction):** The applicant will follow the CRMP guidelines and inspect all Project structures annually during construction for nesting ravens and other predatory birds and report observations of nests on an annual basis to the appropriate agencies (USFWS, BIA, BLM). Incidental sightings during daily activities by onsite biologists or regular Project personnel will be recorded on standardized data forms.	6.1.1 – The project will follow the CRMP guidelines presented in Section 6.1.1
7	**Inspections/Monitoring (Operations):** For the gen-tie line: inspections will be conducted monthly during the raven breeding season for three years following construction during operation of the Project per CRMP guidelines, then annually for the life of the project, reporting requirements also apply, and incidental sightings during normal activities by biologists or regular Project personnel will be recorded on standardized data forms. The SPGF will be inspected per the BBCS monitoring requirements for the Project.	6.1.2, 6.2 – The project shall follow the CRPM and approved BBCS monitoring requirements for the applicable areas of the project
8	**Removal of Nesting Material Prior to Egg Laying:** Inactive nests are not protected by the Migratory Bird Treaty Act (MBTA) and removal would be conducted prior to the next breeding season. Should nesting activity become a long-term issue, alternate measures to discourage nesting activities and removal of nesting materials prior to eggs being laid would be implemented. Prior to removing or relocating any nests, facility personnel would consult with USFWS and when necessary, proper permitting would be obtained. Nests will be identified during the inspection/monitoring frequencies and duration described in this RCP, and removed during the appropriate time in the breeding season.	6.1, 6.1.2 – The project will follow this measure during construction and operation of the project as described in Section 6.1.2
9	**Structure Removal Following Decommissioning:** All elevated structures related to the project, including poles and towers, will be removed when the project is decommissioned if not utilized as a part of the integral part of the utility power grid.	5.3.2 – This requirement will be met per Section 5.3.2

This RCP is being submitted by the Aiya Solar Project, LLC (Aiya Solar, Applicant, or project proponent) to the Bureau of Land Management (BLM), Nevada Division of Wildlife (NDOW), United States Fish and Wildlife Service (USFWS), and Bureau of Indian Affairs (BIA) for approval prior to implementation. Once approved, the Applicant and its contractors will be responsible for implementing the plan.

2 Roles and Responsibilities

2.1 General Roles and Responsibilities

All site project employees, contractors, and sub-contractors will be familiar with applicable sections of the RCP, and will be responsible for implementing aspects of this RCP. In addition, Project employees and Contractors/Sub-Contractors shall:

- Complete all required Worker Environmental Awareness Procedure (WEAP) training before starting work; raven management procedures will be a part of the WEAP training.
- Report potential raven control issues to their supervisors
- Follow raven control procedures including:
    - Strict no littering polices
    - Minimizing ponding water
    - Limit speed limits to under 25 mph to reduce the potential for road kill, which attracts birds and increases roosting
    - Reporting nests and signs of predation to onsite supervisors or environmental staff

Environmental Managers and/or Construction Supervisors shall:

- Ensure that workers receive appropriate raven management training (including new or transferred personnel)
- Ensure all potential raven nests are identified and that nest surveys are being conducted per this RCP
- Notify the Site or Corporate Environmental Manager when changes in operation increase the risk of potential raven control issues
- Monitor work areas for potential raven control issues
- Enforce raven control requirements in accordance with this plan and all applicable codes, regulations, and standards

Individuals responsible for general program auditing and reporting include:

- Environmental Managers and Representatives, as they relate to raven control measures

3 Project Summary

3.1 Project Location

The Proposed Project would be located approximately 40 miles northeast of Las Vegas in Clark County, Nevada (Figure 1-1). The solar project would be located on up to 900 leased acres within the Reservation in Mount Diablo Meridian, Township 14 South, Range 66 East, Sections 29, 30, 31,and 32. These lands are currently vacant except for roads, pipelines, and transmission line ROWs.

The gen-tie line would be located on Reservation lands, Federal lands managed by the BLM south of the solar site within Section 5 of Township 15 South and Range 66 East, and private lands (owned by NV Energy) adjacent to the Reid-Gardner Substation. The temporary water pipeline associated with the Project would be located on the Reservation south of the solar site in Sections 30 and 31 in Township 14 South, Range 66 East and Section 6 of Township 15 South and Range 66 East. Figure 2-1 shows the location of the components of the Proposed Project and associated facilities.

3.2 Project Description

The following describes the major features of the proposed Project. For a comprehensive description of the proposed Project, refer to the associated Environmental Impact Statement for the Aiya Solar Project for the Project design details (subject to minor design changes).

The Project will consist of up to a 100 MW solar photovoltaic (PV) power generating facility. Project components include on-site facilities, off-site facilities, and temporary facilities needed to construct the Project. The solar site is located entirely on the Reservation. Major on-site facilities are the solar field (comprised of multiple approximately 4 MW blocks of solar PV panels mounted on fixed tilt or tracking systems and associated equipment, a project substation, and operation and maintenance (O&M) facilities. The off-site facilities include an approximately two-mile 230 kV gen-tie, portions of which are located on the Reservation, BLM-administered lands, and private lands. Additional off-site 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. Temporary facilities, which would be removed at the end of the construction period, include the off-site water intake and pipeline mentioned above and the on-site 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 bulk transmission system via the gen-tie, which would interconnect to NV Energy's existing 230kV Reid-Gardner Substation. Once additional planned generation in the area comes online, NV Energy may build a proposed collector station near the

existing Reid-Gardner Substation and, if so, the gen-tie would connect to it also. The exact site of the collector station and construction timing would be determined by NV Energy.

4 Biological and Regulatory Setting

Biological Setting

As outlined in the EIS, the Project infrastructure may indirectly cause mortality to wildlife by increasing the risk of predation on certain species by native predators such as ravens and raptor species. The list of federally threatened or endangered species occurring in Clark County was reviewed for potential occurrence in and around the project area. Four species listed under the Endangered Species Act (ESA) (1974), one species protected by the Bald and Golden Eagle Protection Act (BGEPA), and one BLM sensitive species were identified as potentially occurring in or around the project area and potentially impacted by the Proposed Project. These include the desert tortoise, Moapa dace, Yuma clapper rail, southwestern willow flycatcher, yellow-billed cuckoo, and golden eagle. Surveys for special status species and habitat analysis suggests that only desert tortoise and golden eagle are in the Project Area. Additionally, the Moapa dace is known to occur only upstream of the Project Area and would not be affected by surface water withdrawals associated with the proposed project. The Proposed Project is not near any designated area of critical environmental concerns (ACECs) or other sensitive land use areas. More detail can be found in Table 3-9 and the Biological Assessment that has been prepared concurrently with the EIS (Appendix L of the EIS).

According to information summarized in the CRMP, over the past four decades local common raven numbers have increased between 1000 to 1500%, which is reflective of the economic and urban growth in the Mojave Desert region. Ravens are known to readily use structures associated with power lines for nesting and perching. Ravens have been demonstrated to prey on hatchling and juvenile desert tortoises by pulling off the head and limbs or pecking holes through the soft carapace or plastron. Coincident to the increase in raven populations, predation on desert tortoise hatchlings and juveniles has shifted the composition of desert tortoise populations to predominantly adults. Avoiding or minimizing the addition of new perch and nest site features and other raven attractants in desert tortoise habitat is an important objective in attempting to reduce an increase in desert tortoise predation.

Ravens are the largest of all passerine (song) birds, are very intelligent, and highly adaptable to a wide range of habitats and foods, thereby allowing them to thrive in human-altered habitats. The raven is a diurnally active (daytime hours), year-round resident of the Mojave and Great Basin deserts. While ravens are generally omnivores, they are successful predators of arthropods, amphibians, reptiles, birds (adults, chicks, and eggs), and small mammals. In the Mojave Desert, ravens spend an equal amount of time scavenging and live hunting. They have been documented foraging within 1.6 km (one mile) of linear rights-of-way (roads, railways, transmission power lines, and telephone lines) and spending 49 percent of the time foraging directly on linear rights-of-way. When human-subsidized food is present, ravens often concentrate their feeding at these food sources and may travel significantly shorter distances. Ravens typically concentrate their feeding activity in the morning and late afternoon, often coinciding with principal activity periods of species like the desert tortoise. Raven nest material is made up primarily of sticks from various origins including that broken from the live source or pieces collected from old nests. Nest bases are located on a variety of substrates made up of sticks approximating 0.9m

(3 feet) long by 3-25 mm (1/4 to 1 inch) diameter. Generally only one brood is raised per year. Nesting, egg hatching, and fledgling of young may generally span the period of late January through mid-June. Seasonally, the majority of raven predation on desert tortoises can be expected to occur during the spring (April and May) when desert tortoises are most active and ravens are feeding their young. Data also suggest that ravens in the eastern Mojave Desert spend 75 percent of their foraging time within 400 meters (1300 feet) of their nest. Therefore, the establishment of a new nest can have significant adverse effects on the local juvenile desert tortoise population.

Regulatory Setting

In addressing impacts involving special status species, avian management considerations include compliance with the Migratory Bird Treaty Act of 1918 (MBTA) and its subsequent amendments (16 U.S.C. 703-711). A 1972 amendment to the MBTA provided legal protection to corvids, which includes the raven. In brief, it is illegal for anyone to take, possess, import, export, transport, sell, purchase, or barter any migratory bird or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations.

It is the mission of the Bureau of Land Management (BLM) to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations. Multiple-use activities on BLM-managed lands include but are not limited to recreational uses, mineral extraction, environmental education, livestock grazing, lands and realty actions, and energy development. In considering potential effects associated with the variety of public lands uses, BLM provides policy for certain biological resources in its Manual 6840 - Special Status Species Management (BLM 2008). BLM Manual 6840 establishes policy: 1) to conserve and/or recover species protected under the federal Endangered Species Act (ESA) and the ecosystems on which they depend so that ESA protections are no longer needed for these species, 2) to initiate proactive conservation measures that reduce or eliminate threats to BLM sensitive species to minimize the likelihood and need to list these species under the ESA, and 3) to manage the species and its habitat, once it is declared sensitive, to minimize or eliminate threats affecting the status of the species or to improve the condition of the species' habitat.

Since the Mojave population of the desert tortoise (Gopherus agassizii) was ESA-listed as threatened on April 2, 1990 (USFW 1994), the BLM has identified management actions needed to address impacts of various land-use activities. Relative to energy development, potential impacts to the desert tortoise include the installation and operation of power generation facilities, transmission lines and tie-ins, and other infrastructure. Particular to power transmission lines, the BLM assesses the potential for direct effects such as take[2] of ESA listed species during project construction, operation and maintenance, habitat loss, and fragmentation. Indirect impacts are attributable to post-construction factors like access-related disturbances introduced by increased frequency of vehicle use on new and existing maintenance roads and increased vulnerability of desert tortoises to predation. In consideration of the latter is the response by mammalian (e.g., coyote, foxes, skunks) and avian predators (e.g., raptors and common ravens) that commonly investigate project areas to scavenge and hunt displaced or exposed

[2] "take" includes harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing or collecting, or attempting to engage in any such conduct.

prey. Avian predators often take advantage of the new perching and nesting subsidies afforded by power transmission projects, notably tower structures and substations.

5 Raven Avoidance and Minimization Measures

A voidance and minimization measures (AMMs) provided in this RCP are designed to discourage raven (and other avian scavenger) presence and use of energy projects while in compliance with the MBTA. Each measure below is based on the recent CRMP issued by the BLM. Implementing the raven AMMs will be the responsibility of the project for the life of the project. AMMs pertaining to construction, operation and maintenance (O&M), and/or decommissioning will be identified as such under each AMM heading below.

5.1 Education

As referenced in the terms and conditions of a project's right-of-way grant and/or other governing permit documents, all personnel involved with on-site construction, O&M, and decommissioning will be presented a special status species (e.g., desert tortoise) and environmental awareness program prior to initiation of activities. The program will include information concerning:

- the biology and distribution of special status species (desert tortoise, Banded Gila Monster, burrowing owl, or other species as applicable)
- species conservation efforts, regulatory status, and occurrence in the project area
- the definition of "take" and associated penalties
- responsibilities of workers, monitors, and biologists
- reporting procedures to be implemented in case of encounters with desert tortoise and other special status species, or non-compliance with project-related stipulations

The program will also present information concerning the impact of ravens on the desert tortoise and project-specific AMMs being implemented to discourage the presence of ravens

5.2 Reduce Access to Food and Water Resources

5.2.1 Waste Management

Waste management will occur during the construction, O&M, and decommissioning phases. A litter and waste control program shall be implemented to reduce the attractiveness of the area to opportunistic predators such as kit foxes, coyotes, and ravens. Waste and food items will be disposed of properly in predator-proof containers with predator-proof lids. To reduce the possibility of ravens or other scavengers, such as coyotes, from ripping into the bags and exposing waste, plastic bags containing waste will not be left out for pickup. Instead, small portable waste containers will be emptied and

removed daily from the project area and/or placed into metal, predator-proof dumpsters. The project area will be kept free of waste for the life of the project; the gen-tie portion of the Project on BLM-land may be inspected by BLM during project renewals or other times.

The proponent will also dispose of any animal road-kills on the project site and along the access road as encountered. Because predators are capable of locating and then excavating buried remains, road-kills will be deposited into predator-proof trash bins or another secure method until proper disposal is undertaken.

5.2.2 Limit Availability of Water

Water is a highly limited and valuable resource in the desert. Any natural or human-caused available water sources encourage greater visitation by wildlife, including ravens, during drier seasons of the year. The project proponent will make reasonable attempts to ensure that any holding or evaporation ponds constructed for the project are not available to ravens or other wildlife. All ponds will be lined. If project biologists observe evaporation or holding ponds being utilized by ravens, ponds may need to be covered or anti-perching devices installed along the perimeter pond fencing.

Truck cleaning areas will be kept free of standing water. Water used for dust suppression will be applied at a rate that discourages ponding. Any water used for vegetation restoration or landscape irrigation will be regularly checked to prevent ponding.

5.3 Discourage Nesting

5.3.1 Nesting Prevention and Discouragement during Construction and O&M

To prevent nesting on Project structures, the Applicant will implement the following measures during construction and maintain them throughout the O&M phase:

1. **Utility structures**. The proponent will remove raven nests that are found on its structures immediately outside of the current breeding season or once a nest is determined inactive in accordance with USFWS, BLM, and NDOW approval where appropriate. An inactive nest is defined by USFWS as the continuous absence of any adult, egg, or dependent young. The bird breeding season in the Southern Nevada District is generally from February 15 through August 31. Raptors and ravens, however, may breed earlier than February 15. Perch deterrents will also help prevent nesting and are discussed in Section 5.4 - Discourage Perching.

2. **Building Structures**: The proponent will document when raven nests are found in/on any of the structures associated with the project (as stated under Section 6.0 Monitoring and Reporting).

3. **Hazing**. The proponent will emphasize preventing or limiting raven attractants, such as nesting subsidies and artificially introduced food and water resources, rather than active hazing. Unless implemented properly, hazing could have unintended consequences; therefore, hazing will not be implemented.

5.3.2 Discourage Nesting Following Decommissioning

Elevated structures, including utility poles and towers, will be removed when decommissioned and dormant. However, any components of transmission lines that have become integral parts of the utility power grid would continue to be maintained and operated. Those retained components will fall under the annual monitoring and reporting requirements (see Sections 6.1.2 and 6.2).

5.4 Discourage Perching

Elevated perch locations offer ravens a view of their surroundings and prey below. Vertical structures provide perching opportunities in areas where natural perch sites are otherwise absent or limited. If allowed to perch or roost on new structures, raven predation on the desert tortoise will likely increase. Existing literature presents considerations in selecting perch deterrent designs and local environmental considerations.

Power line support structures and other facility structures shall be designed to discourage their use by ravens for perching or nesting while in accordance with the most current APLIC guidelines. Innovation of novel approaches, or improvements to existing designs, which result in effective perch deterrents is encouraged. Deterrent types should be selected based on the most current and best available science. For the gen-tie line on BLM lands, the types of perch deterrents used will be proposed by the applicant and submitted to BLM for approval.

If the tubular-H design type transmission pole structures are used the horizontal member of the structure will be fitted with an inverted-Y bar to discourage perching. Similar measures will be used to deter nesting if lattice structures are utilized.

Anti-perching devices will be installed under the following scenarios.

5.4.1 Perch Prevention Prior to Construction

As the Proposed Project is not near any designated ACECs or other sensitive land use areas, gen-tie towers are not required to consist of monopoles. New transmission lines that are the only lines on the landscape within non-critical tortoise habitat (and not co-located with existing lines) will have perch deterrents installed. The proponent will provide BLM the design plan indicating which deterrent types will be used, and BLM will approve the final design based on the best available science. Any towers installed using guy wires will have the wires fitted with visual markers to prevent collisions by migratory birds.

5.4.2 Perch Prevention During O&M

Contingency measures will be implemented on a case-by-case basis, in consultation with the BIA or BLM (as appropriate depending on the location of the area in question), if it becomes apparent that a particular structure is providing a favorable location for perching. This could include, for example, installation of flight diverters, triangles, cones, and other deterrents to discourage nesting, per the APLIC Guidelines (APLIC 2006) and should be based upon the best available science. The APLIC document discusses the use of devices intended to discourage perching as well as the modification of structures to be avian-safe.

Perching may also occur on other project structures including buildings and fences. If this behavior is being documented in the reports summarized in Section 6, or if desert tortoise remains are reported in these areas, deterrent structures will be installed in order to prevent perching from occurring in the future.

6 Monitoring and Reporting

6.1 Monitoring

The project proponent will monitor for the increased presence of ravens, other potential human subsidized predators in the vicinity of the project area, and frequency of occurrence and behavior in those areas as summarized below. The purpose of the monitoring will be to identify the sources of human-created resources and raven activity related to the project. Renewable energy projects (solar, wind, etc.) will also require project specific Bird and Bat Conservation Strategies (BBCS) that will have additional BMPs and AMMs as well as monitoring protocols beyond what is described below.

Inactive nests are not protected by the Migratory Bird Treaty Act (MBTA) and removal would be conducted prior to the next breeding season. Should nesting activity become a long-term issue, alternate measures to discourage nesting activities and removal of nesting materials prior to eggs being laid would be implemented. Prior to removing or relocating any nests, facility personnel would consult with USFWS and when necessary, proper permitting would be obtained. Nests will be identified during the inspection/monitoring frequencies and duration described in this RCP, and removed during the appropriate time in the breeding season.

6.2 Construction Monitoring

Monitoring should focus on all potential attractant areas during construction, including waste disposal areas, erected structures, staging and lay-down sites where large equipment or material may be stored, batch plants and holding or evaporation ponds, any area where water is applied for fugitive dust control and erosion, and where there are recent surface disturbances. This monitoring can be done concomitantly with authorized desert tortoise biologists and/or desert tortoise monitors working on site during construction. Any raven witnessed nesting or perching by the biologists/monitors shall be documented (e.g., time/date accounts, GPS points in UTMs, dated photos). Any tortoise predation witnessed should be documented, as stated below, and the USFWS should be notified by e-mail or phone within 24 hours.

Biologists/monitors will be instructed to document raven observations during clearance surveys, when monitoring construction activity and environmental compliance, while conducting translocations of desert tortoises, and when monitoring translocated desert tortoises. For all incidental observations of raven use along the gen-tie line on BLM lands, nest sightings, and desert tortoise predation during construction will be documented on the provided Incidental Raven Sighting form (see Appendix A) and submitted to the USFWS, BIA, and BLM (for gen-tie portion located on BLM land) at the end of each calendar year during construction and upon completion of construction.

6.3 Operation and Maintenance Monitoring

Monitoring for the entire length of the gen-tie line, both on Tribal and BLM managed lands will conform to the requirements within the CRMP as summarized below. Within the solar facility itself, the Project will conform to the monitoring frequencies and duration established in the Bird and Bat Conservation Strategy (BBCS) prepared and approved for the Project.

A biologist will be assigned to oversee and conduct raven monitoring, and will be responsible for implementing the Plan while ensuring that all monitoring and reporting requirements are met. The biologist, and other project biologists, will conduct surveys for ravens following project construction once operation has begun (pre-construction surveys are not part of this document). Generally, monitoring will consist of personnel conducting vehicular surveys of the project's cumulative effects study area site, the nearby transmission alignments, substations, vertical structures, and surrounding areas.

Gen-Tie Portion of Project

For the gen-tie portion of the project, monitoring will be conducted a minimum of once per month between February and September for 3 years following construction (monitoring reports will be reviewed annually by BLM). Data for the gen-tie line will be documented using the Raven Monitoring form, the Bird Nest and Carcass form, and the Dead or Injured Bird form contained in the CRMP (forms included as Appendix A). The project biologist(s) working and implementing the Plan shall be approved by the project proponent. Names of the approved biologist(s) shall be submitted to the BLM and resumes made available upon request. All biologists will have the following minimum qualifications:

- A bachelor's degree in biological sciences, zoology, botany, ecology, or a related field and 3 years of experience in biology fieldwork; and,
- At least one year of field experience with biological resources in the Mojave Desert or close proximity.

Specific methods for conducting monitoring are as follows. Roads will be driven slowly searching for ravens, nests, and reproductive behavior (e.g., carrying nest material, courtship, copulation). Binoculars and spotting scopes will be used to observe raven activity on the proponent's lines and/or vertical structures and any adjacent transmission lines/structures. Monitoring must be completed from a vantage point where all potential nesting areas are thoroughly visible. If tower structures contain platforms, the platform material should be grated for see-through visibility from the ground. If platforms are made of opaque material, they will be surveyed from the air or from a vantage point allowing clear viewing of the entire platform. Right-of-way renewal of an existing transmission line (single or multi-conductor configuration) or other vertical structure within desert tortoise habitat, and that is the only line on the landscape (not co-located with other alignments within a corridor), will require monitoring of the transmission line and/or structure for nests during annual maintenance flights and comply with annual reporting requirements.

All raven observations will be documented, including date, time, location (GPS point coordinates in UTMs using Zone 11, NAD 83 settings), habitat, number of individuals, behavior (e.g., courtship, nesting,

perching, flocking, foraging), and locations of occupied and potential nests. The location of the nest (GPS point in UTMs, position on structure) and a clear photo will be taken followed immediately by surveys for animal carcasses/remains. The carcass/remains survey will cover a 15-meter radius beginning at the edge of the disturbance footprint (e.g., tower/pole structure) where the nest is located. This area will be walked using 10-meter interval transects. If a desert tortoise carcass is found, BLM (if on BLM-controlled land) and FWS will be notified within 24 hours by e-mail or phone. Documentation of desert tortoise remains (clear photos of remains in situ, and GPS points in UTMs) should occur along with use-status of the nest (e.g., not in use - abandoned or deteriorating; active and raven attending or sitting in nest, feeding nestlings) and provided to BLM and/or FWS at time of occurrence. All carcasses, regardless of species, shall be documented on the data form.

The nest should be monitored twice per month until it is inactive. The nest must be removed once determined it is inactive or after the current breeding season is over in accordance with the MBT A and USFWS, BLM, and NDOW guidance. An inactive nest is defined by USFWS as the continuous absence of any adult, egg, or dependent young. Monitoring the nest twice per month will allow take of desert tortoises to be quantified. If a nest is found outside of the breeding season, the proponent will be responsible for removing it. Nest removal may be completed by the proponent or by the proponent contracting to remove it. Stick nest materials should be removed well away from the nest site to prevent reuse of materials. Should ravens be found to habitually prey on desert tortoises or other special status species within the first 3 years following project construction, such matters will be resolved with either use of additional raven deterrents or removal of the offending ravens by the project proponent or its agent. Removal of the offending raven(s) by lethal means will require a depredation permit from the USFWS and is considered a last-resort effort. The proponent may also contract with a person, company, or agency having a current depredation permit to perform lethal removals.

Upon reviewing monitoring data from the first 3 years, subsequent monitoring will be completed during the annual operation and maintenance flight/drive surveys, preferably during the breeding season (February through August). This is a one-time monitoring session per year coinciding with the maintenance flight/drive of the energy project lines. Any nests visible during the annual maintenance flight/drive shall be documented on the data form and relayed to BLM. Preventing access to anthropogenic food and water resources; nest monitoring and removal; searches for desert tortoise remains; preventing nesting, and those components of or consistent with the Plan that discourage perching, will remain in effect throughout the duration of the project until decommissioned.

7 Reporting

The project applicant will submit monitoring summary reports: 1) for the SPGF, at the end of each calendar year during construction, at completion of construction, and one calendar year following completion of construction; 2) for the gen-tie line monitoring, at the end of the first 3 calendar years once operation has commenced (unless extended by BLM); 3) for the gen-tie line monitoring, at the end of every calendar year of operation after the first 3 years (to be completed during the maintenance flight/drive); and 4) at the end of every calendar year after decommissioning should structures and components remain. Annual reports are submitted to the BIA, BLM, USFWS, and NDOW as appropriate. The annual reports (standard forms created by BLM; Appendix A to this document) will include:

- Start and end points (UTM coordinates) and dates of monitoring
- Number and behavior of observed ravens within project area
    - Exact raven nest and perch locations including GPS points in UTMs and photos
    - Indicate where on the structure (e.g., crossarm, insulator) the nest or perch is located
    - Photos of the nest
- Number of nests that were removed in the project area
- Recommendations for improving raven management in locations where nesting and perching was documented
- Wildlife mortality/injury attributed to predators or electrocution/collision, including photos and GPS locations in UTMs
    - Mortalities and injuries from power lines should be reported to the USFWS bird fatality/injury reporting program (https://birdreport.fws.gov/). This is in addition to the annual reporting requirements.
    - Migratory bird injuries should be reported immediately to the local USFWS office and taken to an approved veterinarian or wildlife rehabilitation facility for treatment. All mortalities will remain in situ.
    - Observations of raven predation on desert tortoises (including diagnostic sign) will be reported to the designated contacts at BLM and USFWS by an e-mail or phone call within 24 hours of the observation.

7.1 ADAPTIVE MANAGEMENT

Ravens are famously adaptive, resourceful, and clever; demonstrating problem-solving abilities further necessitating the need for adaptive management. Flexibility and a willingness to adopt new or experi-

mental methods and measures are likely to be crucial for the effectiveness of any long-term raven management plan.

For the project gen-tie line, BLM will review the results of raven AMMs and BMPs in cooperation with the project applicant, and other agencies as necessary. Because the conservation of the desert tortoise and other special status species identified as vulnerable to raven predation is a high priority, determining if changes to project design features are warranted (e.g., installing perch deterrents) during the first 3 years of commercial operation of the project will be diligently reviewed. Adaptive management should be responsive to identified problems occurring within any reporting year. Reports received by BLM interim to annual monitoring reports suggesting that current AMMs and BMPs are ineffective at reducing raven occurrences, will result in action taken to swiftly and effectively resolve the situation.

This Plan is a living document and will be revised and updated as innovative solutions are developed to minimize impacts, agency guidance is adjusted, and conditions of individual projects warrant. Additional project-specific AMMs may be required by BLM at any time to minimize impacts.

8 References

Avian Power Line Interaction Committee (APLIC). 2006. *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, California.

APLIC. 2012. Reducing Avian Collisions with Power Lines. The State of the Art in 2012. Washington, D.C. and Sacramento, CA: Edison Electric Institute and Avian Power Line Interaction Committee

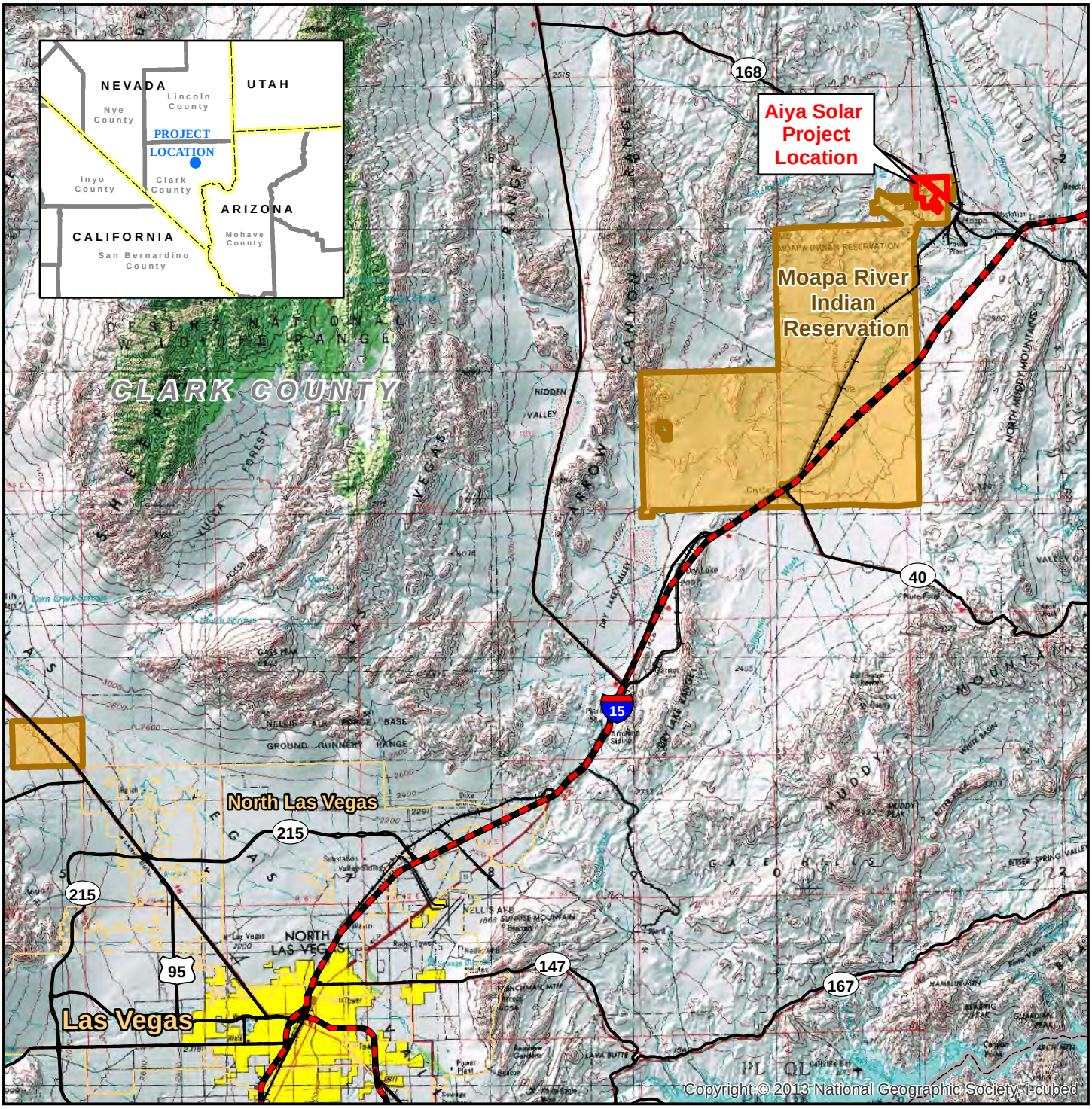
Boarman, W. I. 2002. *Reducing Predation by Common Ravens on Desert Tortoises in the Mojave and Colorado Deserts*. Prepared for the United States Bureau of Land Management. United States Geological Survey Western Ecological Research Center. San Diego, California.

Boarman, W. I. 2003. Managing a subsidized predator population: reducing common raven predation on desert tortoises. *Environmental Management*. 32:205-217.

Bureau of Land Management, Southern Nevada District Office, Final Common Raven Management Plan for Energy Development within the BLM Southern Nevada District, 2014

Engel, K. A. and L. S. Young. 1992. Movements and habitat use by Common Ravens from roost sites in southwestern Idaho. *Journal of Wildlife Management* 56: 596-602.

FIGURES



Legend

- Interstate
- US/ State Highway
- Railroad
- Solar Project Location
- Municipal Boundary
- Jurisdictional Land Ownership
- Indian Reservation

0 2 4 6 8 10

Miles

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Aiya Solar Project

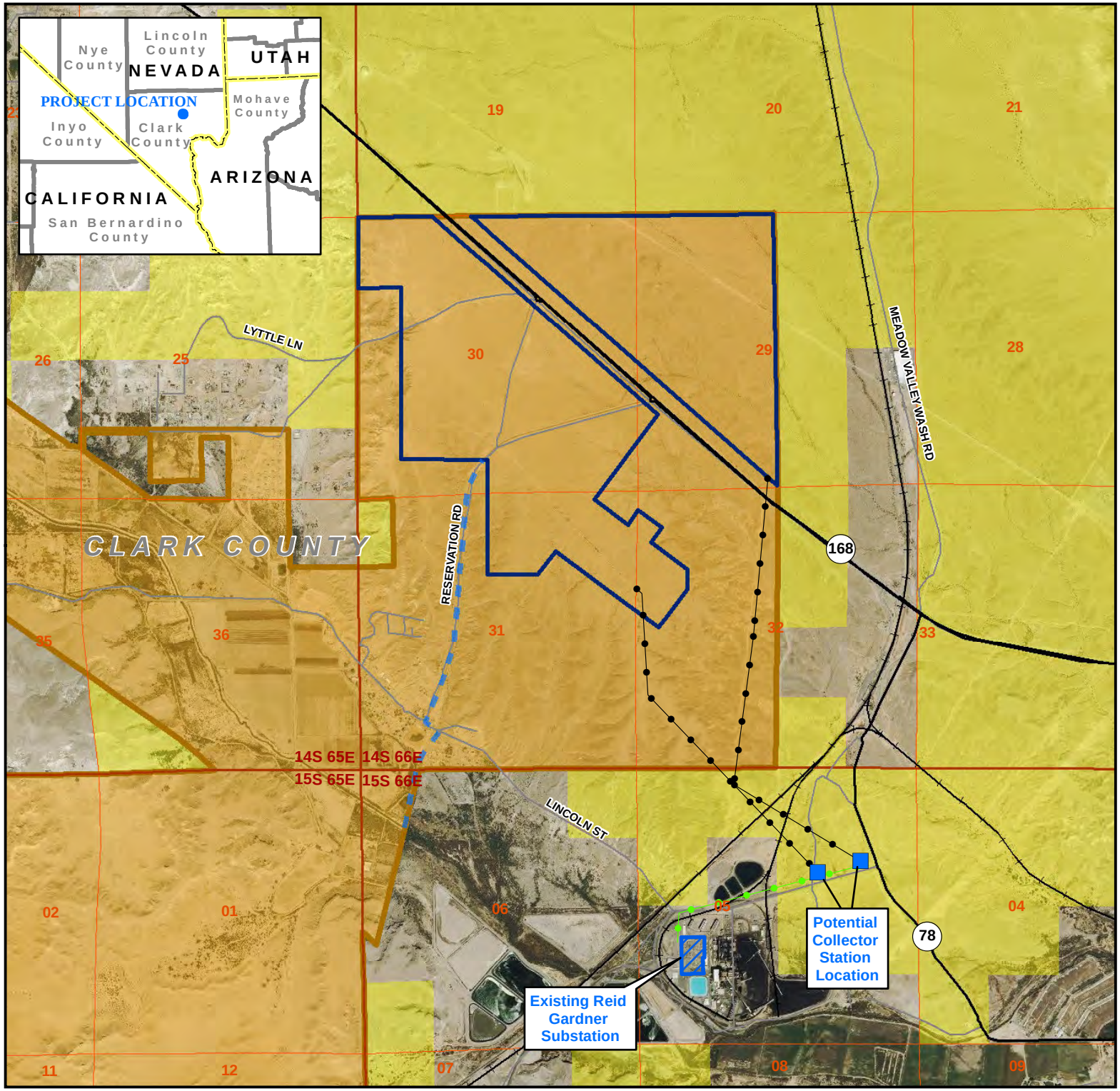
FIGURE 1

PROJECT LOCATION

Map Extent: Clark County, Nevada

Date: 03-24-15		Author: rnc

G:\Aiya Solar Project/MXD's/Project Location 8.5x11 032415.mxd



Legend

- Potential Collector Station Location
- Gen-Tie Routes
- Double-Circuit Line
- Water Pipeline
- State Highway
- Road
- Railroad
- Project Area
- Existing Substation
- County Boundary
- Township / Range Boundary
- Section Boundary

Jurisdictional Land Ownership

- Bureau of Land Management Land
- Tribal Land

0 0.25 0.5 0.75 1

Miles

State Plane
North American Datum 1983
Nevada East, FIPS 2701, Feet

Aiya Solar Project

FIGURE 2
PROJECT AREA

Map Extent: Clark County, Nevada

Date: 03-18-15		Author: rnc

I:\Solar Projectt/MXD's/Project Area

APPENDIX A

RAVEN MONITORING AND REPORTING FORMS

Raven Monitoring Form

Project Name:_____

Case File #:_____ Biological Opinion #:_____

Date found: _____ Time found: _____

Biologists: _____

Observation (raven perching, stick nest, etc)	**Structure/ Location** (on cross arm, top of pole…)	**UTM** NAD83 Zone 11 (Document start & end points for monitoring)		**Comments**

Observation (raven perching, stick nest, etc.)	**Structure/ Location** (on cross arm, top of pole…)	**UTM** NAD83 Zone 11 (Document start & end points for monitoring)		**Comments**

Incidental Raven Sighting Form

Project Name:_____

Case File #:_____ Biological Opinion #:_____

Date found: _____ Time found: _____

Biologists: _____

Observation (raven perching, stick nest, at evaporation pond, etc)	**Structure/ Location** (on cross arm, on construction materials…)	**UTM** NAD83 Zone 11 (Document sighting location)		**Comments**

Observation (raven perching, stick nest, at evaporation pond…)	**Structure/ Location** (on cross arm, on construction materials…)	**UTM** NAD83 Zone 11 (Document start & end points for monitoring)		**Comments**

Bird Nest and Carcass Form

Project Name:_____

Case File #:_____ Biological Opinion #:_____

Date found: _____ Time found: _____

Biologists: _____

* Make sure to take photos * *Report tortoise carcasses to BLM and USFWS within 24 hours of observation*

NEST Active _____ Inactive _____ Partial _____ Unknown _____

If active, what species was witnessed? _____

Activity witnessed _____

Are eggs or young apparent? If so, please describe. _____

_____

Condition of nest _____

Structure & Location _____
(Cross arm, top of pole…)

Location in UTMs (NAD83 Zone 11) _____ _____

What would prevent future nesting? _____

Comments _____

CARCASSES Found during 15-meter Carcass Survey
* Take photo of each carcass *

Carcass Found (tortoise, bird…)	**Condition** (pecked out, crushed…)	**UTM** NAD83 Zone 11		**Comments**

Dead or Injured Bird Form

Project Name:_____

Case File #:_____ Biological Opinion #:_____

Date found: _____ Time found: _____

Biologists: _____

* Make sure to take photos * * Report mortalities and injuries: https://birdreport.fws.gov/ *

BIRD #___

Species _____ Bird Count _____

Sign of death or injury (circle one)

Collision Electrocution Unknown Other _____

Location in UTMs _____ _____

What could have prevented this? _____
(Cover transformer, install insulator cover, install perch deterrent…)

Weather conditions at time of death if known _____

Comments _____

BIRD #___

Species _____ Bird Count _____

Sign of death or injury (circle one)

Collision Electrocution Unknown Other _____

Location in UTMs _____ _____

What could have prevented this? _____
(Cover transformer, install insulator cover, install perch deterrent…)

Weather conditions at time of death if known _____

Comments _____

Appendix K

Biological Assessment

Biological Assessment

For Aiya Solar Project

March 2015

Prepared for:

Bureau of Indian Affairs
Western Regional Office
2600 N. Central Avenue, 4th Floor Mailroom
Pheonix, AZ 85004-3050

Prepared by:

NewFields
300 South 4th Street, Suite 1500
Las Vegas, NV 89101

CONTENTS

FIGURES

TABLES

ACRONYMS AND ABBREVIATIONS

AC	Alternating current
APLIC	Avian Power Line Interaction Committee
Applicant	First Solar
BA	Biological Assessment
BBCA	Bat and Bird Conservation Strategy
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	Best management practices
BO	Biological Opinion
DC	Direct current
DWMA	Desert wildlife management areas
EPA	U.S. Environmental Protection Agency
EPRI	Electric Power Research Institute
ESA	Endangered Species Act
FCR	Field Contact Representative
FR	Federal Register
Gen-tie	Generation-tie transmission line
GPS	Global positioning system
HDPE	High-density polyethylene
HVAC	Heating, ventilating, and air conditioning system
IEEE	Institute of Electrical and Electronic Engineers
IPaC	Information, Planning, and Consultation System
kV	Kilovolt
kVA	Kilovolt-ampere
kW	Kilowatt
Mph	Miles per hour
MW	Megawatt
NACE	National Association of Corrosion Engineers
NDA	Nevada Department of Agriculture
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NEMA	National Electric Manufacturers Association
O&M	Operations and maintenance
PCS	Power conversion stations
Project	Aiya Solar Project

PV	Photovoltaics
PVCS	Photovoltaic Combining Switchgear
Reservation	Moapa River Indian Reservation
ROW	Right of way
SCADA	Supervisory Control and Data Acquisition
TSDF	Treatment, storage, and disposal fascility
UPS	Uninterruptible power supply
URTD	Upper respiratory tract disease
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
WEAP	Worker Education and Awareness Plan

1.0 INTRODUCTION

The purpose of this Biological Assessment (BA) is to review the Aiya Solar Project (Project) and to determine to what extent the Aiya Solar Project would affect federally listed threatened and endangered species; species proposed for listing; and designated or proposed critical habitat. The Project would use land held in trust by the Bureau of Indian Affairs (BIA) for the benefit of the Moapa Band of Paiutes. Project elements on Tribal land would include the solar facility, water intake and water pipeline, and part of the generation-tie transmission line (gen-tie). The remaining part of the gen-tie and associated facilities would be either on land managed by the Bureau of Land Management (BLM) or private land. As such, this BA has been prepared in coordination with both BIA and BLM for submittal to the U.S. Fish and Wildlife Service (USFWS).

1.1 Project Overview

First Solar ("Applicant") proposes to construct, operate, maintain, and decommission the Project, consisting of up to a 100-megawatt (MW) alternating current (AC) solar photovoltaic (PV) power generating facility on approximately 900 acres of land on the Moapa River Indian Reservation (Reservation) in Clark County, Nevada (Figure 1-1). Major Project components include the following:

- Solar field
- Onsite substation
- Operation and maintenance (O&M) facilities
- 230-kilovolt (kV) gen-tie
- Short access roads
- Electric distribution and communication lines
- Temporary construction facilities including staging areas, temporary water intake in the Muddy River, and temporary water pipeline.

A complete Project description is presented in Chapter 2 of this BA.

Power produced by the Project would be conveyed to the Nevada Power bulk transmission system via the gen-tie, which would interconnect to the existing Reid-Gardner Substation or a collector station, as determined by NV Energy.

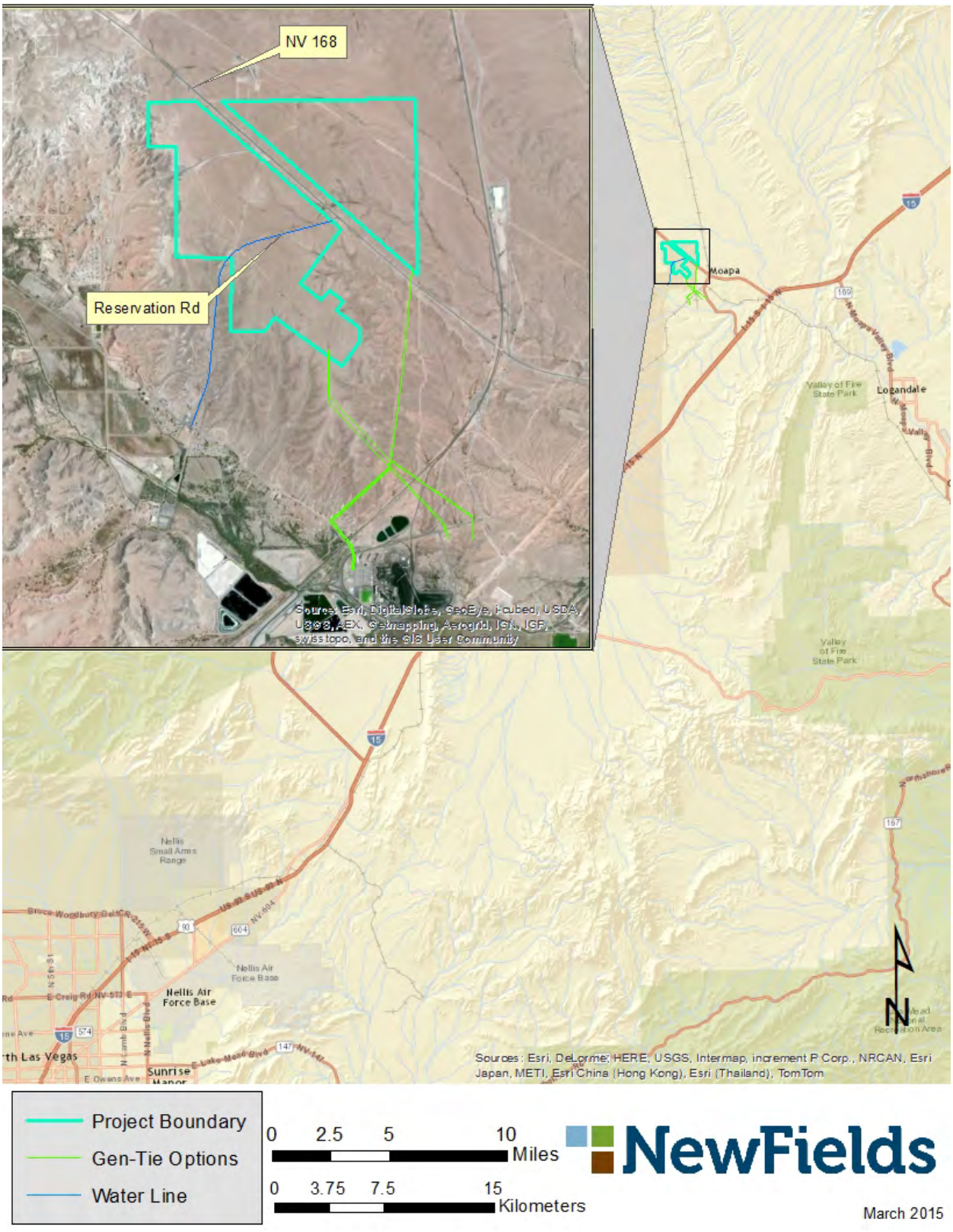


Figure 1-1. Project Vicinity

1.2 Consultation History

In February 2015, a list of species that may occur within the Project area was obtained from the USFWS website Information, Planning, and Conservation System (IPaC) (Appendix A) and other species were considered due to proximity to the Project area (USFWS 2014a). Table 1-1 lists these species, their status, critical habitat (if any) and proximity of the same to the proposed Project area, and the recommended effects determination.

Table 1-1. USFWS Species Considered

Species	Status	Critical Habitat/Location	Recommended Determination of Effects
Birds			
Yellow-billed cuckoo (*Coccyzus americanus*) Population: Western U.S. Distinct Population Unit	Threatened	USFWS Proposed Critical Habitat located approximately 4 miles northwest of the Project area	*May affect, not likely to adversely affect* *No effect to proposed critical habitat*
Yuma clapper rail (*Rallus longirostris yumanensis*) Population: U.S. only	Endangered	No USFWS Designated Critical Habitat	*May affect, not likely to adversely affect*
Southwestern willow flycatcher (*Empidonax trailii extimus*)	Endangered	USFWS Designated Critical Habitat approximately 20 miles east of the Project area	*May affect, not likely to adversely affect* *No effect to designated critical habitat*
Fish			
Moapa dace (*Moapa coriacea*)*	Endangered	No USFWS designated Critical Habitat	*No effect*
Reptiles			
Desert tortoise (*Gopherus agassizii*) Mojave population	Threatened	No USFWS designated Critical Habitat within Project area	*May affect, likely to adversely affect* *No effect to designated critical habitat.*

** Moapa dace was not included in the USFWS official species letter but is addressed in this BA due to the proximity of the species' range to the project area.*

Additionally, the applicant met with USFWS on October 7, 2014, at the USFWS Las Vegas Field Office to discuss the recommendations listed in Table 1-1 and other issues that would need to be addressed for this Project. Attendees included Michael Burroughs (USFWS), Susan Cooper (USFWS), Dave Sterner (First Solar), Bill Chilson (First Solar), Melanie Falls (First Solar), Darren Daboda (Moapa Band of Paiutes), Jill Yung (Paul Hastings LLP), Randy Schroeder (EnValue), Patrick Golden (Heritage), Ken MacDonald (NewFields), and Stephanie Locke (NewFields).

2.0 DESCRIPTION OF THE PROPOSED ACTION

This chapter provides a detailed description of the proposed Aiya Solar Project. It describes the various components of the Project and includes discussions of the proposed construction process, operations and maintenance procedures, and decommissioning.

The Applicant proposes to construct, operate, maintain, and decommission the Project, consisting of up to a 100 MW ac solar PV power generating facility on approximately 900 acres of land on the Moapa River Indian Reservation in Clark County, Nevada. 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 ac blocks of First Solar photovoltaic panels mounted on fixed tilt or tracking systems and associated equipment), a project substation, and O&M facilities. The offsite facilities include an approximately two-mile 230 kV gen-tie located on the Reservation, BLM-administered lands, and possibly private lands. 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. Temporary facilities, which would be removed at the end of the construction period, include the offsite water intake and pipeline mentioned above and the onsite mobilization, laydown, and construction areas and water storage tanks that would also be located on the Reservation. Table 2-1 summarizes the components of the Project and the associated agency actions.

Power produced by the Project would be conveyed to the Nevada Power bulk transmission system via the gen-tie, which would initially interconnect to NV Energy's existing 230kV Reid-Gardner Substation. Eventually, 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.

Table 2-1. Summary of Agency Lands/Jurisdiction

Agency	Project Component	Location	Agency Action	Acreage/ Mileage
BIA	Solar Field	Reservation	Lease	900 acres
	Temporary Water Pipeline	Reservation	Right of way (ROW)	2.0 miles / 2.5 acres
	230 kV Line	Reservation	ROW	1.4 miles / 25.6 acres
	Access Roads	Reservation	ROW	400 feet / 1.0 acre
BLM	230 kV Line	Federal Lands managed by BLM	ROW	0.7 miles / 12.8 acres

2.1 Project Location

The Proposed Project would be located approximately 40 miles northeast of Las Vegas in Clark County, Nevada (Figure 1-1). The solar project would be located on up to 900 leased acres within the Reservation in Mount Diablo Meridian, Township 14 South, Range 66 East, Sections 29, 30, 31,and 32. These lands are currently vacant except for roads, pipelines, and transmission line ROWs.

The gen-tie line would be located on Reservation lands, Federal lands managed by the BLM south of the solar site within Section 5 of Township 15 South and Range 66 East, and private lands adjacent to the Reid-Gardner Substation. The temporary water pipeline associated with the Project would be located on the Reservation south of the solar site in Sections 30 and 31 in Township 14 South, Range 66 East and Section 6 of Township 15 South and Range 66 East. Figure 2-1 shows the location of the components of the Proposed Project and associated facilities.

2.2 Project Elements

The Project would include the following key elements, the locations of which are shown in Figure 2-2, *Preliminary Site Plan*:

1. Onsite facilities (i.e., facilities proposed on the solar lease parcels) consisting of:
    a. Solar Array blocks consisting of First Solar PV modules mounted on fixed-tilt mounting systems and/or single-axis, horizontal tracker mounting systems supported by driven steel posts or other embedded foundation design (a typical panel array layout using fixed-tilt panels is shown in Figure 2-3, *Typical Array Configurations*, and Figure 2-4, *Typical Mounting System*);
    b. Meteorological stations within the solar field, and if tracker technology is utilized, up to 10 meteorological towers (steel lattice), approximately 30 feet high, mounted on concrete foundations would be installed around the perimeter of the solar field;
    c. Interior access ways and a perimeter road;
    d. Direct current (DC) collection system and Power Conversion Stations (PCSs) to collect power from the array blocks;
    e. Overhead and underground 34.5 kV AC collection system to convey electricity from the PCSs to the onsite substation;
    f. Substation with one or more 34.5 kV to 230 kV step-up transformers, breakers, buswork, protective relaying and associated substation equipment, microwave tower, and a control house;
    g. Approximately 10-acre O&M area that would accommodate an O&M building, parking area, and other associated facilities such as above ground water storage tanks, septic system, security gate, signage, lighting and flagpoles (water supply for the O&M area would be provided via a tap into a water pipeline that crosses the solar site);
    h. Project security using a combination of perimeter security fencing, controlled access gates, on-site security patrols, lighting, electronic security systems and/or remote monitoring;

i. A 10-foot wide firebreak adjacent to the perimeter fence (if needed);

j. Desert tortoise exclusion fencing around the Project perimeter;

k. Drainage control structures, final design to be determined upon completion of a hydrologic study; and

l. Landscaping along and outside the ROW for Reservation Road to provide visual screening.

2. Offsite facilities outside the solar lease boundary consisting of:

   a. Two short (approximately 200-foot long) primary access roads - one that would connect the southern portion of the solar site to State Highway 168 and one connecting the northern portion of the solar site to State Highway 168.

   b. Two short (also approximately 200 feet long) secondary access roads intended primarily for emergency access. One secondary access road would connect Highway 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 Highway 168 would be located along the easternmost boundary of the southern array with its entrance located along Highway 168.

   c. An approximately two-mile 230 kV gen-tie line to connect the onsite substation to NV Energy's 230kV Reid-Gardner Substation, initially, and then later to a new collector station located near the Reid- Gardner Substation (site to be determined by NV Energy). This gen-tie line would be located on Reservation, BLM-administered, and potentially NV Energy and/or other private lands.

   d. Fiber optic communications cable installed underground or overhead along all or part of the gen-tie route defined above. In addition, cable may be installed along Highway 168 and along Reservation Road outside the road ROW and on the Reservation; and

   e. Approximately 1,000-foot distribution power line from the nearby existing Nevada Power distribution system on the Reservation (to support construction and Project operations and management activities);

3. Temporary facilities to be removed at the end of the construction period consisting of:

   a. An intake in the Moapa River and an approximately two-mile above-ground water pipeline paralleling Reservation Road outside the road ROW to the temporary onsite tanks. The intake and pipeline right of way would be on Reservation land.

   b. An approximately 10-acre temporary construction mobilization and laydown area, which would contain construction trailers, construction workforce parking, above ground water tanks, materials receiving, and materials storage. The temporary mobilization and laydown area would be graded/compacted earth. The area would be located on the Project site on the Reservation;

   c. An additional temporary construction area for construction offices and parking would be located north of Highway 168 to serve the northern portion of the Project site for laydown. The temporary mobilization and laydown area would be graded compacted earth. The area would be located on the Project site on the Reservation;

d. Temporary construction areas would be located at each gen-tie line tower location and at locations required for conductor stringing and pulling operations to accommodate construction of the gen-tie line. These areas would total approximately 20 acres and would be on Reservation, BLM, and possibly NV Energy lands.

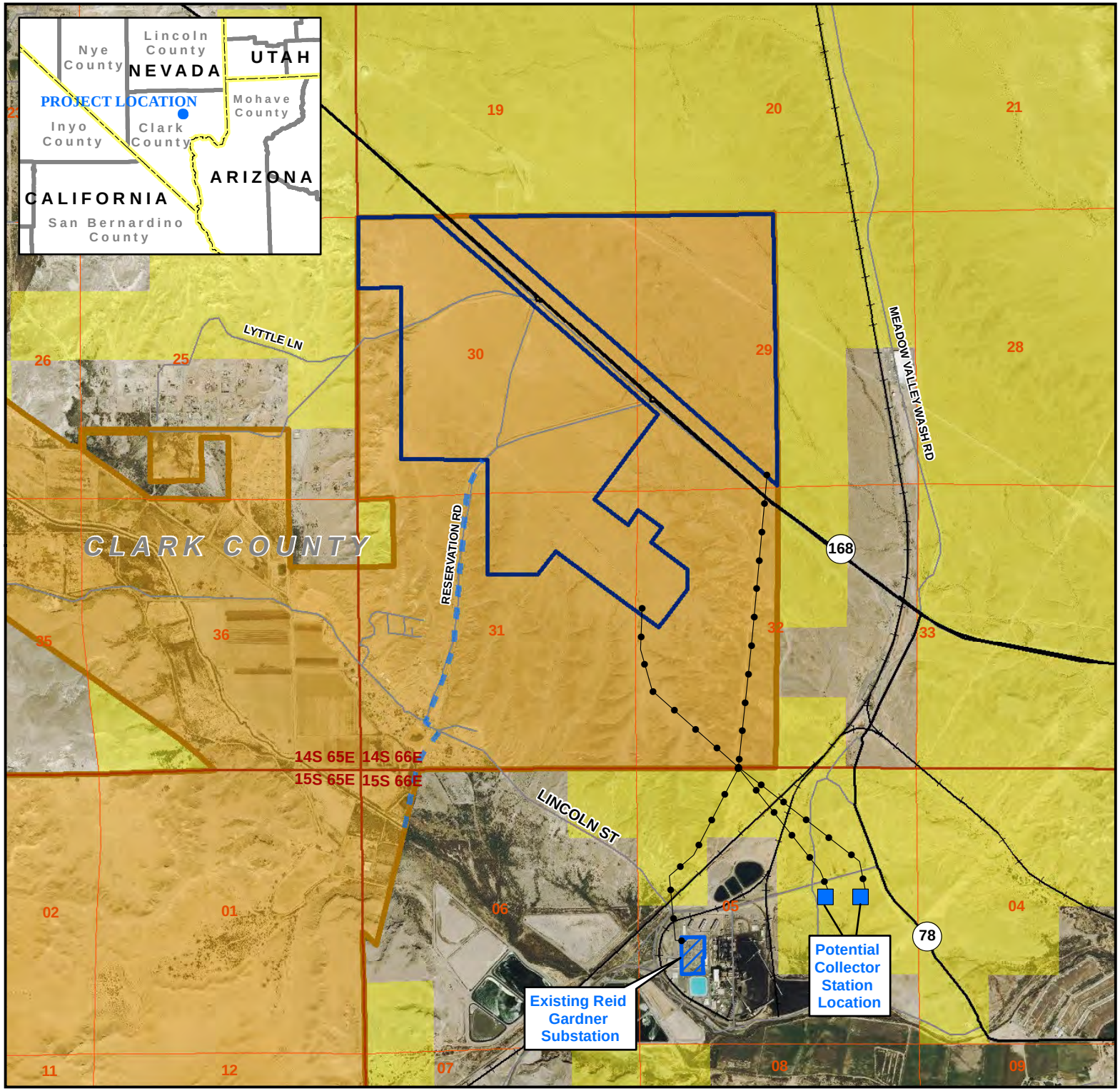
e. One or more temporary tanks for construction water located on the Project site on the Reservation; and

f. Temporary generators may be used to provide construction power on the solar site.

The total acreage of temporary and project lifespan disturbance associated with the Project facilities is summarized in Table 2-2.

Table 2-2. Temporary and Project Lifespan Disturbance

Project Component	Temporary Disturbance (acres)	Project Lifespan Disturbance (acres)
Solar Field and Ancillary Facilities	900	700
Access Roads (proposed primary, alternate primary, and proposed secondary)	1	1
230 kV Gen-Tie Line	35	10
Water Intake and Pipeline (max)	3	0
Total	939	711



Legend

- Potential Collector Station Location
- Gen-Tie Routes
- Water Pipeline
- State Highway
- Road
- Railroad
- Project Area
- Existing Substation
- County Boundary
- Township / Range Boundary
- Section Boundary

Jurisdictional Land Ownership

- Bureau of Land Management Land
- Tribal Land

0 0.25 0.5 0.75 1

Miles

State Plane
North American Datum 1983
Nevada East, FIPS 2701, Feet

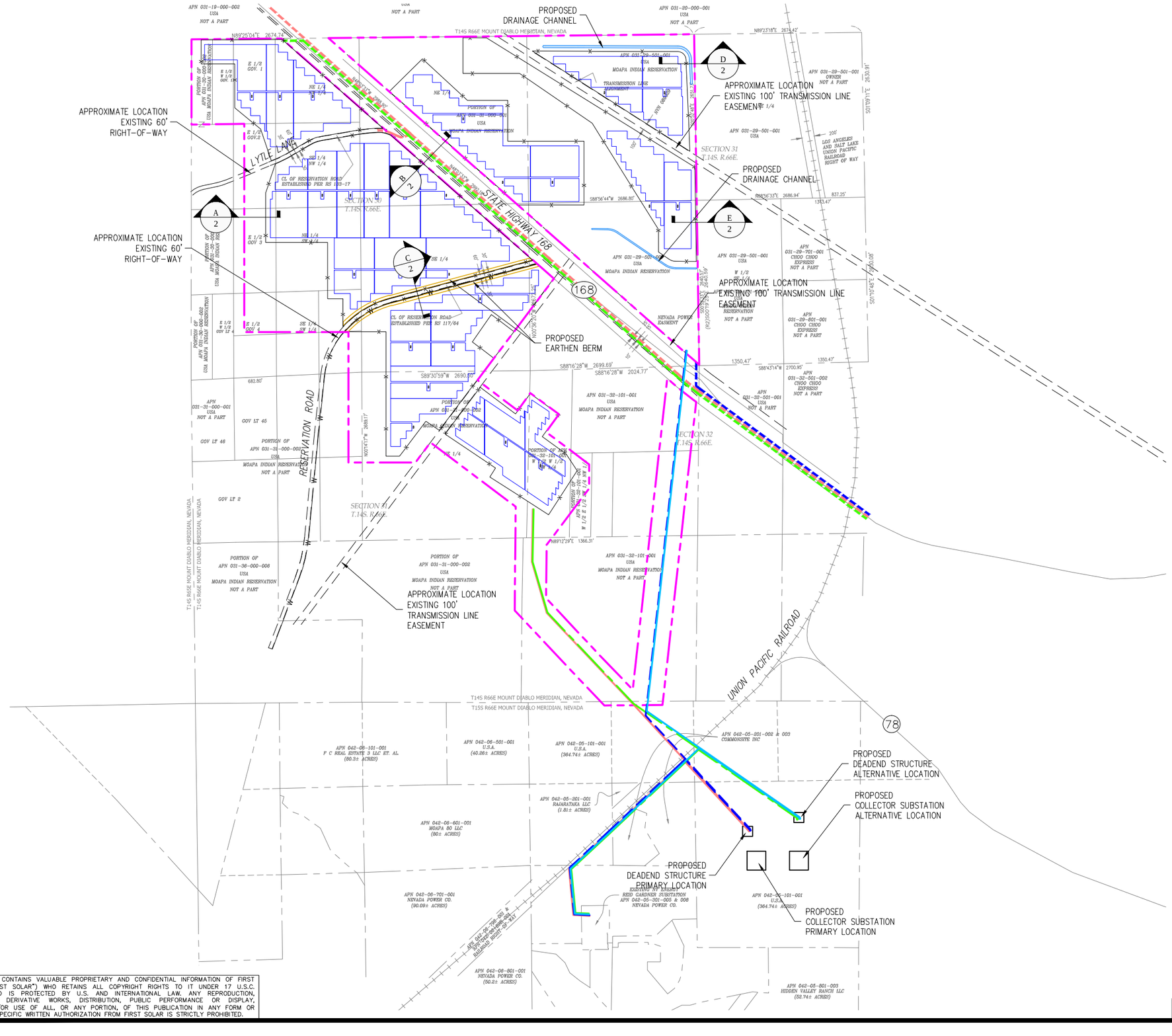
Aiya Solar Project

Figure 2 -1
Project Area

Map Extent: Clark County, Nevada

Date: 02-12-15 | Author: rnc

I:\Solar Projectt/MXD's/Project Area



LEGEND

- SITE BOUNDARY
- PROPOSED PERIMETER CHAIN LINK FENCE
- PROPOSED SITE ACCESS OPTION 1
- PROPOSED SITE ACCESS OPTION 2
- PROPOSED SITE ACCESS OPTION 3
- PROPOSED GEN-TIE ROUTE OPTION 1
- PROPOSED GEN-TIE ROUTE OPTION 2
- PROPOSED GEN-TIE ROUTE OPTION 3
- PROPOSED GEN-TIE ROUTE OPTION 4
- PROPOSED WATER LINE
- PARCEL LINE
- EASEMENT/RIGHT-OF-WAY
- TYPICAL PV ARRAY

NOTES

THIS MAP IS FOR REFERENCE ONLY AND CONTAINS PARTIAL SURVEY.

OTHER REFERENCE FOR THIS MAP ARE CLARK COUNTY ASSESSOR'S PARCEL MAP AND BLM NEVADA MASTER TITLE PLATS.

SEE THE RECORDED DOCUMENTS FOR MORE DETAILED LEGAL INFORMATION.

NORTH

1600' 800' 0 1600'

THIS PRINT IS NOT TO BE USED FOR CONSTRUCTION UNLESS NOTED AND SIGNED OK FOR CONSTRUCTION ABOVE LAST REVISION.

First Solar
FIRST SOLAR, INC.
135 MAIN STREET, 6TH FLOOR
SAN FRANCISCO, CALIFORNIA 94105
PHONE: (415) 935-2500
WWW.FIRSTSOLAR.COM

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP

FS JOB #:

PROJ. DEVT. ENGR: A. QUIG-HARTMAN

PROJ. MGR:

SCALE: 1"=1600' @ 11"x17" SHEET

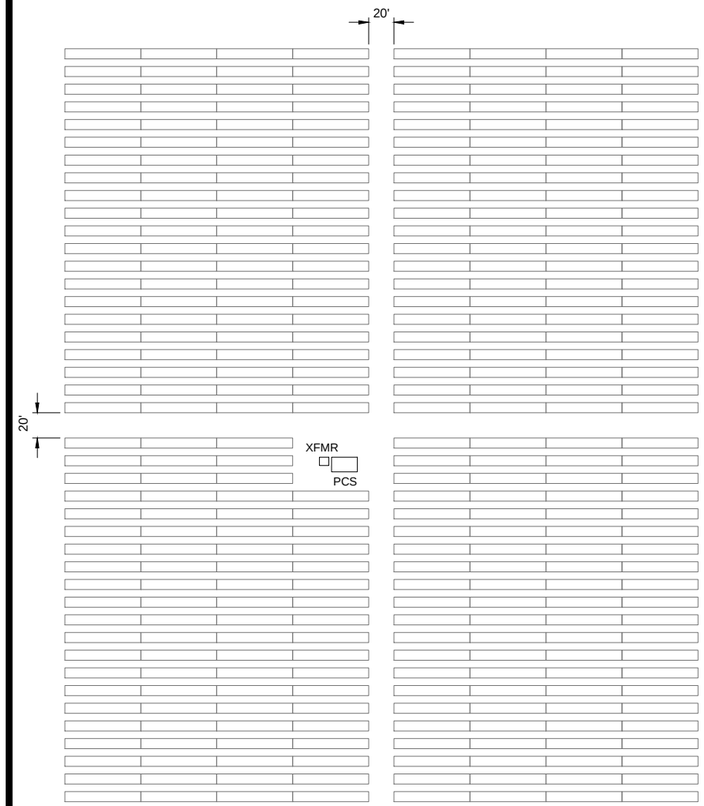
COPYRIGHT BY: FIRST SOLAR, INC.

SHEET TITLE

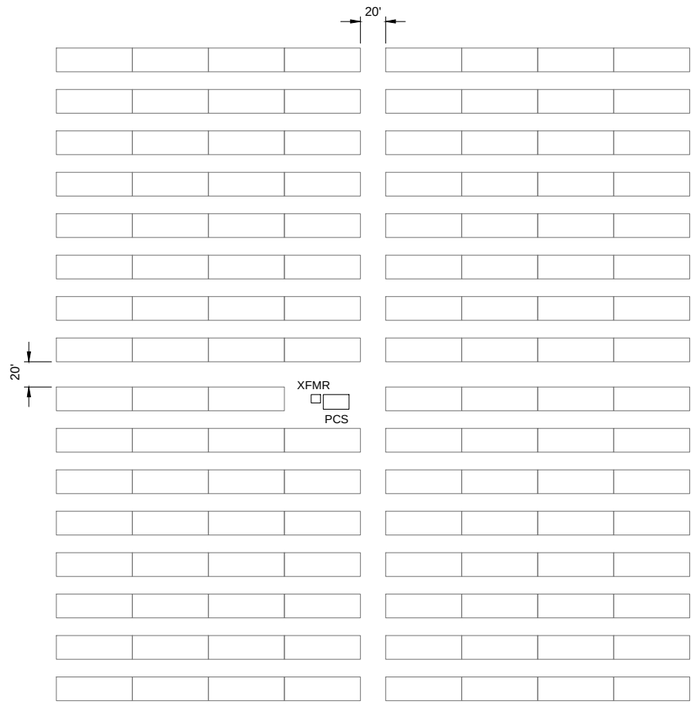
PRELIMINARY SITE PLAN (03/10/15)

SHEET 1 OF 2

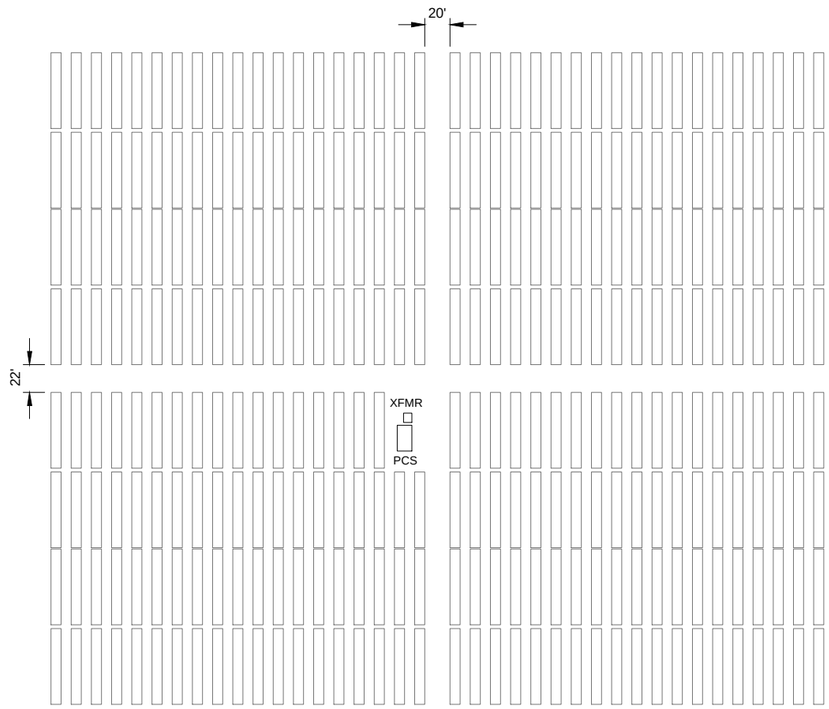
T:\Projects\2014\Aiya\Active Drawing Files\2014-12-21 EIS\C-100-SP-AIYA.dwg FS104849 Mar 10, 2015 - 3:15pm



TYPICAL FIXED-TILT ARRAY
(4 HIGH MODULE)
NOT TO SCALE



TYPICAL FIXED-TILT ARRAY
(10 HIGH MODULE)
NOT TO SCALE



TYPICAL TRACKER ARRAY
NOT TO SCALE

NORTH

THIS PRINT IS NOT TO BE USED FOR CONSTRUCTION UNLESS NOTED AND SIGNED OK FOR CONSTRUCTION ABOVE LAST REVISION.

First Solar

FIRST SOLAR, INC.
135 MAIN STREET, 6TH FLOOR
SAN FRANCISCO, CALIFORNIA 94105
PHONE: (415) 935-2500
WWW.FIRSTSOLAR.COM

Figure 2-3

AIYA
MOAPA
CLARK COUNTY
NEVADA

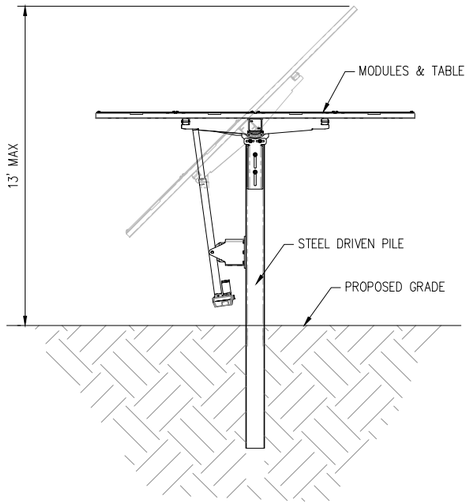
REV	DATE	REVISION DESCRIPTION	BY	CHK	APP

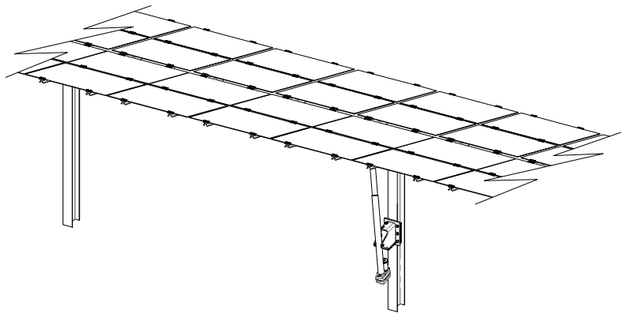
FS JOB #:
PROJ. DEVT. ENGR: A. QUIG-HARTMAN
PROJ. MGR:
SCALE: NONE
COPYRIGHT BY: FIRST SOLAR, INC.

SHEET TITLE
TYPICAL ARRAY CONFIGURATIONS

SHEET 1 OF 1

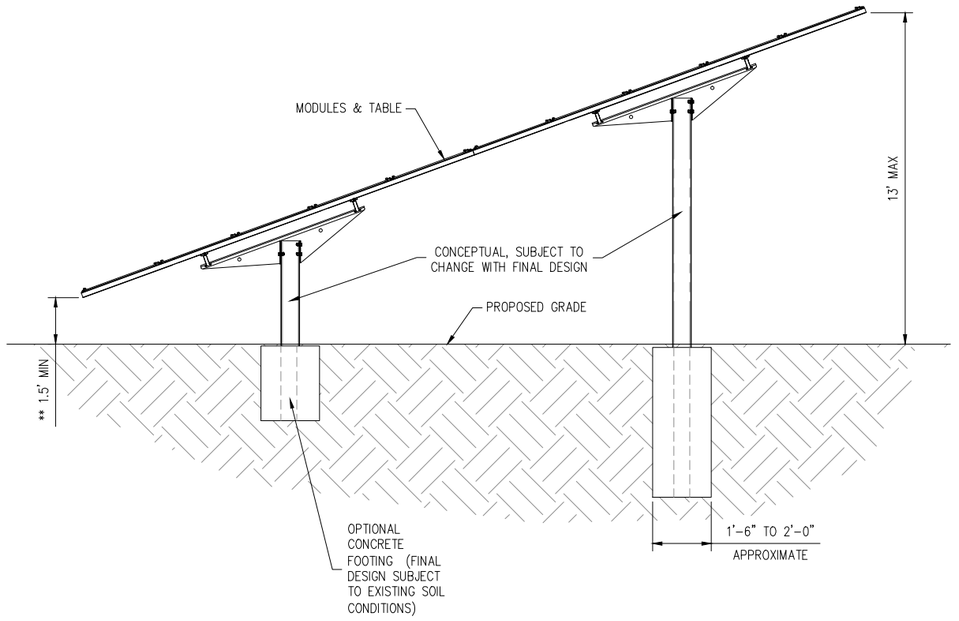
C:\Users\FS104849\Aiya\EIS Drawings\C-101-AC-AIYA.dwg FS104849 Dec 17, 2014 - 3:21pm



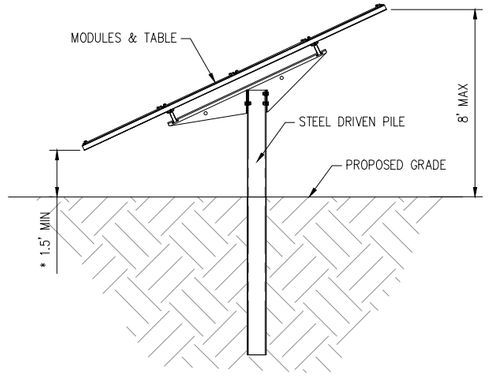


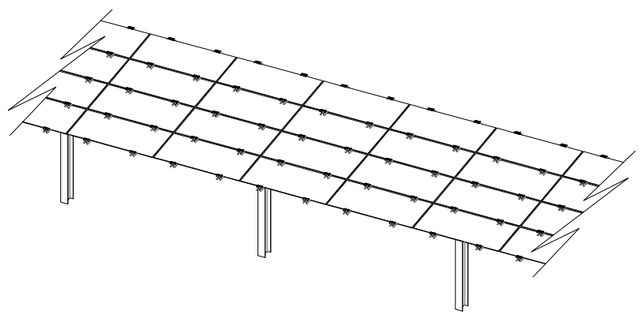
SINGLE AXIS TRACKER

NOT TO SCALE



** NOTE: MINIMUM HEIGHT MAY VARY DUE TO FLOOD CONDITIONS.



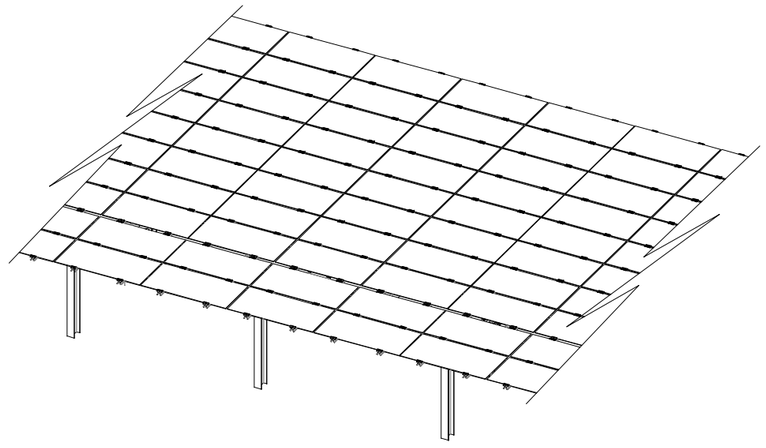


* NOTE: MINIMUM HEIGHT MAY VARY DUE TO FLOOD CONDITIONS.

FOUR HIGH SYSTEM
FIXED TILT

NOT TO SCALE

TABLE SYSTEM INFORMATION		
TYPE	ROW SPACING	ROW ORIENTATION
FIXED	14'-0" TO 16'-0"	EAST-WEST
TRACKER	16'-0" TO 22'-0"	NORTH-SOUTH
TEN HIGH	22'-0"	EAST-WEST



TEN HIGH SYSTEM
FIXED TILT

NOT TO SCALE

First Solar
FIRST SOLAR, INC.
135 MAIN STREET, 6TH FLOOR
SAN FRANCISCO, CALIFORNIA 94105
PHONE: (415) 935-2500
WWW.FIRSTSOLAR.COM

Figure 2-4

AIYA
MOAPA
CLARK COUNTY
NEVADA

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP

FS JOB #:

PROJ. DEVT. ENGR: A. QUIG-HARTMAN

PROJ. MGR:

SCALE: NONE

COPYRIGHT BY: FIRST SOLAR, INC.

SHEET TITLE

TYPICAL MOUNTING SYSTEM

SHEET 1 OF 1

2.3 Onsite Project Facilities

Onsite facilities would include First Solar PV modules; the onsite collection system; site security and fencing; the O&M facility; and internal Project-related roads. Other Project features, processes, systems, and equipment are described in the following sections.

All Project components would be designed in accordance with applicable federal and industrial standards including American Society of Mechanical Engineers, National Electrical Code, International Energy Conservation Code, International Building Code, Uniform Plumbing Code, Uniform Mechanical Code, National Fire Protection Association, and Occupational Safety and Health Administration.

2.3.1 Solar Field

The Project would be constructed using First Solar PV modules mounted on fixed-tilt mounting systems and/or single-axis, horizontal tracker mounting systems. Mounted PV modules, inverters, and transformers would be combined to form blocks approximately 4 MW ac in size. The blocks would be repeated to create up to 100 MW ac of electrical capacity at the point of interconnection.

Fixed Tilt Mounting System

If a fixed-tilt mounting system is used, panel arrays would be constructed in east-west oriented rows. The fixed-tilt panels would be positioned to receive optimal solar energy at an angle of 20 to 25 degrees, and would not move. A typical panel array layout using fixed-tilt panels is shown in Figure 2-3. The vertical height of fixed-tilt panel arrays would be between 4 feet high and 10 feet high. If 10 feet high, then the arrays would be up to 13 feet above the ground surface at the highest point (Figure 2-3). The height of the panel array would vary depending on the panels used and on the site conditions, since the solar field would not be graded to a level surface. The mounting system for the fixed-tilt module includes steel posts driven into the ground (or other embedded foundation design), with steel table frames bolted to the driven posts. The modules then would be then mechanically fastened to the steel table frame.

Horizontal Tracker Mounting System

If a horizontal tracker mounting system is used, the panel arrays would be arranged in north-south oriented rows and drive motors would rotate the horizontally mounted solar panels from east to west to follow the sun (on a single axis) throughout the day. A typical panel array layout using horizontal trackers is shown in Figure 2-4. The highest point for a horizontal tracker would be achieved during the morning and evening hours when the trackers are tilted at their maximum angle, and would be a maximum of 13 feet above the ground surface depending on the grade where the posts are installed (Figure 2-4). When solar modules are roughly parallel to the ground, the overall height of the tracker unit would be a maximum of 10 feet above the ground surface depending on the grade where the posts are installed.

The vertical support legs for the tracker mounting system consists of foundations that may include concrete piers approximately 18 to 24 inches in diameter and 4 to 6 feet deep, or posts approximately 6 to 8 inches across and driven to a depth of 4 to 6 feet. The preferred mounting configuration would use directly embedded driven posts; concrete piers would be used only if subsurface conditions do not support driven posts.

In this type of system (tracking), each tracker panel array is approximately 65 feet long and powered by a low-voltage, approximately 0.5 horsepower electric drive motor. The motors and actuator are mounted to one of the driven posts and do not require separate foundations for mounting. Hydraulic drive systems would not be used. The motors only would be operated for a few seconds every 5 to 10 minutes during daylight conditions to move the panels in approximately 1 degree increments. The sound from the tracker motors would be less than 70 decibels at a distance of 3 feet. This would equate to less than 30 decibels at 50 feet (similar to noise levels in a library).

If horizontal trackers are used, meteorological stations located at multiple locations around the perimeter of the solar array would monitor wind speed and communicate with the tracker units. This would allow for the trackers to rotate to a flat position during high wind activity. Meteorological station towers would be monopole or lattice design and would not exceed 30 feet in height. Each tower would require a small concrete foundation approximately 3 feet by 3 feet that would extend approximately 4 feet into the ground, depending on soil conditions.

Emergency Backup Power

If horizontal trackers are used, the PCSs would be equipped with emergency backup power required to rotate the tracker units to their stow position in the unlikely event of high winds and a loss of the primary 230 kV electrical connection from the Project to NV Energy's transmission system. The emergency back-up power system would consist of a 15 kilovolt-ampere (kVA) battery-based uninterruptible power supply (UPS) at each PCS. Batteries would be lead acid based and/or lithium ion. Sufficient cooling capacity to maintain ambient temperatures appropriate for the selected battery would be provided. Periodic replacement of the UPS batteries is expected as often as every 5 years based on usage and quarterly inspections, though it is not uncommon for the batteries to last longer than 10 years. Inspections of the batteries would be performed as part of the preventative maintenance program.

2.3.2 Onsite Electrical Collection System and Substation

PV modules convert sunlight into DC electricity. One or more combiner boxes would be located in the array block to collect the DC electricity generated from the PV modules. The electricity would be delivered through underground cables to an inverter that converts the DC electricity to AC electricity and a medium-voltage transformer that steps up the voltage to 34.5 kV. This converted AC electricity then would be delivered to the onsite substation via the 34.5 kV AC collection system, where the electricity again would be stepped up to 230 kV for delivery to NV Energy's transmission grid.

Inverters, Transformers, and Medium Voltage Switchgear

Each array block would have a PCS containing inverters and medium voltage transformers, as well as other electrical equipment. Each PCS also would contain communication equipment to wirelessly communicate with the tracker units to control operation and detect anomalous conditions. Photovoltaic Combining Switchgear (PVCS) will be located along the 34.5 kV collector line. All electrical equipment would be housed in their respective protective enclosures on concrete pads.

Inverter, transformer, and PVCS specifics are provided below (these may vary pending final Project design):

- Inverters
    - Approximate dimensions: 5 feet wide by 19 feet long by 8 feet high. The inverter cabinet may be placed over a precast vault that fits into the ground, with a skid on top of the vault and below the inverter. The vault and skid would be up to 40 feet long (approximately 20 feet longer than the inverters).
    - Capacity: 500 – nominal 4,000 kilowatts (kW)
- Transformers
    - Approximate dimensions: 8 feet wide by 10 feet long by 8 feet high. Depending on the transformer selected during final Project design, the transformer could have its own skid and vault.
    - Capacity: 1,000 – 4,200 kVA
    - Oil: Each transformer contains approximately 300-1,000 gallons of dielectric oil
- PVCS
    - Metal enclosed or gas-insulated 34.5 kV switchgear

34.5 kV Collection System

The 34.5 kV collection system would include both underground and above ground cabling. From the medium-voltage transformers to the PVCSs, the 34.5 kV system would be installed underground using 35 kV-rated medium voltage cables listed for direct buried applications. An exception would be that overhead cabling would be installed where necessary to avoid existing underground facilities. Underground 34.5 kV cables would be installed to comply with the minimum burial depth in accordance with the National Electrical Code.

From the PVCSs to the onsite substation, the 34.5 kV collector system would be installed overhead. Overhead 34.5 kV collector lines would be installed as double circuit lines on wood poles with post insulators (typical of medium voltage installations in electric distribution systems). Pole height would be up to 75 feet above grade and spacing between individual circuits and phases would comply with National Electrical Safety Code requirements. Wood poles would be installed with approximately 150-foot spacing between poles. Wood poles typically would be directly embedded to 10 percent of the pole height plus two feet. An approximately 2-inch diameter ground rod may be hammered into the ground adjacent to the wood pole.

Onsite Substation

The approximately 90,000 square-foot (2-acre) onsite substation would be located in the eastern portion of the Project site and constructed to applicable electrical safety codes. The substation would be separately fenced to provide increased security around the medium and high voltage electrical equipment. The onsite substation area would include a transformer containment area, a microwave tower, a control house, and one or more transformers.

The transformer containment area would be lined with an impermeable membrane covered with gravel, and would include a drain with a normally closed drain valve. Any storm water or fluid in the

containment area would be inspected for a sheen prior to disposal. If a sheen is observed, the contents would be removed by vacuum truck and transported to an appropriate disposal site. If no sheen or contaminants are detected, the storm water would be drained on-site. The containment system would be designed to accommodate the volume of the dielectric fluid in the transformer plus an allowance for precipitation.

2.3.3 Site Security and Fencing

Security at the Project site would be achieved by fencing, lighting, security patrols, and/or electronic security systems. The Project site would be monitored 24 hours per day, seven days per week during all phases. Lighting would be provided at the O&M building and Project entrance gate.

The solar field and support facilities perimeter would be secured with chain link metal-fabric security fencing. Controlled access gates would be located at the site entrance. Access gates also would be located at specific locations along the perimeter road to allow maintenance and security crew access to all portions of the Project site.

The perimeter fence would be an approximately 6 to 7-foot-high chain link fence with 1-foot-high barbed-wire security strands at the top. A 10-foot-wide fire break would be maintained adjacent to the exterior of the array if needed.

Fencing also would be installed around the onsite substation. Access gates would be provided to allow maintenance vehicle access to the equipment. Substation fencing would be similar in design to the perimeter fence.

Approved desert tortoise exclusion fencing to prevent tortoises from entering the solar field would be installed outside the perimeter security fence. The tortoise fence would extend an additional one foot below the ground. Below ground tortoise fencing would be angled outward, away from the solar collector field, to discourage burrowing tortoises.

2.3.4 Operation and Maintenance Facilities

An approximately 10-acre O&M area would be located in the northeastern portion of the Project site, adjacent to the temporary construction mobilization and laydown area. The O&M area would accommodate a permanent O&M building, parking area, and other associated facilities such as above ground water storage tanks, septic system, security gate, signage, and flagpoles. The permanent O&M building would house administrative, operation, and maintenance equipment and personnel, and would be up to 2,000 square feet in size. It would have a maximum height of approximately 15 feet and would have an adjacent parking area. The O&M building would include communication equipment, storage and equipment area, offices, restrooms, and other necessary features. The design and construction of this building would be consistent with Clark County building standards and approved by the Tribe and BIA.

Additional components of the O&M area would include a temporary construction laydown and storage area and trash containers. The O&M area would be equipped with exterior lighting as described in a Lighting Management Plan to be prepared by the Applicant and approved by the Tribe and BIA.

A separate, uninhabited communications enclosure would be located adjacent to the onsite substation. The communications enclosure would be constructed of either metal or pre-cast concrete and would house the site communications and metering equipment.

During operations, water for the O&M building would be either stored in above ground storage tanks or provided through a metered connection to the local water utility.

Supervisory Control and Data Acquisition System

The Project would have a Supervisory Control and Data Acquisition (SCADA) system that would allow for the remote monitoring and control of inverters and other Project components. The SCADA system would be able to monitor Project output and availability, and to run diagnostics on the equipment. This equipment would be located in the O&M building.

The SCADA system would provide control, monitoring, alarm, and data storage functions for the power plant systems. Redundant capability would be provided for critical SCADA components such that no single component failure would cause a plant outage. The SCADA system would be linked to the inverters, met stations and relays via fiber optic and copper communications cable. These data links would provide control, monitoring, alarm, and data storage functions via the control operator interface and SCADA control technician workstation.

Cathodic Protection Systems

While not expected, underground metal structures may have cathodic protection as necessary. The only underground metal structures would be the driven support posts for the PV modules and combiner boxes and the ground grid used under high voltage equipment to reduce touch potential. The ground grid would be composed of copper wire and would be limited to the substations. Galvanized metal posts and epoxy-coated rebar may be used in lieu of cathodic protection if supported by soil conditions. If cathodic protection is recommended, a sacrificial anode type cathodic protection system would be provided. Institute of Electrical and Electronics Engineers (IEEE), Electric Power Research Institute (EPRI), and the National Association of Corrosion Engineers (NACE) guidelines would be used in establishing the necessity, type and extent of cathodic protection equipment.

2.3.5 Internal Project-Related Roads

Project-related roads within the solar plant site would include the perimeter road and solar field access ways as described below.

Perimeter Road

A new 20-foot wide, 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. The perimeter roads would total approximately 10 miles in length. The perimeter roads would be approximately 20 feet wide and would be composed of native graded and compacted dirt. Alternatively, the perimeter road may use an aggregate base in some or all areas to meet Project dust and flood control requirements. The road would facilitate access through the site for non-four-wheel-drive vehicles and would be maintained to minimize dust that could be associated with use of vehicles for monitoring and security needs.

Solar Field Access Ways

Within the solar field, access ways would be built to provide vehicle access to the solar equipment (PV modules, inverters, transformers) for O&M activities. These access ways would be approximately 20 feet wide and located approximately every 500 to 1,300 feet across the solar field. The existing soil surface would be graded and compacted using onsite materials to facilitate use by two-wheel-drive vehicles. Each end of each access way would connect to the perimeter road.

2.3.6 Stormwater Management

Gabion-lined channels approximately 50 feet wide would be built along the northeast corner and in the southeast portion of the solar field north of Highway 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 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.

2.3.7 Vegetation Management

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.

2.3.8 Landscaping along Reservation Road

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

2.3.9 Lighting

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.

2.3.10 Wastewater Treatment

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.

The Project also would generate onsite domestic water and sanitary sewer waste from the O&M building. A septic tank and drain field system would be used for collection, treatment, and disposal of sanitary sewer waste. The sanitary waste system would not receive other wastes or surface runoff from the O&M area (i.e., hazardous materials or contaminated runoff). No connection to any existing sanitary sewer system is anticipated.

2.3.11 Weeds and Pest Control

The Applicant would prepare a Weed Management Plan for the Project that would follow the interagency guidance *Partners Against Weeds* (2007). Herbicides such as Roundup (glyphosate) would be used to control noxious weeds, if required. Pest control may also be required, including control of rodents and insects inside of the buildings and electrical equipment enclosures.

2.4 Offsite Linear Facilities

2.4.1 230 kV Transmission Line (Gen-Tie)

The Project would require the construction of an approximately two-mile 230 kV gen-tie 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 about 1.0 to 1.2 miles of Tribal land where it would enter federal lands managed by the BLM and 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 one of the identified locations. 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 miles long for both of the route options.

The two primary route options for the proposed gen-tie are described below:

- A potential route would originate on tribal lands at a solar project substation location north of Highway 168. It would follow an existing transmission line south to the point where it would exit the Reservation and enter BLM-administered land. From that point, it would turn southeast to one of two locations for the new collector substation.
- Another potential route would originate on tribal lands at a solar project substation location south of Highway 168. It would follow an existing ROW on the Reservation southeast and south to a point on the Reservation where it would turn southeast and enter BLM-administered lands to one of two locations for the new collector substation.

From either collector station location, a 230 kV line would be routed across BLM lands and private lands owned by NVE to the Reid-Gardner Substation.

These two route alternatives would leave the Reservation and enter BLM-administered land at similar locations. Figure 2-5 shows the locations of these gen-tie route options.

The overhead 230 kV line would be installed on approximately 20 to 30 steel monopole structures spaced approximately 400 to 800 feet apart. The structures would be up to approximately 120 feet above grade with approximately 15-foot spacing between conductors and minimum ground clearance of 26 feet, per local and national electrical code requirements. The structures would accommodate either a single-circuit or double-circuit configuration. Monopole structures would be galvanized steel with a dull gray appearance and would be used to support interconnection to the NV Energy transmission system (see Figure 2-2 Power Line Details).

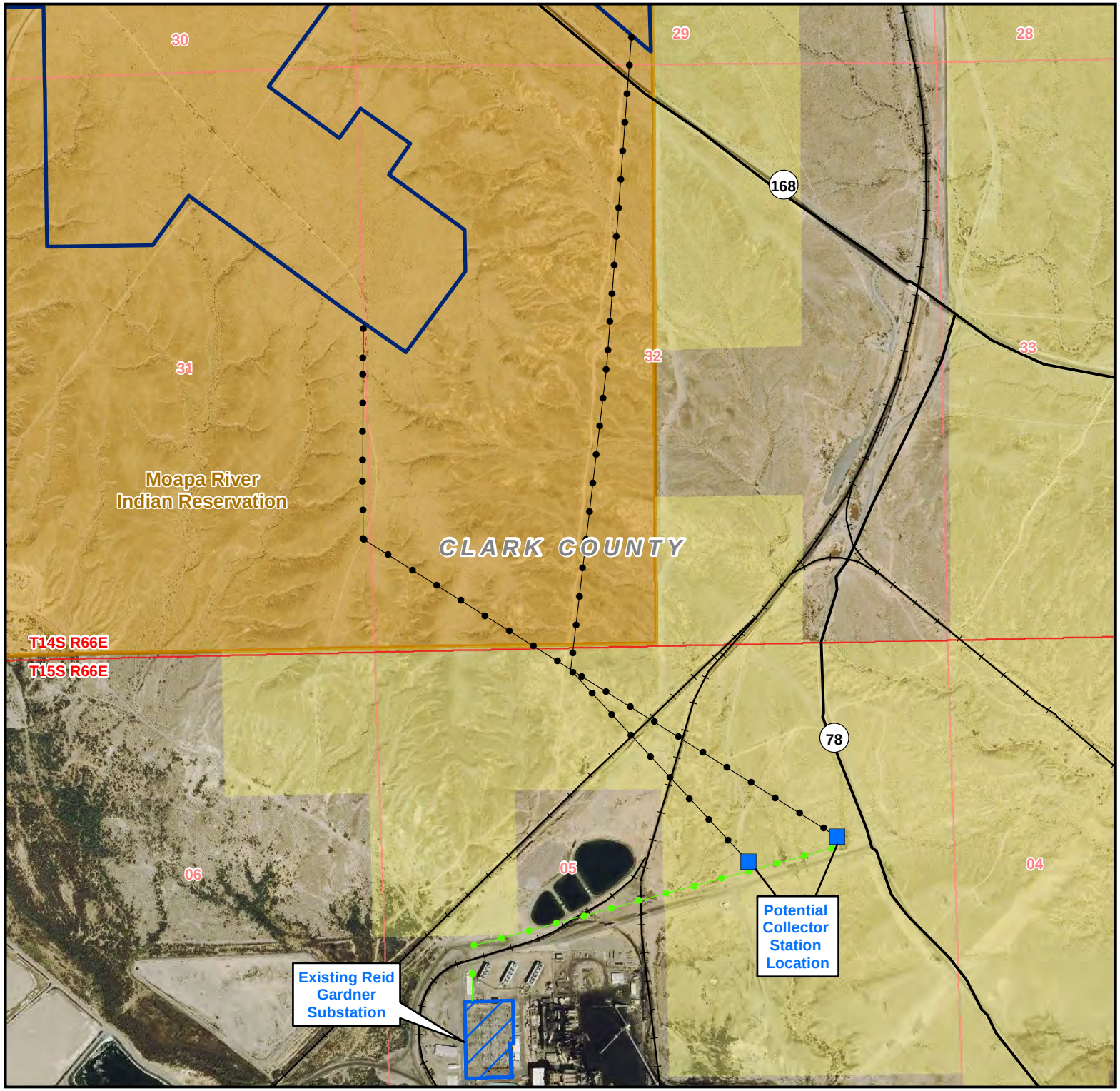
All overhead electrical lines would be designed and installed in accordance with the Avian Power Line Interaction Committee's (APLIC) Suggested Practices for Avian Protection on Power Lines (APLIC, 2006). The Applicant also would prepare a Bird and Bat Conservation Strategy (BBCS) to address potential impacts to birds and bats during the construction, operations, and maintenance phases of the Project.

NV Energy would build a new 230 kV four (4) breaker collector switching station inclusive of communications either within the existing Reid-Gardner Substation or the new collector station.

2.4.2 Project Access Roads

Two short access roads would be constructed for the Project. Both would be approximately 20 feet wide. The first would be approximately 100 feet in length and would connect the southern portion of the solar site with the State Highway 168. The second access road would connect the portion of the solar site located north of Highway 168 to the highway. The access roads would be utilized for delivery of all Project components, and would be used by workers traveling to and from the site for construction. The primary access road would be comprised of native graded and compacted dirt and may be improved to aggregate rock or paved for dust control. In addition, road improvements to Highway 168 may be required to facilitate construction of the access roads connecting to Highway 168.

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. The secondary access roads would connect Highway 168 to the project site to the north, but its entrance would be located further west along Highway 168 than that of the proposed primary access road. The secondary access road for the array south of Highway 168 would be located along the easternmost boundary of the southern array with its entrance located along Highway 168.



Legend

- Potential Collector Station Location
- Gen-Tie Routes
- Double-Circuit Line
- State Highway
- Railroad
- Existing Substation
- Proposed Solar Boundary
- Township/Range Boundary
- PLSS Section Line

Jurisdictional Land Ownership

- Bureau of Land Management Land
- Indian Land

0 500 1,000 1,500
Feet

Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Aiya Gen-Tie Project

Figure 2-5
Gen-Tie Route Options

Map Extent: Clark County, Nevada

Date: 03-02-15		Author: rnc

I:\Aiya Gen-Tie Project/MXD's/Gen-Tie Route Locations

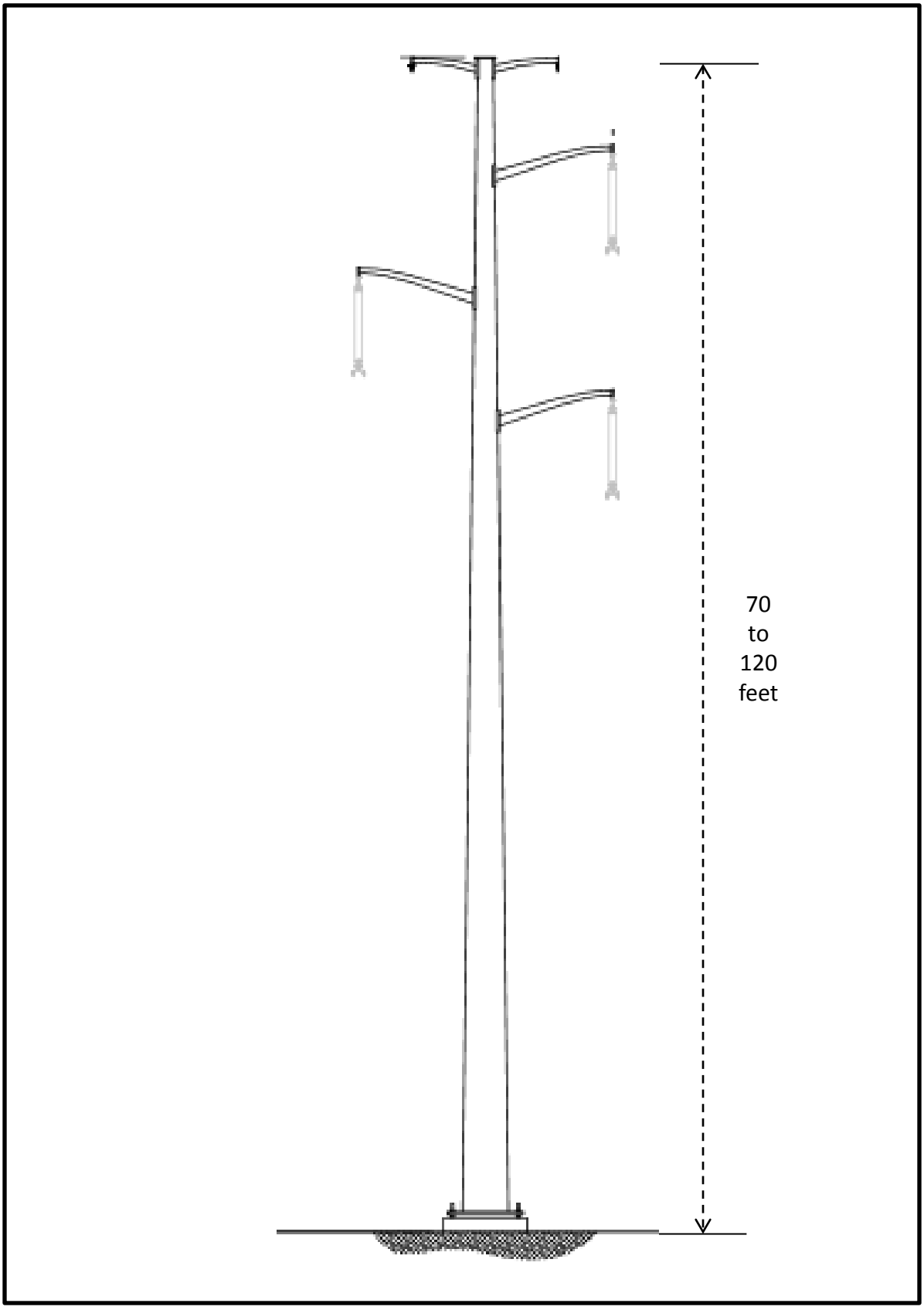


Figure 2-6

Typical 230 kV Single-Circuit Steel Pole Structure

2.4.3 Electric Distribution Line

A new distribution line interconnecting to the existing NV Energy distribution service would be installed to provide electricity during construction and operation. This line would be located between the construction trailer area and the existing distribution line. Poles would be spaced an average of 300 feet and would be about 55 feet tall.

Alternatively, generators may be used to provide temporary construction and operation power when needed. During operations, the Project would generate its own power during daylight hours for equipment operation. During non-daylight hours, the Project would require power to keep transformers energized, maintain communications to Project equipment, and provide power for heating, ventilation, air conditioning, and lighting at the O&M building.

2.4.4 Communication Systems Infrastructure

Multiple communication systems would be used during construction and operation. These systems would include telephone, fiber optics, and T1 Internet. The Applicant expects to utilize existing wired or wireless telecommunications facilities. In the event that these facilities are not available in the Project vicinity, the Applicant would install hard-wired (land-line) systems, underground or on overhead lines, as part of the electrical construction activities or would supplement with small aperture (less than 1 meter) satellite communications gear.

2.4.5 Intake and Water Pipeline

Water needed during construction 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 be constructed just outside the existing ROW of Reservation Road. The proposed pipeline route is shown on Figure 2-1. From the intake, the pipeline would travel north along a dirt road until it meets Reservation Road. The route continues north paralleling Reservation Road to the temporary stand tank on the Project site.

The new intake would be a temporary structure to be used during the 15-month construction period. The structure would most likely consist of a 2-foot by 2-foot pad with a mounted centrifugal pump capable of providing adequate capacity (up to 500gpm) and lift required to get water from the Muddy River to the stand tank located on the project site via the proposed pipeline. The pumping apparatus would be located adjacent to the Muddy River with a flexible and/or rigid pipeline located in the Muddy River.

The pipeline would be constructed of rigid pipe (most likely 10-inch high-density polyethylene [HDPE] fusion welded pipe). The pipe would be installed above grade and be supported by concrete (or equivalent) pipe supports approximately every 10 feet.

2.5 Temporary Facilities (To be removed following construction)

2.5.1 Water Intake and Water Pipeline

The intake and water pipeline discussed above will be removed when construction is completed.

2.5.2 Temporary Construction Workspace, Laydown, Mobilization Areas

The Project construction contractor would develop an approximately 10-acre temporary construction mobilization and laydown area within the eastern portion of the Project site (Figure 2-1) that would include temporary construction trailers with administrative offices, construction worker parking, temporary water service and fire water supply holding tanks, temporary construction power services, tool sheds and containers, as well as a laydown area for construction equipment and material delivery and storage.

An additional temporary construction area for construction offices and parking would be located within Project site north of Highway 168. This area would provide laydown for installation of solar equipment in the immediate vicinity of panel installation and would later be used as part of the permanent solar facility area. The temporary mobilization and laydown area would be graded and compacted earth.

In addition, temporary construction areas would be located at each tower location and at locations required for conductor stringing and pulling operations to accommodate construction of the gen-tie. These areas, totaling approximately 20 acres, would be required for staging equipment and materials for foundation construction and tower installation.

2.5.3 Water Supply

Up to 500 acre-feet of water would be required over an approximately 15-month period for construction-related activities, including dust control. After construction is complete, the Project's water consumption during operation would require up to 5 acre-feet per year. Water would not be used for panel washing but would be used for dust control possibly in conjunction with dust palliatives during operation (see 2.3.4 Operation and Maintenance Facilities, for more information). The Project would not require process water; however, the administrative area would require domestic potable water service provided via a tap into the Muddy Valley Irrigation Company pipeline that crosses the solar site.

The Project's construction water requirements will be met from existing surface water rights to flows in the Muddy River owned by the Moapa Band of Paiutes. The project will secure access to this water supply though an agreement with the Tribe.

The Applicant would prepare a Water Quality Management Plan that would include measures to be implemented to minimize the impacts to water quality from construction and O&M activities, including measures for erosion and sediment control, flood control, and stormwater monitoring and response.

2.6 Waste and Hazardous Materials Management

The primary wastes generated at the Project during construction, operation, and maintenance would be nonhazardous solid and liquid wastes. The types of wastes and their estimated quantities are discussed below and summarized in Tables 2-3 and 2-4. The Applicant would prepare an Emergency Response Plan and Spill Response Plan that would address waste and hazardous materials management, including Best Management Practices (BMPs) related to storage, spill response, transportation, and handling of materials and wastes. Waste management would emphasize the recycling of wastes where possible and would identify the specific landfills that would receive wastes that cannot be recycled.

2.6.1 Nonhazardous Wastes

The Project would produce wastes typically associated with O&M activities. These would include defective or broken electrical materials, empty containers, the typical refuse generated by workers and small office operations, and other miscellaneous solid wastes.

Table 2-3. Wastes Potentially Generated by the Project

Waste	Origin	Composition	Estimated Quantity	Classification	Disposal
Scrap wood, steel, glass, plastic, paper	Construction activities	Normal refuse	400 tons	Nonhazardous	Recycle and/or dispose of in industrial or municipal landfill
Scrap metals	Construction activities	Parts, containers	<4 tons	Nonhazardous	Recycle and/or dispose of in industrial or municipal landfill
Waste oil filters	Construction equipment and vehicles	Solids	1000 lbs	Used Oil	Recycle at a permitted Treatment, Storage, and Disposal Facility (TSDF)
Oily rags, oil sorbent excluding lube oil flushes	Cleanup of small spills	Hydrocarbons	200 cubic ft	Used Oil	Recycle or dispose at a permitted TSDF
Spent lead acid batteries	Construction machinery	Heavy metals	20	Hazardous	Recycle or dispose offsite at a Universal Waste Destination Facility
Spent alkaline batteries	Equipment	Metals	100 lbs	Universal waste solids	Recycle or dispose offsite at a Universal Waste Destination Facility
Waste oil	Equipment, vehicles	Hydrocarbons	1000 gallons	Used Oil	Dispose at a permitted TSDF
Sanitary waste	Portable toilet holding tanks	Solids and liquids	400,000 gallons	Nonhazardous liquid	Remove by contracted sanitary service

** Containers include <5-gallon containers and 55-gallon drums or totes*

The Project would generate onsite domestic water and sanitary sewer waste from the O&M building. A septic tank and drain field system would be used for collection, treatment, and disposal of sanitary sewer waste (see Section 2.3.10 Wastewater Treatment).

2.6.2 Hazardous Materials and Hazardous Wastes

Limited quantities of hazardous materials would be used and stored on site for O&M activities. The Applicant would prepare hazardous materials management plans, if needed and in accordance with U.S. Environmental Protection Agency (EPA) regulations, including hazardous materials information sheets.

Table 2-4 lists the hazardous materials anticipated that would be stored and used on site. Material Safety Data Sheets for each of these materials would be provided in the Emergency Response Plan.

Table 2-4. Hazardous Materials that may be used During Construction

Hazardous Material	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Mineral Insulating Oil	Carbon steel transformers; total onsite inventory of 80,000 gallons.	Used only in transformers, secondary containment for each transformer would be managed in accordance with the Spill Response Plan.
Batteries, lead acid based and/or lithium ion	Battery-based emergency back-up power at each of the PCS.	Sufficient cooling capacity to maintain ambient temperatures appropriate for the selected battery would be provided.
Propane	Generator-based emergency back-up power at each of the nine PCS shelters (or one centralized generator); tanks at PCS will be sized between 20 and 100 gallons (or 1000 gallons if one centralized tank).	Would be managed in accordance with the Spill Response Plan.
Herbicide Roundup® (glyphosate) or equivalent; Pesticide	Brought on site by licensed contractor, used immediately.	No mixing will occur on site and no herbicides will be stored onsite

2.6.3 Fire Protection

The Project's fire protection water system would be supplied from a water storage tank located near the O&M building.

During construction, one electric and one diesel-fueled backup firewater pump would deliver water to the fire protection water-piping network. Fire protection pump flow rates would be in accordance with applicable standards. A smaller electric motor-driven jockey pump would maintain pressure in the piping network. If the jockey pump is unable to maintain a set operating pressure in the piping network, a main fire protection pump would start automatically. All fire protection system pumps must be shut off manually.

The electrical equipment enclosures that house the inverters and transformers would be either metal or concrete structures. Any fire that could occur would be contained within the structures, which would be designed to meet National Electric Manufacturers Association (NEMA) 1 or NEMA 3R IP44 standards for electrical enclosures (heavy duty sealed design to withstand harsh outdoor environmental conditions).

The Applicant would prepare and implement a Fire Management Plan.

2.6.4 Health and Safety Program

The Applicant would require that all employees and contractors adhere to appropriate health and safety plans and emergency response plans. All construction and operations contractors would be required to operate under a Health and Safety Program that meets industry standards. All site personnel would be required to go through a new hire orientation and follow a Worker Education and Awareness Plan (WEAP), which would address Project-specific safety, health, and environmental concerns.

2.7 Construction Elements

Prior to any activity on the site, required resource protection plans would be developed and regulatory and permit conditions would be integrated into the final construction compliance documents. Project construction would begin once all applicable approvals and permits have been obtained. Construction is expected to take approximately 12-15 months and would include the major phases of mobilization, construction grading and site preparation, installation of drainage and erosion controls, PV panel/tracker assembly, and solar field construction. The Applicant expects that Project construction would commence in Fall 2015.

2.7.1 Site Preparation

A geotechnical investigation would be performed at the Project site prior to commencement of construction activities. A biological monitor will accompany all geotechnical crews, survey crews, and other pre-construction crews to avoid impacts to desert tortoise. All crews will remain on existing roads to the maximum extent practicable. In cases where construction vehicles are required to go off existing roads, a biological monitor would precede the vehicles on foot. During site preparation, the boundaries of the construction area would be delineated and marked. Site preparation techniques are described below.

Geotechnical Investigation

To develop a geological profile of the area underlying the Project site, the Applicant would conduct a geotechnical investigation to determine the engineering characteristics of local soils and geology.

The geotechnical investigation would include digging exploratory pits in several locations. Samples would be taken for a laboratory for analysis including moisture content and general soil composition.

In addition to the exploratory pits, several types of steel posts would be driven into the soil similar to the steel posts that would be used by the tracker or fixed tilt solar structures. The posts would then go through pneumatic testing to determine pile loads supported by the adjacent soil. The posts would also be tested for corrosion rates in the soil.

Surveying and Staking

Prior to construction, the limits of construction disturbance areas would be determined by surveying and staking. Where necessary, the limits of the ROWs also would be flagged. All construction activities would be confined to these areas to prevent unnecessary impacts affecting sensitive areas. These areas, which would include buffers established to protect biological resources, also would be staked and flagged. The locations of underground utilities would be located and staked and flagged in order to guide construction activities.

Stakes and flagging that are disturbed during construction would be repaired or replaced before construction continues. Stakes and flagging would be removed when construction and restoration are completed.

2.7.2 Clearance Surveys and Fencing

Prior to solar facility construction, USFWS approved tortoise fencing would be installed around the perimeter of the solar facility. Biological monitors, under the supervision of an USFWS approved authorized biologist, will be present during fence installation to relocate all tortoises in harms way to outside the solar facility and perform other sensitive species removal and mitigation as discussed in the National Environmental Policy Act Documentation for the project. After installation of the fence, desert tortoise clearance surveys will be conducted on the solar site as described in Section 2.6.2 of this BA (refer to #6 under Construction Mitigation Measures). Desert tortoise fencing will be monitored and maintained so that tortoises cannot enter the solar facility and to identify any tortoises engaged in "fence-walking" behaviors. The objective of these activities is to safely remove and exclude tortoise from the construction zone to prevent construction impacts to tortoise.

2.7.3 Vegetation Removal and Treatment

Within the solar field areas that would be disked and rolled or graded, existing vegetation would be worked into the underlying surface soils. Vegetation would be permanently cleared from roadways, access ways, and where concrete foundations are used for the inverter equipment, substations, and O&M facilities. A 10-foot-wide fire break would be established around the perimeter fence if needed and maintained clear of vegetation.

2.7.4 Site Clearing, Grading, and Excavation

All earthwork required to install drainage control detention basins, access roads, and foundations for Project-related buildings (O&M building, PVCS, onsite substation, gen-tie footings, etc.) would be balanced on-site. Trenching would be required for placement of collector lines. The solar field would require a positive natural terrain slope of less than 5 percent. The disk and roll technique would be used generally to prepare the surface of the solar field for post and PV panel installation. The disk and roll technique uses conventional farming equipment to prepare the site for construction. Typical farming equipment includes: rubber tired tractors with disking equipment and drum rollers with limited use of scrapers to perform micrograding. In areas where the terrain is not suitable for disk and roll, conventional cut and fill grading would be used to prepare the relevant area. The desire and intent is to preserve the macro-level topography in order to maintain the existing drainage pattern across the site, while flattening the surface of the existing topography enough to provide safe and efficient working conditions.

Grading and excavation requirements are described below for each of the primary Project components.

Solar Field and Internal Roads. Within the solar field, some grading would be required for roads and access ways between the solar arrays, and for electrical equipment pads. In general, the design standard for the roads and access ways within the solar field would be consistent with the amount and type of use they would receive. Speed limit for vehicles using these roads would be 15 miles per hour (mph) for dust control.

Within the solar arrays, the amount of the grading would be minimal where the panel support foundations are driven. For locations where driven foundations are not feasible, other types of embedded foundations may be employed. Grading also would be required within each solar array to accommodate a level concrete pad to support the inverter and transformer.

Onsite Substation. The onsite substation would require a graded site to create a relatively flat surface for proper operation, with approximately 1 percent maximum slope in either direction. The substation interior would be covered with aggregate surfacing for safe operation.

O&M Area. O&M area grading would include the area where the O&M building would be constructed. The remaining area would be graded and appropriately surfaced for parking, roads, material storage and the erection of a temporary assembly structure for use during the construction phase of the Project.

2.7.5 Gravel, Aggregate, and Concrete Needs and Sources

Approximately 7,500 cubic yards of concrete would be poured in place for equipment, gen-tie structures, and building foundations. Aggregate material would be used for the trench backfill, parking lot, substation area, and, if determined necessary, for the perimeter road and access roads. Riprap material would be required for erosion control. This material would be likely sourced from the Moapa River Reservation under purchase agreements with the Tribe.

2.7.6 Gen-Tie Line

Because the majority of the transmission line and geotechnical work would be outside of the fenced ROW, a biological monitor will accompany all construction crews. In cases where construction vehicles are required to off existing roads, a biological monitor (on foot) would precede the vehicles.

Construction Access

Mobile construction equipment access would be required at each transmission structure. The Project would use a combination of existing and new access roads and spur roads on designated routes to get construction equipment to each structure location.

To access the ROW, construction vehicles would use the existing roads off State Highway 168 and existing secondary access roads where possible.(such as the paved roads providing access to the Reid-Gardner Substation). Where the gen-tie would parallel existing lines, the road associated with the existing line would be used and short spur roads may be developed to access structure locations. The existing roads within the ROW at some locations may require improvements. Typical improvements would consist of minor grading and possibly limited addition of road base or rock in areas to allow safe vehicle travel. If used, spur roads would cross drainages at grade where possible. Standard road design techniques such as installing water bars and dips to control erosion may be used in sloped areas as necessary.

Structure Sites

A 160-foot by 200-foot (32,000 square-foot) area around each structure site would be cleared as required for safe and efficient construction. These areas will be temporarily disturbed during construction. The project lifespan disturbance area associated with each structure is estimated to be approximately a 50-

foot diameter (approximately 2,000 square foot) area. Topography, environmental and cultural constraints, and best engineering practice will be used to determine final structure locations.

Foundation Installation

The steel towers used for the gen-tie would be supported by steel-reinforced poured pier concrete foundations suitable for conditions at the site. These foundations are constructed by auguring a cylindrical hole using a truck-mounted drilling rig. Reinforcing steel and anchor bolt cages would be installed in the hole and then the hole would be backfilled with concrete. Steel tower foundations would range in size from approximately 4 to 7 feet in diameter, and in depth from 12 to 30 feet. Larger diameter and deeper foundations would be located where the transmission line turns at an angle of 30 degrees or greater.

Tower Installation

Structures would be staged in a designated laydown/stringing area or delivered and unloaded adjacent to their respective final locations. They would be placed onto their foundations using a crane. The poles would be supported, as necessary, during bolting to the foundation to ensure correct pole seating.

Conductor Stringing

Conductor stringing would likely be conducted one phase at a time, with all equipment in the same operational place until all phases of that operation are strung. Pull sites are the locations where equipment would pull the conductors and static wires into place. Conductor stringing equipment would be set up at both ends of each straight section of line. This equipment must be located a distance away from the dead-end structure to minimize the vertical construction loads imposed upon the dead-end structure during the wire stringing. The distance between the dead-end structure and the conductor stringing equipment is generally described by a 3:1 slope from the top of the structure.

Pull sites would be temporarily disturbed during this activity. Each would be 100-foot by 400-foot and one pull site would be required at each turning point.

The sequence of conductor stringing operations is summarized below:

- *Finger Lines*: The finger line is used to pull the later pilot line through travelers installed on each davit arm. The finger line is typically a small diameter synthetic rope that can be pulled by hand or crawler tractor.
- *Pilot Lines*: The finger line, once in place, is used to pull the pilot line which is a larger synthetic rope or small steel line. This requires a vehicle at each side of the pulling area, a Bullwheel tensioner truck doing the pulling of the pilot line, and a drum puller truck on the other side holding the reel.
- *Conductor*: Using the pilot line, the conductor is pulled through. Other activities may include offset clipping if suspension insulators are not plumb, or splicing together two reels of conductor. Once complete, the traveler equipment would be removed.
- *Tensioning*: After the conductor is completely strung through a section, the section is tensioned to comply with design specifications. Once the conductor has been tensioned or loosened to meet

the appropriate sag specification given the ambient temperature, the dead-end clamps would be tightened.

Grounding

Ground rods would be hammered into the earth with a jackhammer device attached to a small excavator (such as a Bobcat). Typically, the rods are 8 to 12 feet long and can be longer if needed by joining multiple rods. Ground rods can be connected to the pole or in the case of the steel pole, to the anchor bolts. The 230 kV towers may be connected to the overall plant ground grid or remain independent.

Typical equipment expected to be used for transmission line construction includes: backhoe, truck-mounted tower hole auger, forklift, crane, line truck with air compressor, various pickup and flatbed trucks, conductor reel and tower trailers, bucket trucks, and truck-mounted tensioner and puller.

2.8 Substation Construction

The onsite substation would be constructed in compliance with applicable electrical safety codes. Substation construction would consist of site grading, concrete equipment foundation forming and pouring, crane-placed electrical and structural equipment, underground and overhead cabling and cable termination, ground grid trenching and termination, control building erection, and installation of all associated systems including, but not limited to heating, ventilating, and air conditioning (HVAC) system components; distribution panels; lighting; communication and control equipment; and lightning protection.

The 2-acre substation area would be excavated to a depth of 10 feet. A copper-grounding grid designed to meet the requirements of IEEE 80, “IEEE Guide for Safety in AC Substation Grounding,” would be installed and the foundations for transformers and metal structures would be prepared. Final ground grid design would be based on site-specific information such as available fault current and local soil resistivity. Typical ground grids consist of direct buried copper conductors with 8-foot-long copper-clad ground rods arranged in a grid pattern to approximately 3 feet outside of the substation area.

After installation of the grounding grid, the area would be backfilled, compacted and leveled followed by the application of 6 inches of aggregate rock base. Equipment installation of the transformers, breakers, buswork and metal dead-end structures would follow. The transformer containment area would be lined with an impermeable membrane covered with gravel. A pre-fabricated control house would be installed to house the electronic components required of the substation equipment.

2.9 Road System Construction

Project-related roads are discussed in Section 2.3.5 Internal Project-Related Roads. The construction entrance and exit gates would be established. The Project’s main access roads would be graded and constructed in order to facilitate travel to the Project site and would connect to the existing State Highway 168. Any required improvements to Highway 168 would be made under a permit issued by the Nevada Department of Transportation (NDOT).

2.10 Onsite Building Construction

Following site preparation of the O&M area, construction of the O&M building would commence. Concrete foundations would be poured to support the permanent O&M building and an area adjacent to the building may be paved for parking. The modular steel up to 2,000 square-foot building would be erected. A 4-inch aggregate base would be installed on all unpaved areas within the O&M area.

If necessary, above ground water tanks would be erected and connected to a service pump. The active and reserve septic fields would be established and connected to O&M buildings waste system. Temporary construction power would be connected to the O&M building. The potable water treatment equipment would be installed in the O&M building and the water pump and line would be connected to potable water tanks.

2.11 Site Stabilization, Protection and Reclamation

During and following construction, appropriate water erosion and dust-control measures would be implemented to prevent an increased dust and sediment load to ephemeral washes around the construction site and to comply with EPA requirements. Dust during construction would be controlled and minimized by applying water and palliatives. Palliatives applied after construction and on areas that will not be disturbed during operation require a one-time application and do not require any water. Depending on the site preparation technique, organic matter may also be worked into the upper soil layers, or mulched onsite and redistributed into the fill (except under equipment foundations, trenches and roadways) to aid in dust control. In some areas to be graded that lie outside of the solar field, native vegetation may be harvested for replanting to augment soil stabilization.

Soil stabilization measures would be used to prevent soil being detached by storm water runoff. The Applicant would employ BMPs to protect the soil surface by covering or binding soil particles. The Project would incorporate erosion-control measures required by regulatory agency permits and contract documents as well as other measures selected by the contractor. Project-specific BMPs would be designed by the contractor, and associated figures are to be included in the final Project Storm Water BMP Plan.

The Applicant would prepare a Rehabilitation Plan that would be implemented immediately after construction for the areas that are temporarily disturbed.

2.12 Workforce Schedule, Equipment and Materials

The onsite construction workforce would consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel. The onsite construction workforce is anticipated to be an average of 400 to 600 construction workers with a peak not expected to exceed 1,200 workers at any given time. Most construction staff and workers would commute daily to the jobsite from within Clark County, primarily from the Reservation and the Las Vegas areas.

Construction generally would occur between 5:00 a.m. and 5:00 p.m., and may occur 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. Further, construction requirements would require some

night-time activity for installation, service or electrical connection, inspection and testing activities. Nighttime activities would be performed with temporary lighting.

The Applicant would prepare a WEAP for the Project and all construction workers would be required to complete WEAP training.

Construction materials such as concrete, pipe, PV modules, wire and cable, fuels, reinforcing steel, and small tools and consumables would be delivered to the site by truck. Initial grading work would include the use of primarily rubber-tired tractors, tillers and vibratory rollers and limited use of track-driven excavators, graders, dump trucks, and end loaders, in addition to the support pickups, water trucks, and cranes. Throughout the construction process, temporary above ground fuel storage tanks would be located at the site for construction equipment fueling. As the Project moves into the stages of civil work, equipment for foundations and road construction would be brought in, including paving machines (if required), trenching machines, pumps, additional excavators for foundation drilling, tractors, and additional support vehicles.

Construction activities would follow a generally consecutive order. However, most construction activities associated with each construction component would overlap to some degree and would include the following:

- Installation of tortoise fencing and security fencing;
- Construction of the access road, laydown areas, substation concrete pad and distribution line;
- Site preparation activities, and construction of drainage control detention basins;
- Erection of collection system and substation; and
- PV solar array assembly, construction and commissioning.

2.13 Construction Traffic

Typical construction traffic would consist of trucks transporting construction equipment and materials to and from the site and vehicles of management and construction employees during the construction period. Most construction staff and workers would commute daily to the jobsite from within Clark County, primarily from the Reservation and Las Vegas areas. All traffic would use I-15 and Highway 168 to access the site. The Applicant would prepare a Transportation Management Plan to address Project-related traffic.

2.14 Operation and Maintenance

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, and 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. It is anticipated that 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 annual and after heavy rains for erosion damage.

Tortoises fence will be inspected after heavy rains and periodically as determined by the USFWS in the Biological Opinion (BO) issued for this project. Tortoise fence inspection will be completed from the perimeter road inside of the fenced ROW.

All operations and maintenance personal will receive WEAP training to be able to identify tortoises and avoid impacts to tortoises during maintenance activities.

2.15 Decommissioning

The anticipated operational life of the Project would be 30 years to 50 years. 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 plans, 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. It would be consistent with requirements and goals set forth in the Rehabilitation Plan.

Removal and recycling of the PV modules would be done in accordance with the Applicant's prefunded module recycling program, established in 2005, through which modules may be returned to the Applicant for recycling at no cost to the end user. As modules are sold, the anticipated recycling cost is pre-funded into a trust account that is managed by a third-party trustee. The program enables all components of the modules, including the glass and the encapsulated semi-conductor material, to be processed into new modules or other products.

2.16 Management Plans, Minimization Measures, and Compensatory Mitigation

2.16.1 Management Plans

The Applicant will be required to prepare the following management plans, which will be submitted to the Moapa Band of Paiutes, BIA, BLM, and USFWS (as appropriate) for approval:

- BBCS
- Integrated Weed Management Plan
- Raven Management Plan
- Decommissioning and Site Reclamation Plan
- Dust Abatement Plan
- Spill Prevention and Emergency Response Plan
- Health and Safety Program
- Fire Management Plan
- Hazardous Materials and Waste Management Plan
- Lighting Management Plan
- Site Rehabilitation and Restoration Plan
- Stomwater Pollution Prevention Plan
- Site Drainage Plan
- Traffic Management Plan
- Surface Water Quality Management Plan
- WEAP

2.16.2 Minimization Measures

The following proposed minimization measures will be implemented as part of the Project proposed by the Applicant to avoid or reduce environmental impacts associated with the proposed action to federally protected species. Minimization measures and actions are designed to comply with the USFWS guidelines and Nevada Department of Wildlife (NDOW) standards.

Minimization will include the general conservation strategies, as well as adhere to the specific desert tortoise conservation measures and comply with the terms and conditions of the USFWS BO issued for this Project.

Construction Minimization Measures

The following measures will be implemented to reduce effects on the desert tortoise and other terrestrial and avian wildlife species during construction, operation, and maintenance:

1. **Construction area flagging**. The ROW boundaries will be flagged prior to beginning construction activities and disturbance confined to the ROW, as presented in Chapter 2. A biological monitor will escort all survey crews on site prior to construction. All survey 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 go 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. If permissible by the Project-issued BO, biological monitors under supervision of an authorized biologist (approved by USFWS) 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.

   Fence specifications will be consistent with those approved by USFWS (USFWS 2009b). 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 USFWS Terms and Conditions. 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.

3. **Field Contact Representative.** The BIA and First Solar will designate a Field Contact Representative (FCR) who will be responsible for overseeing compliance of the Terms and Conditions of the BO. 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 USFWS and will report directly to BIA, USFWS, BLM, and the proponent 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 as described in the BO. Prior to starting construction, authorized biologist(s) will submit documentation of authorization from the USFWS and approval of NDOW. Potential authorized desert tortoise biologists will submit their statement of qualifications to USFWS.

   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, USFWS, 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). Desert tortoise monitors will provide oversight to ensure proper implementation of protective measures; record and report desert tortoise and tortoise sign observations in accordance with approved protocol; and report incidents of noncompliance in accordance with the BO and other relevant permits. The biological monitor(s) will survey the construction area to ensure that no tortoises are in harm's way. 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.

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, biological monitors supervised by authorized desert tortoise biologists will conduct a clearance survey to locate and remove all desert tortoises from harm's way including those areas to be disturbed, using techniques that provide full coverage of construction zones (USFWS 2009b).

   No surface-disturbing activities shall begin until two consecutive surveys find no live tortoise. 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. Typical tortoise burrows have a characteristic shape with a flat bottom and arched top similar to a capital letter 'D' with the flat side down. Clearance will include evaluation of caliche caves and dens will also be evaluated, as tortoises are known to shelter there. Caliche is a naturally occurring hardened cemented soil composed of calcium carbonate, gravel, sand, and silt. The practice of excavating every burrow, whether made by a tortoise or other animal (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 in accordance with the most current USFWS-approved guidance (USFWS 2009b). If any active tortoise nests are encountered, USFWS 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. 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.

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

   Burrows with the potential to be occupied by tortoises within the construction area will be searched for presence. In some cases, a 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.

   Because the tortoise density is very low (refer to Section 4.2.2) and the details of translocation/relocation effort are described in this document, preparation of a separate translocation plan is not warranted. The USFWS BO for this project will authorize relocation/translocation of the tortoises found within the fenced Project area during clearance

surveys. Tortoises found within the project boundary will be relocated outside of the nearest fence or to a location that contains suitable habitat.

BIA and First Solar will have an authorized biologist relocate tortoises following the USFWS-approved protocol (USFWS 2009b). If the USFWS releases a revised protocol for handling desert tortoises before initiation of Project activities, the revised protocol will be implemented for the Proposed Action. The relocation/translocation effort will adhere to the following procedures as well as those stipulated in the BO Terms and Conditions:

- Tortoises found within the ROW will be relocated outside of the ROW to an area of suitable habitat as directed by the USFWS. Pre-project surveys indicate that the area contains a low number of tortoises; therefore, it is anticipated that tortoises can be relocated within USFWS-recommended 1,640 feet (500 meters). An authorized biologist will complete a habitat assessment prior to relocation. If a tortoise needs to be moved a greater distance (due to proximity to the edge of the ROW or because better or larger blocks of habitat are found farther away) the authorized biologist will consult with the USFWS for authorization.
- An authorized biologist will perform health assessments and draw blood samples for each tortoise to be relocated. Blood testing will determine whether any desert tortoise suffer from any upper respiratory tract disease (URTD).
- Tortoises will be temporarily radio-tagged so if the results of blood work indicate that a tortoise is infected with URTD, the tortoise can be retrieved and handled as directed by USFWS.
- Tortoises excavated from burrows will be relocated to unoccupied natural or artificially constructed burrows immediately following excavation. The artificial or unoccupied natural burrows will be located north of the ROW and relatively close, if feasible. The authorized biologist (using criteria of habitat suitability and soil friability) will determine the location of these artificial burrows or unoccupied natural burrows, and safety move tortoises with distances established by USFWS in the BO.
- Desert tortoises that are relocated during less active periods will be monitored for at least 2 days after placement in the new burrow to ensure their safety. 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 USFWS for these procedures.

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 cooperating or

reviewing agencies (BIA, BLM, NDOW, etc.). Measures in the plan will include, but are not limited to the following:

- Areas with current 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. **WEAP.** A WEAP 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. WEAP 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.
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 USFWS in the BO.
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. **Raptor control.** The applicant will inspect structures annually for nesting ravens and other predatory birds and report observations of nests to the USFWS 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 APLIC guidelines (APLIC 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 500 feet from the blasting site, placed in unoccupied burrow, 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, 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 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 USFWS in the BO 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 USFWS. Because this is a relatively new technique, all instances of penning or issues associated with penning will be reported to the USFWS by phone and e-mail 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. **WEAP training.** WEAP 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 BMPs designed to reduce effects to the desert tortoise.

18. **Desert tortoise fence inspections.** Desert tortoise fencing will be inspected regularly and after storm events (as disclosed in the BO) to ensure that the fence is intact, and that desert tortoises cannot enter the solar facility site.
19. **Biological Monitoring.** A 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.

2.16.3 Compensatory Mitigation

The applicant will pay the following required compensatory mitigation requirement:

- **Habitat compensation.** Prior to surface disturbance activities within desert tortoise habitat, the Project proponent will pay a one-time remuneration fee (per acre of proposed disturbance). The remuneration fees will be submitted to the account that USFWS designates in the BO. The compensation for habitat loss under Section 7 of the Endangered Species Act (ESA) is an annually adjusted rate, currently $836/acre (subject to change annually on March 31).

3.0 ACTION AREA AND EXISTING CONDITIONS

3.1 Overview

The Project is located just west of the Town of Moapa, located in the Dry Lake Valley, which is within the southern portion of the Basin and Range province characterized by mountains interspersed with north-south trending valleys. Specifically, the Arrow Canyon Ridge to the west flanks this portion of the Dry Lake Valley and the North Muddy Mountains are to the east.

3.2 Action Area

Section 7 (a)(2) of the ESA defines the "Action Area" as the areas to be affected directly or indirectly by the federal action. For this Project, the Action Area would directly affect the project footprint (including entirety of the solar facility, preferred gen-tie route, access roads, water pipeline, water intake, and other ancillary facilities as described in Chapter 2). Additionally, because the Project would use surface water, the Muddy River downstream of the Project area was considered in the Action Area.

3.3 Habitat and Vegetation

Mojave creosote bush scrub is the vegetation community in the Project area. This vegetation community is dominant throughout Clark County. This community typically is dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) with other associated species. Table 3-1 lists all the plant species that were observed during field surveys. Also, Sahara mustard (*Brassica tournefortii*), a plant species designated by the Nevada Department of Agriculture (NDA) as a Category B weed species, is likely found within the area or nearby. Category B species are defined by NDA as "weeds established in scattered populations in some counties of the state; actively excluded where possible, and actively eradicated from nursery stock dealer premises; control required by the state in areas where populations are not well established or previously unknown to occur."

Table 3-1. Plant Species Observed during Field Surveys

Common Name	Scientific Name
Creosote bush	*Larrea tridentata*
White bursage	*Ambrosia dumosa*
Desert senna	*Senna armata*
Desert trumpet	*Eriogonum inflatum*
Big galleta	*Pleuraphis rigida*
Beavertail pricklypear	*Opuntia basilaris*
Buckhorn cholla	*Cylindropuntia acanthocarpa*
Devil's spineflower	*Chorizanthe rigida*
Desert globemallow	*Sphaeralcea ambigua*
Catclaw acacia	*Acacia greggii*
Rough jointfir	*Ephedra nevadensis*

Table 3-1. Plant Species Observed during Field Surveys

Common Name	Scientific Name
Compact brome	*Bromus madritensis*
Mediterranean grass	*Schismus barbatus*
Threeawn	*Aristida purpurea*
Desert marigold	*Baileya multiradiata*
Wingnut cryptantha	*Cryptantha pterocarya*
Cleftleaf phacelia	*Phacelia crenulata*
Red brome	*Bromus tectorum*
Russian thistle	*Salsola tragus*
Gilia	*Gilia sp.*
Buckwheat	*Eriogonum sp.*
Threadleaf snakeweed	*Gutierrezia microcephala*
Cottontop cactus	*Echinocactus polycephalus*
Common fishhook cactus	*Mammillaria tetracistra*
Pincushion flower	*Chaenactis fremontii*
Brownplume wirelettuce	*Stephanomeria pauciflora*
Four o'clock	*Mirabilis sp.*
Desert indianwheat	*Plantago ovata*
Desert needlegrass	*Achnatherum speciosum*
Indian ricegrass	*Achnatherum hymenoides*
Low woollygrass	*Erioneuron pulchella*

Vegetation within the proposed Project area previously has been mildly disturbed by various activities including off-highway vehicle recreation, flooding, existing power line construction, and nearby residential construction.

3.4 Wildlife

The proposed Project area supports wildlife characteristic of the northeastern Mojave Desert. Table 3-2 illustrates the wildlife observed during field surveys. Other common species in this habitat may include round-tailed ground squirrel (*Spermophilus tereticaudus*), kangaroo rats (*Dipodomys* spp.), western whiptail lizard (*Aspidoscelis tigris*), sidewinder rattlesnake (*Crotalus cerastes*), Gila monster (*Heloderma suspectum*), and chuckwalla (*Sauromalus ater*).

Table 3-2. Wildlife Observed during Fields Surveys

Common Name	Scientific Name
Reptiles	
Desert tortoise	*Gopherus agassizii*
Horned lizard	*Phrynosoma* sp.
Desert iguana	*Dipsosaurus dorsalis*
Bull snake	*Pituophis catenifer sayi*
Side blotch lizard	*Uta stansburiana*
Coach whip	*Masticophis flagellum*
Birds	
Common raven	*Corvus corax*
Burrowing owl	*Athene cunicularia*
Red tail hawk	*Buteo jamaicensis*
Lesser nighthawk	*Chordeiles* sp.
Mammals	
Coyote	*Canis latrans*
Black-tailed jackrabbit	*Lepus californicus*
Kit fox	*Vulpes macrotis*

4.0 SPECIES AND HABITAT POTENTIALLY AFFECTED

4.1 Desert Tortoise

Desert tortoise is classified as Threatened under the ESA. The project area is within the Northeastern Mojave Recovery Unit, which encompasses almost 5 million acres extending from southwestern Utah/northwestern Arizona (northern boundary) to Las Vegas/Las Vegas Wash (southern boundary). This unit includes the Beaver Dam Slope, Gold Butte-Pakoon, and Mormon Mesa Critical Habitat Units. Characteristically, tortoises in this unit are active in late summer and early autumn in addition to spring, reflecting the fact that this region receives up to about 40 percent of its annual rainfall in summer and supports two distinct annual floras on which tortoises can feed (USFWS 2012). Desert tortoise also feed on cacti, perennial grasses, and herbaceous perennials. Desert tortoises may den together in caliche caves in bajadas, washes, or caves in sandstone rock outcrops (USFWS 2011).

If basic habitat requirements are met, the desert tortoise can survive and reproduce within the varied vegetation communities of the Mojave region (USFWS 1994). These requirements include sufficient suitable plants for forage and cover, suitable substrates for burrow and nest sites, and freedom from disturbance. Throughout most of the Mojave region, the desert tortoise occurs primarily on flats and bajadas with soils ranging from sand to sandy-gravel characterized by scattered shrubs and abundant inter-shrub space for herbaceous plant growth. They are also found on rocky terrain and slopes.

4.2 Distribution and Abundance in the Project Area

To assess the status of the desert tortoise in the Project area, field surveys were conducted in the Project area ("survey area") in May of 2014. Subsequent surveys were conducted in October 2014 for an expanded potential Project area, gen-tie routes, and the water pipeline route. Survey protocols and results are discussed in the Sections 4.2.1 and 4.2.2, respectively.

4.2.1 Field Surveys

During May and October 2014, a team of biologists experienced with biota of the Mojave Desert conducted tortoise surveys. Team members included more than one biologist previously approved by USFWS as an Authorized Biologist on multiple prior projects. To be granted authorized status, USFWS requires that the biologist has thorough knowledge of desert tortoise behavior, natural history, and ecology, and demonstrates substantial field experience and training to successfully:

- Handle desert tortoises
- Excavate burrows to locate desert tortoise or eggs
- Relocate desert tortoises
- Reconstruct desert tortoise burrows
- Unearth and relocate desert tortoise eggs
- Locate, identify, and record all forms of desert tortoise sign; and
- Follow USFWS-approved protocols.

The survey area was located using topographical maps, aerial photographs, and GPS coordinates, and additional coordination with representatives of the Moapa Band of Paiutes. Handheld Garmin 60 CSx GPS units were pre-loaded with the Project area boundaries and were used for orienteering during the surveys.

The area within the Project boundaries, gen-tie routes (200 feet wide), and water pipeline route (100 feet wide) was surveyed in accordance with current USFWS protocols (USFWS 2010). Refer to Table 4-1 for a summary of the areas where desert tortoise surveys were conducted.

Table 4-1. Summary of Desert Tortoise Survey Area

Project Element	Length (miles)	Width (feet)	Total Acres*
Solar facility	Varies	Varies	996
Gen-tie Route 1	1.8	200	43
Gen-tie Route 2	No additional	200	
Gen-tie Route 3	1.1	200	26
Gen-tie Route 4	No additional	200	
Waterline	1.6	100	20
		Total acres surveyed	1,085
		Total square miles surveyed	1.7

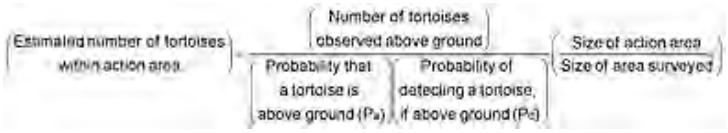
*Survey area is slightly different from that disclosed in Table 2-1 because the project boundaries were slightly altered after completion of the surveys and more area was surveyed for the gen-tie alternatives.

The team of biologists surveyed using 10-meter (33-foot) wide parallel pedestrian transects. USFWS refers to this methodology as "100 percent coverage." According to the USFWS, the objective of the field survey is to determine presence or absence of desert tortoise, estimate the number of tortoises (abundance), and assess the distribution of tortoises within the Project area (USFWS 2010). Within the Proposed Project area, the entire survey area was surveyed with 100 percent coverage. Refer to Appendix B for tortoise data.

Observations of tortoise sign (live tortoises, carcasses, shell, bones, scutes, scat, burrows, pallets, tracks, egg shell fragments, etc.) were recorded in the field using the Fulcrum application program. Fulcrum is a mobile data collection platform for survey data. Fulcrum uses an online interface to smartphones or tablets for data collection in the field. Data are backed-up automatically to a server or "cloud" as data are collected in the field. At the end of each survey day the data are reviewed for quality control so that survey data sheets can be generated. Survey data sheets for this Project are included in Appendix B.

4.2.2 Field Survey Results

Data collected within the survey area were analyzed using the USFWS 2010 Protocol equation to determine the estimated number of tortoises within the project area. This method uses the number of tortoises observed above ground, the probability that a tortoise is above ground, the probability of detecting a tortoise if above ground, and the size of the area surveyed. The equation is illustrated below.



Four live tortoises were observed within the survey area; therefore, the estimated number of tortoise throughout the Project area was calculated to be 8 = (4/(0.64*0.63)*(1085/1085) with a 95 percent confidence interval of 2.85 to 26.27 (N=8.6). Table 4-2 and Figure 4-1 present summaries of the tortoise sign in the area. Data sheets are in Appendix B.

Table 4-2. Summary of Tortoise Sign Found in the Survey Area

Type of Sign	Total
Burrows	53
Carcasses	9
Scat	4
Live tortoise (adult)	4

Table 4-3 presents Berry and Nicholson's (1984) linear regression model for estimating the relative population densities of desert tortoises based on corrected sign in California. The density ranges predicted by this model were adjusted for Nevada (which is generally considered to have fewer tortoise) by the Las Vegas District of BLM (based on work by Karl 1980). Based on the area surveyed (1.7 square miles) and the estimated number of tortoises (8), it is estimated that there are approximately 5 tortoises per square mile (8/1.7). Thus, the USFWS would consider this area to contain a very low relative density desert tortoise population.

Table 4-3. Relative Population Density

Desert Tortoise Per Square Mile		Relative Population Density
California	Nevada	
0-20	0-10	Very Low
20-50	10-45	Low
50-100	-	
-	45-90	Moderate
100-250	-	
-	90-140	High
250+	-	
-	140+	Very High

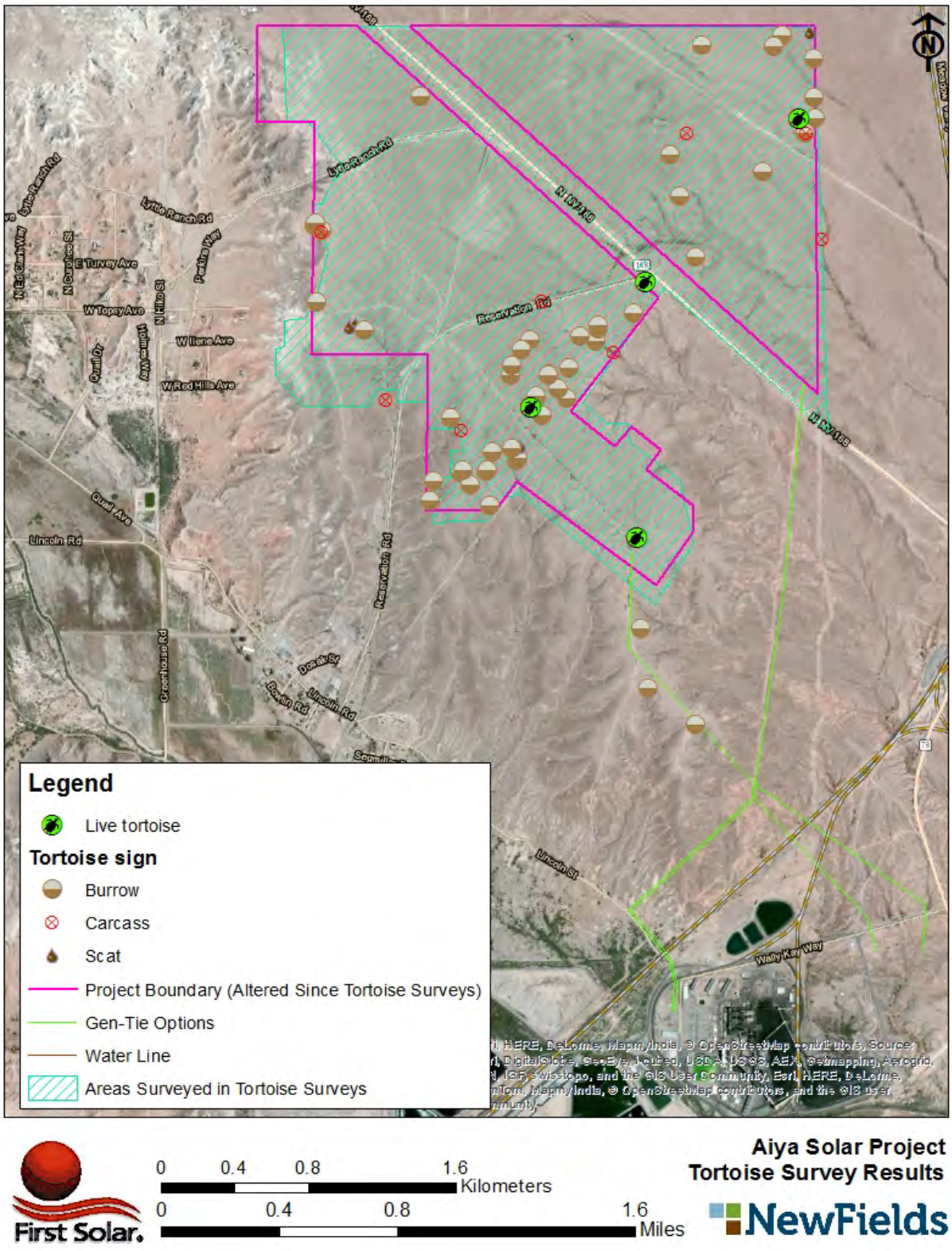


Figure 4-1. Tortoise Survey Results

4.2.3 Habitat Quality

Desert tortoise surveys conducted on the 1,085-acre project area were conducted using pedestrian transects spaced at 10-meter intervals found 4 adult tortoises resulting in a population density estimate of about 5 adult tortoises per square mile suggesting that habitat quality is low. These results are consistent with the recent findings presented in the Revised Recovery Plan for the Mojave Population of the Desert Tortoise a very low population density is consistent with USFWS recent finding that tortoises were least abundant in the Northeast Mojave Recovery Unit (2 to 10 tortoises per square mile) (USFWS 2009a), compared to higher densities that occurred in the Upper Virgin River Recovery Unit (38 to 69 tortoises per square mile) (McLuckie et al. 2007).

The Nussear et al. (2009) model did estimate the Project area as high-quality habitat; however this model is a very broad landscape scale. This model also rated riparian habitat along the Muddy River and south of the Project area as high quality. Riverine areas are not known as tortoise habitat, and these areas may actually only provide low quality or little to no suitable tortoise habitat. Areas outside this riparian habitat and immediately adjacent were rated as low-quality habitat according to the Nussear model, which is consistent with the physical survey results.

4.2.4 Connectivity

Habitat connectivity for wildlife can be important to maintain desert tortoise access to required resources (e.g., water or burrow sites), minimize energetic expenditures to access resources, limit risk of travel-related injury or death by minimizing the need to move through risky or uninhabitable areas, maintain social behaviors and gene flow, and enable movement with a change in environmental conditions, such as climate shift (Webster et al. 2002; Lowe and Allendorf 2010). In a review of numerous definitions of habitat connectivity published in the scientific literature, Kindlmann and Burel (2008) defined habitat connectivity simply as "the ease with which individuals can move about within a landscape." Connectivity as defined here includes the concepts of ecological (or genetic connectivity) and habitat/landscape connectivity (or demographic connectivity). Regional genetic and demographic connectivity is currently maintained to the north of the proposed project, and already restricted to the east, south and west due to natural and anthropogenic barriers. Natural barriers—such as rivers or mountains—often can limit habitat connectivity. In addition to natural barriers, anthropogenic barriers such as human structures, which include housing developments, roads, farmland, and fences, have increasingly reduced habitat connectivity (Fahrig 2003). This reduced connectivity has resulted from both habitat destruction and fragmentation.

Factors in assessing the potential effects of the Project on desert tortoise habitat connectivity included consideration of:

- Natural barriers to tortoise movement
- Anthropogenic barriers to tortoise movement
- Habitat fragmentation

Genetic Connectivity

Genetic connectivity can be defined as the degree to which gene flow affects evolutionary processes within populations. For gene flow to occur across an area, populations of desert tortoises need to be

connected by areas of suitable habitat that support sustainable numbers of reproductive individuals. Natural barriers, such as mountain ranges and rivers, reduce genetic connectivity and are thought to have partly resulted in some broad-scale genetic differentiation among tortoise populations within the Mojave Desert (Averill-Murray et al. 2013). In the Aiya Solar Project area, the Muddy River and Meadow Valley Wash surround the Project and are natural barriers to genetic connectivity (Figure 4-2). Tortoise movement to the east, west and south is precluded by these natural barriers (i. e. the Muddy River and Meadow Valley Wash); however, there are no natural barriers north of the Project, and genetic connectivity is currently maintained as tortoises can exchange genetic material with populations in suitable habitat areas north of the project area. Additionally, anthropogenic barriers have contributed to the natural barriers in the Project area, such as an existing railroad alignment, roads, and associated traffic. Tortoise movement to the east is further restricted by a railroad with steeply sloped sides, although there are wildlife passages (culverts) in place which allow for movement of individual tortoises. Given the existing natural and anthropogenic barriers to genetic connectivity, Project activities are unlikely to further reduce genetic connectivity in the area.

Demographic Connectivity

Demographic connectivity describes a pattern of habitat or vegetation that is connected with other areas of similar habitat or vegetation. Demographic connectivity also refers to 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 project area, demographic connectivity has been partially restricted by anthropogenic barriers (human developments that act as anthropogenic barriers, such as the previously mentioned railroad). However, large tracts of undeveloped land are located north of the area, allowing for the maintenance of demographic connectivity. Furthermore, connectivity still exists in areas 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. The Proposed Action would not adversely affect local or regional demographic connectivity of the desert tortoise populations.

Desert Tortoise Habitat Fragmentation

Habitat fragmentation results from the division of large continuous habitats into smaller isolated pieces. Habitat fragmentation may cause a reduction in biodiversity. Research has demonstrated that fragmentation characteristically reduces species richness and taxon diversity, and may reduce the efficacy of ecosystem function. Fragmentation may not only reduce the amount of available habitat, but it may isolate a species population into subpopulations, that may be sufficiently near the minimum viable population size to risk local extinction from successive demographic processes or catastrophic events. When habitat becomes fragmented, some species have insufficient dispersal robustness to travel among the fragmented patches. In these cases, such taxa may suffer from genetic drift or inbreeding due to restricted gene flow, and may have difficulty in re-colonizing or rescuing a subpopulation from local extirpation (Hogan 2014).

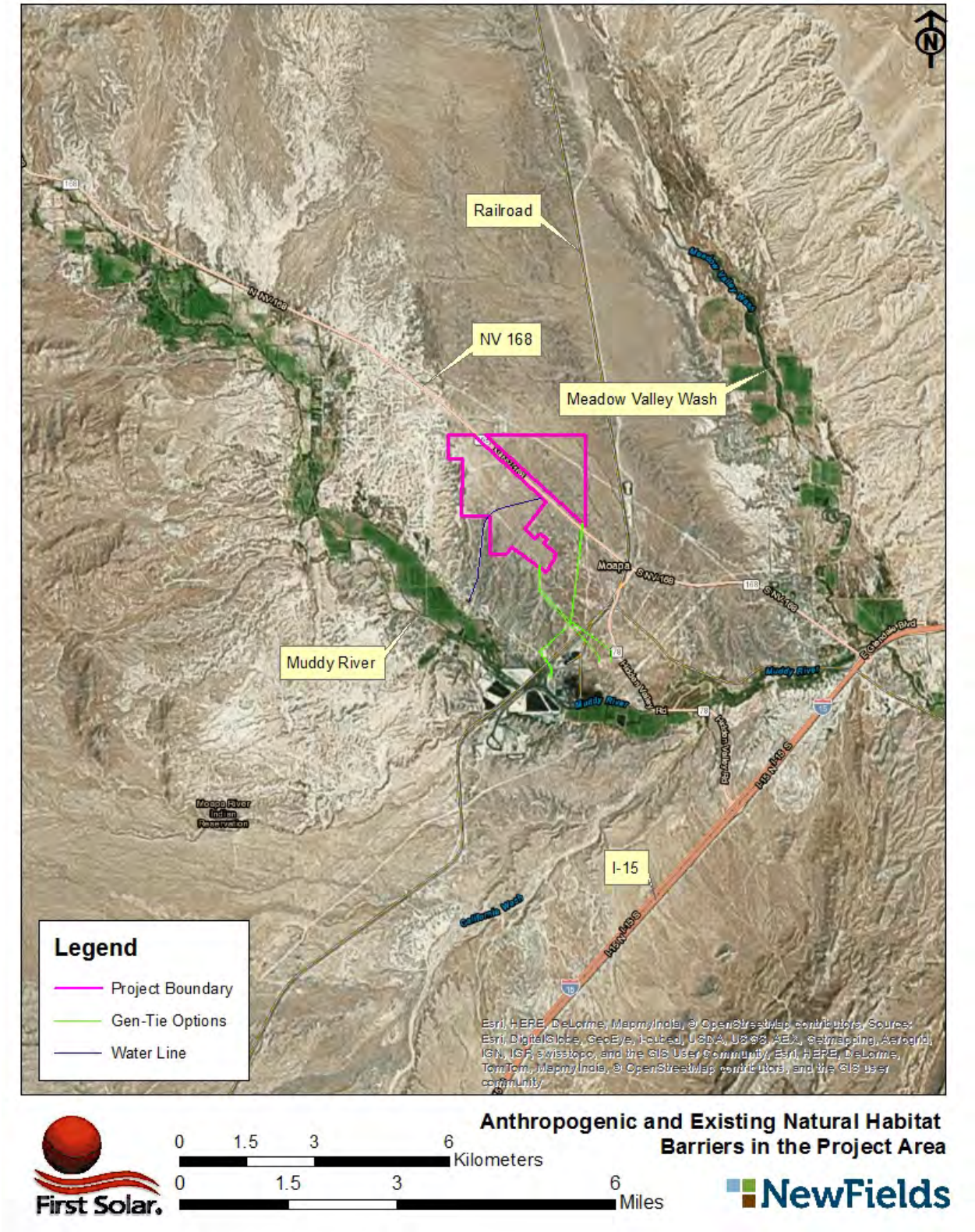


Figure 4-2. Anthropogenic and Existing Natural Habitat Barriers in the Project Area

The Proposed Project is not expected to substantively contribute to habitat fragmentation due to location, as it is surrounded and already isolated from larger desert tortoise habitat to the west, south, and east by the Muddy River and Meadow Valley Wash (Figure 4-2). Evaluations of fragmentation must consider where the animals would be moving to and from, and the transition area that connects them and provides a travel corridor. In this case, the Project is relatively isolated in its location near the distal end of a "land isthmus" or cul-de-sac bounded by the Muddy River and Las Vegas Valley Wash within very low tortoise population density habitat. There is limited existing habitat available to the west of the Project and connectivity to the east of the Project would be maintained in a corridor approximately 2 miles to Meadow Valley Wash. The previously described existing railroad narrows the corridor to about one third of a mile wide. The railroad alignment contains culverts for channeling storm water flows and the culverts are also available for desert tortoise movement and therefore the railroad is considered a semipermeable barrier.

4.3 Desert Tortoise Critical Habitat

In 1990, USFWS listed the desert tortoise as threatened over 30 percent of its geographic range. In response to this listing, the *Desert Tortoise (Mojave Population) Recovery Plan* was created to aid in the preservation of the species. In this plan, six population units termed "recovery units," were identified using available data on genetic variability, morphology, ecosystem types, and population behavior. Within these recovery units, 14 desert wildlife management areas (DWMA) were identified as areas where tortoise populations could be managed for recovery. The guidelines used to delineate the 14 DWMAs were used by USFWS to designate federally protected desert tortoise "Critical Habitat" in 1994. Of the original 22,616 to 27,407 square kilometers recommended for protection in the 14 DWMAs, 26,087 square kilometers became the USFWS Critical Habitat. Primary constituent elements of Critical Habitat for the desert tortoise are those physical and biological attributes that are necessary for the long-term survival of the species. These elements were identified as sufficient space to support viable populations within each of the five Recovery Units and to provide for movement, dispersal, and gene flow; sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators; and habitat protected from disturbance and human-caused mortality (USFWS 2011).

The Project area is not located within any USFWS Desert tortoise designated critical habitat. Figure 4-3 depicts the nearest designated Critical Habitat, which is more than 5 miles to the north, east, and west of the proposed Project. The Project activities furthermore, would not have indirect effect on the physical characteristics of designated critical habitat that are required to support the recovery of the species.

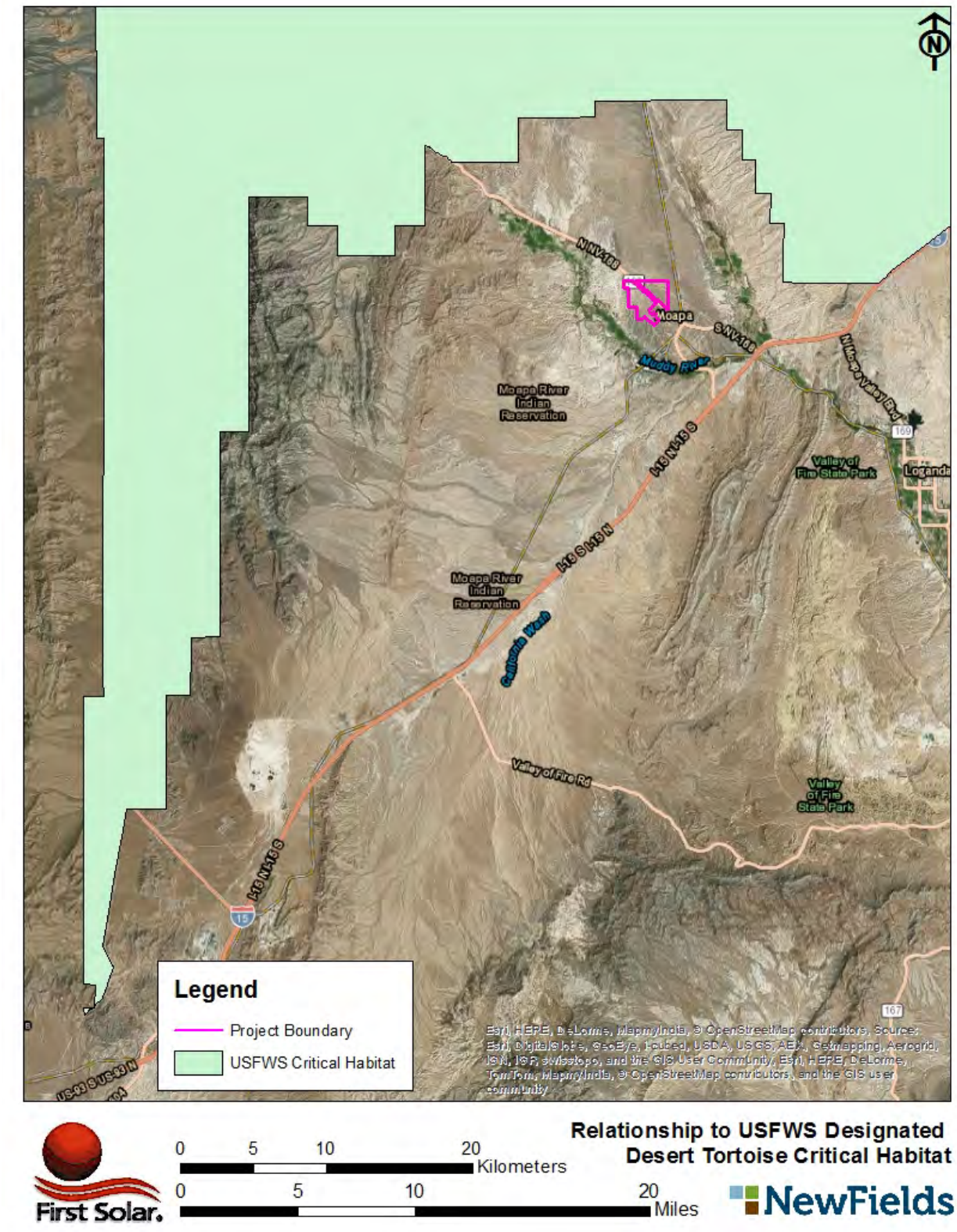


Figure 4-3. Relationship to USFWS Desert Tortoise Critical Habitat

4.4 Moapa Dace

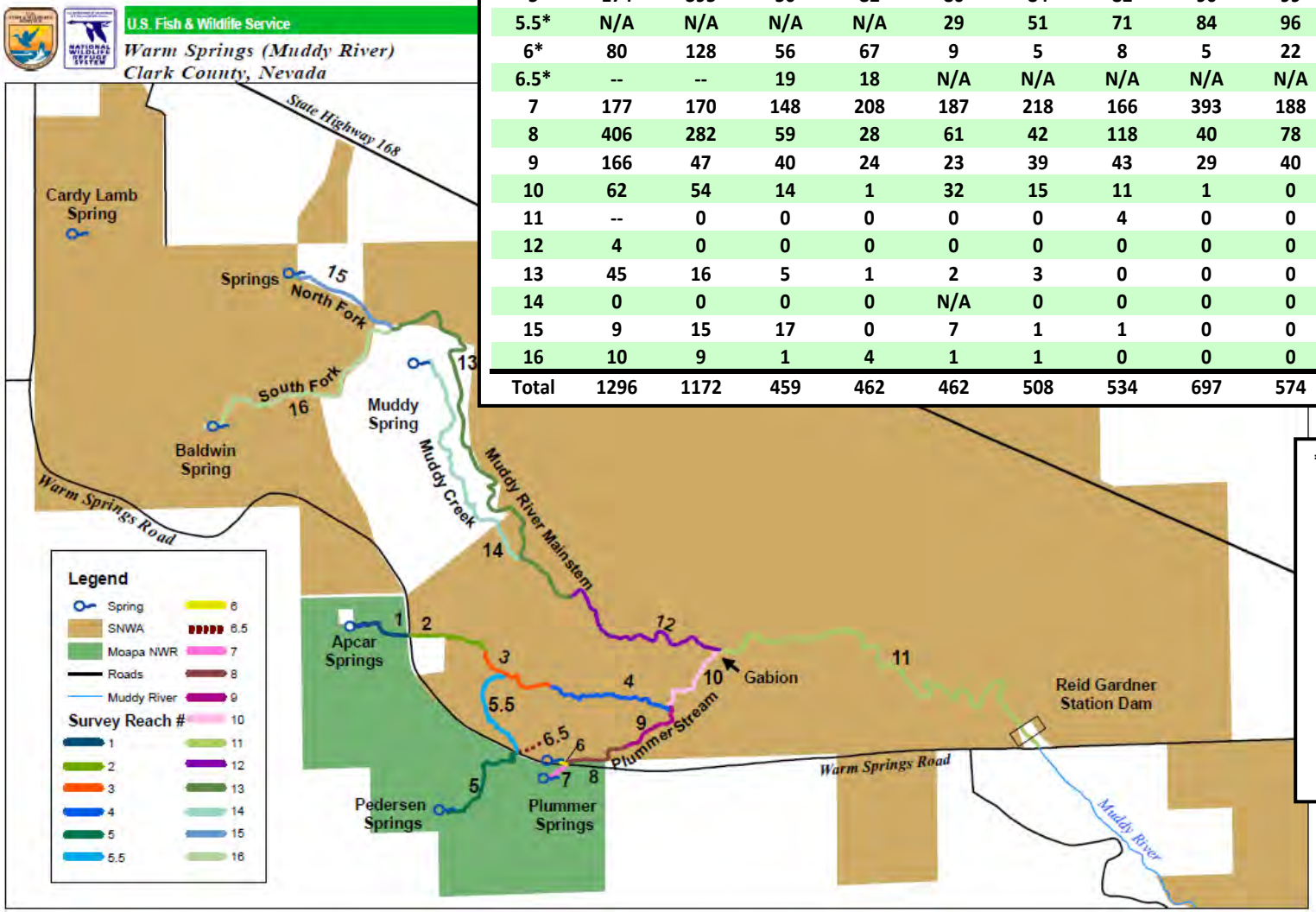
The Moapa dace was listed as an endangered species under the Endangered Species Preservation Act of 1966 on March 11, 1967 (32 Federal Register [FR] 4001), and under the subsequent Act. Critical habitat has not been designated for the Moapa dace. This species is endemic to the Muddy (Moapa) River and associated thermal spring systems within the Warm Springs area of Clark County, Nevada. The Warm Springs area encompasses 10 thermal spring provinces, which form the headwaters of the Muddy River. Moapa dace likely inhabited 25 springs and approximately 16 kilometers of the upper Muddy River (Ono et al. 1983). Historically, the Muddy River was 48.4 kilometers long; however, in 1935, with the completion of the Hoover Dam, Lake Mead flooded the lower 8 kilometers of the river, rendering it unsuitable for Moapa dace. Previous surveys found adult Moapa dace occurring in low numbers in restricted portions of 3 springs and less than 2 miles of spring outflow and river in the Warm Springs area (USFWS 1983).

Moapa dace persist within several warm springs and associated springbrooks that have been altered greatly by humans. Downstream habitats, where adult dace from different spring systems mixed historically, are now infested with exotic predatory fish. In many cases infested habitats are intentionally blocked from upstream areas by fish barriers built to prevent the spread of exotic fish. Specifically, a fish barrier (known as the refuge barrier) and a water diversion exist upstream of the Project. The resulting fragmented population structure threatens the dace's genetic and demographic health, although barriers must be maintained until the threats of exotic fish are eliminated (USFWS 2009a).

The Project is located almost 2 miles southeast (downstream) of the area selected for USFWS snorkel surveys for Moapa dace from 2005-2013, and was likely not surveyed because the Project area is not considered suitable dace habitat and two impediments to fish movement exist upstream of Warm Springs Road (Figure 4-4). On Figure 4-4, the Project area is located downstream of Reach 11 and approximately 2 miles south of Warm Springs Road.

MOAPA DACE NUMBERS BASED ON SNORKEL SURVEYS

Reach	Feb. 2005	Feb. 2007	Feb. 2008	Aug. 2008	Feb. 2009	Aug. 2009	Feb. 2010	Aug. 2010	Feb. 2011	Aug. 2011	Feb. 2012	Aug. 2012	Feb. 2013
1	6	0	0	N/A	N/A	1	7	20	28	67	74	84	69
2	87	42	50	22	29	34	13	35	20	54	78	79	139
3	52	14	0	4	2	4	3	0	1	8	10	31	127
4	18	0	0	3	0	10	7	0	2	1	0	13	62
5	174	395	50	82	80	84	82	90	99	108	66	94	128
5.5*	N/A	N/A	N/A	N/A	29	51	71	84	96	88	99	376	244
6*	80	128	56	67	9	5	8	5	22	27	10	59	36
6.5*	--	--	19	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	177	170	148	208	187	218	166	393	188	206	109	159	113
8	406	282	59	28	61	42	118	40	78	55	180	112	141
9	166	47	40	24	23	39	43	29	40	85	27	157	153
10	62	54	14	1	32	15	11	1	0	13	0	17	14
11	--	0	0	0	0	0	4	0	0	0	0	0	0
12	4	0	0	0	0	0	0	0	0	0	0	0	0
13	45	16	5	1	2	3	0	0	0	0	0	0	0
14	0	0	0	0	N/A	0	0	0	0	1	1	0	0
15	9	15	17	0	7	1	1	0	0	0	0	0	0
16	10	9	1	4	1	1	0	0	0	0	0	0	0
Total	1296	1172	459	462	462	508	534	697	574	713	654	1181	1226



*Notes:

- Reach 5.5 is the lower Pedersen outflow created in fall 2008.
- Reach 6.0 is the former lower Pedersen outflow dewatered in fall 2008. Little Spring remains here, flowing into the top of reach #8
- Reach 6.5 was created by leakage from Reach 6 that dried in fall 2008 when Pedersen flow was redirected to create Reach 5.5.
- Data in red box (Feb. 2012) were comingled and separated later with potential error

4.5 Federally Listed Bird Species

The Yuma clapper rail, southwestern willow flycatcher, and yellow-billed cuckoo are the federal listed bird species that may be affected by the Project. These species may occur within the riparian and aquatic habitats near the Project Area along the Muddy River. No known populations have been documented nor was suitable habitat observed within the Project area. In order to assess potential habitat along the Muddy River in the Project area, an avian biologist conducted habitat surveys on September 17, 2014.

4.5.1 Yuma Clapper Rail

The Yuma clapper rail was listed endangered under the Endangered Species Preservation Act of 1966 on March 11, 1967 (32 FR 4001). The Recovery Plan was finalized in 1983 and portions of the Action Plan were initiated over the ensuring years. Critical Habitat has not been designated for the species.

This elusive species occupies marsh-like situations around rivers, ponds, and bogs where emergent vegetation such as cattails, bulrush, and reed grass occur (Eddleman 1989; Todd 1977). Densities of rails are highest in light cattail stands, followed in descending order by light bulrush stands, dense bulrush stands, and dense cattail stands. Stands dissected with narrow channels of flowing water have higher densities of birds. The bird begins nesting in February, with egg-laying occurring from March to July. Clutch size is typically six to eight eggs, and young are precocial.

The Yuma clapper rail climbs around on flattened, floating materials, and feeds mainly on crayfish although other invertebrates, arthropods, and fish are eaten as well. Nests can be found in a variety of situations within emergent wetland habitats as long as stable substrates are available (USFWS 1996).

The present range of the Yuma clapper rail in the U.S. includes portions of Arizona, California, and Nevada. The Yuma clapper rail lives in freshwater marshes dominated by cattail (*Typha* sp.) and bulrush (*Scirpus* spp.) with a mix of riparian tree and shrub species (*Salix exigua, S. gooddingii*, *Tamarix* sp., *Tessaria sericea, and Baccharis* sp.). Field reconnaissance of the Muddy River conducted in September 2014 found that there was no suitable habitat for this species in the vicinity. This species is known to occur along the Muddy River within the Overton Wildlife Management Area, which is over 15 miles from the Project Area.

4.5.2 Southwestern Willow Flycatcher

The southwestern willow flycatcher was listed as endangered without critical habitat on February 27, 1995 (60 FR 10694; USFWS 1995). Critical habitat was later designated on July 22, 1997 (62 FR 39129; USFWS 1997). On October 19, 2005, the USFWS re-designated critical habitat for the southwestern willow flycatcher (70 FR 60886; USFWS 2005). A total of 737 river miles across southern California, Arizona, New Mexico, southern Nevada, and southern Utah were included in the final designation. The lateral extent of critical habitat includes areas within the 100-year floodplain. The primary constituent elements of critical habitat are based on riparian plant species, structure and quality of habitat, and insects for prey. A recovery plan for the southwestern willow flycatcher was first completed in 2002 (USFWS 2002). No designated critical habitat is found along the Muddy River.

Southwestern willow flycatchers are insectivores that forage within and occasionally above dense riparian vegetation, taking insects on the wing and gleaning them from foliage (USFWS 1997). They generally

nest in thickets of shrubs and trees 13-23 feet (minimum 5 feet) or more in height with dense canopy foliage (>67%) from 0-14 feet above ground (USFWS 1995). Historically, this flycatcher nested primarily in willows with a scattered cottonwood overstory (USFWS 1997). Habitats not selected for nesting or male song perches were narrower riparian zones with greater distances between willows stands and individual willow plants. Southwestern willow flycatchers virtually always nest near surface water or saturated soils. Stream gradient might also be an important determinant of habitat suitability. No nest sites have been found along streams with gradients >4%, characterized by almost continuous riffles, rapids, falls, or other cataracts (USFWS 1995). This may be due to higher gradient streams forming or supporting inadequately narrow riparian corridors.

Breeding habitat selection is based primarily on vegetation structure, density, size and presence of water or saturated soils. The most recent publically available southwestern willow flycatcher survey reports (2005-2006) identified breeding populations of this species at the Overton Wildlife Management Area, which is over 15 miles away from the Project (SWCA Environmental Consultants 2007). The river near the Project area was not evaluated in this survey most likely because suitable habitat was not in the area and/or few birds had been detected in prior surveys.

During field reconnaissance conducted in September 2014, it was determined that habitat for the southwestern willow flycatcher was generally moderate to poor with only one site rated as good (Figure 4-5). The invasive salt cedar (*Tamarix ramosissima*) provided some potential habitat; however, the plants appeared to be dead, dying, or in generally poor physical condition. The likely cause is the tamarisk leaf beetle (*Diorhabda elongata*), which has moved into riparian habitats on the Virgin and Muddy Rivers and Meadow Valley Wash after releases in adjoining states, and has resulted in patchy but widespread defoliation of these monoculture tamarisk stands. Thus, potential habitat along the Muddy River is diminishing and will continue to do so unless efforts are undertaken to restore riparian habitats. The USFWS reports that the rapid loss of salt cedar in occupied habitats, without rapid replacement with native species, will likely result in the degradation and loss of habitat (USFWS 2002). This is evident within the survey area.

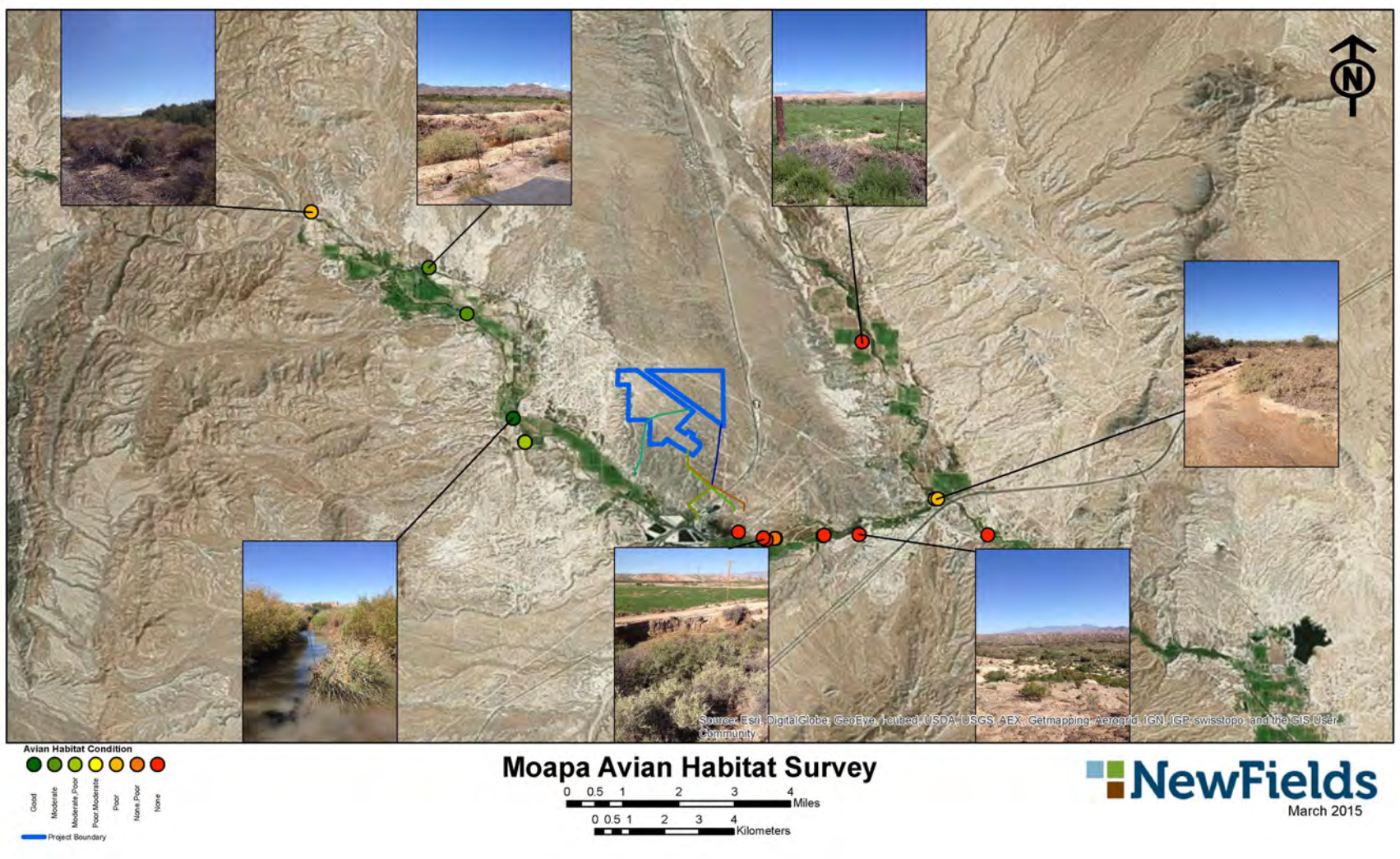


Figure 4-5. Avian Habitat Survey Results

4.5.3 Yellow-billed Cuckoo

On October 3, 2014, the western yellow-billed cuckoo was designated as a threatened species under the ESA (79 FR 59992; USFWS 2014c). The only known nesting sites in Nevada for the western yellow-billed cuckoo are at Warm Springs Ranch Natural Area along the Muddy River in Moapa Valley (NDOW 2007). Figure 4-6 illustrates the western yellow-billed cuckoo proposed USFWS critical habitat is at least 4 miles northwest of the proposed Project.

The western population of the yellow-billed cuckoo has been associated with cottonwood-willow dominated riparian habitats, with the majority of nests located in willows and, to a lesser extent, in Fremont cottonwoods. Cuckoos have been found nesting in tamarisk and mesquite with nests generally concealed by willow foliage but also by other types of vegetation.

The western yellow-billed cuckoo requires large tracts of undisturbed riparian deciduous forests where willow, cottonwood, sycamore, or alder occur. Cuckoo nests have also been found in areas of tall mesquite with isolated cottonwood trees. Cuckoos prefer dense vegetation with a multi-layered canopy, which creates a humid environment.

The habitat requirements for this species include the following:

- Large patches of multi-layered riparian gallery forest, cottonwoods and willows
- Dense over-story dominated by cottonwoods and willows, with a sub-canopy comprised of willow (tamarisk may be used but less often)
- Patches with over 65 percent canopy cover
- Small patches of habitat in the 25-50 acre range (Note: the species prefers larger patches (~200 acres)

Field reconnaissance of the Muddy River conducted in September 2014 found that there was no suitable habitat for this species (i.e., cotton-willow riparian habitats or undisturbed riparian deciduous forests) in the Project vicinity, as depicted in representative photographs shown on Figure 4-5.

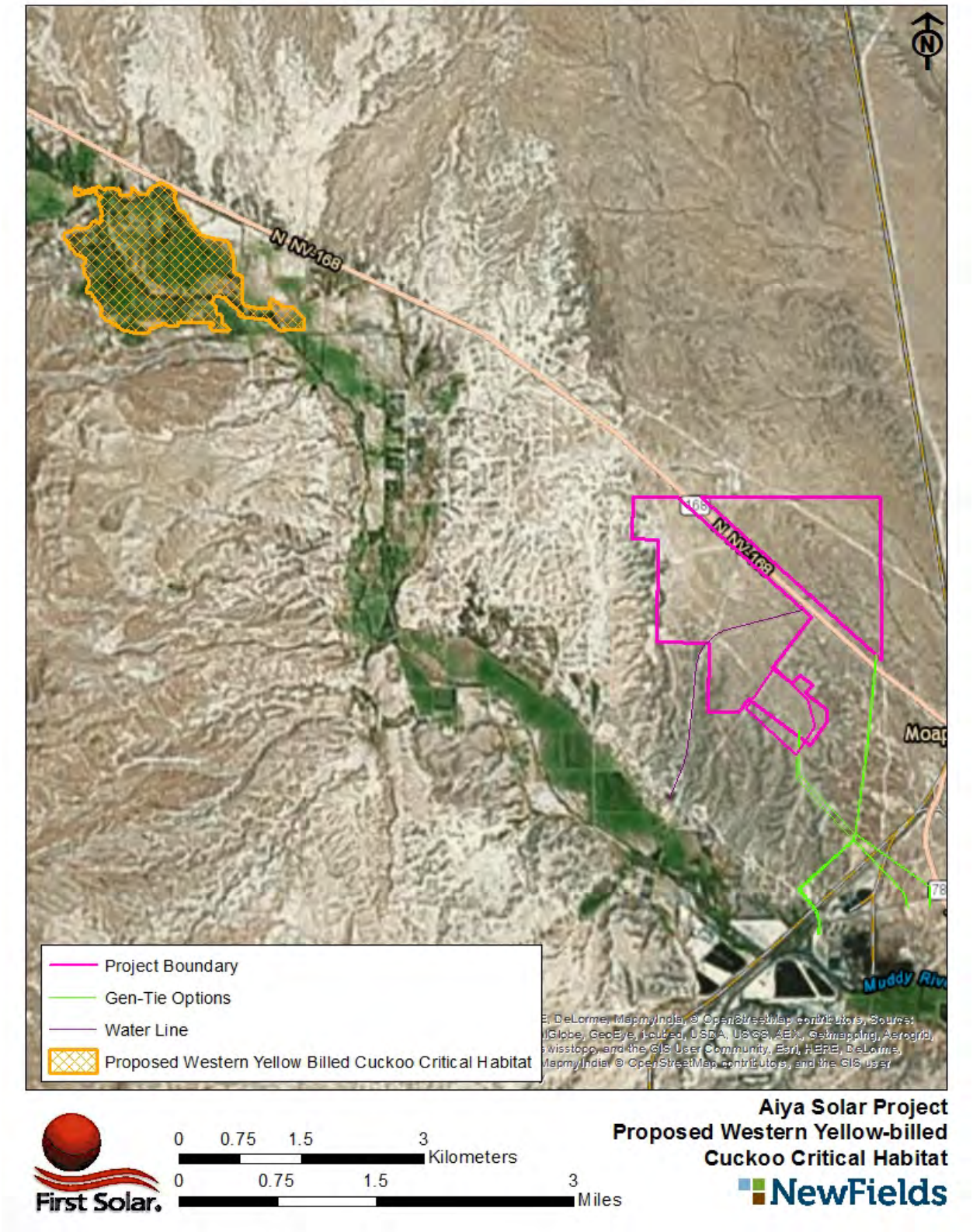


Figure 4-6. Proposed Western Yellow-billed Cuckoo Critical Habitat

5.0 EFFECTS OF THE PROPOSED ACTION AND DETERMINATION OF EFFECTS

This section presents the potential direct, indirect, and cumulative effects of the Proposed Action on listed species, designated critical habitat, and proposed critical habitat within the project area.

5.1 Effects to Desert Tortoise

Construction

Based on these anticipated impacts to desert tortoise during construction and O&M, the recommended determination for the desert tortoise is ***may affect, likely to adversely affect***. Additionally, no Project related activities would occur within designated critical habitat; therefore, ***no effects*** to USFWS designated critical habitat would occur. The potential impacts (and summary of relevant mitigation measures) are discussed below.

Tortoise habitat would be temporarily or permanently removed within the Project area as described in Chapter 2 (refer to Table 2-2 for temporary and project lifespan disturbance acreages). Tortoises and/or their eggs may be injured or killed during construction activities. Authorized biologists and/or biological monitors would be present at all active construction locations to locate tortoises and, if necessary, direct the contractor to cease construction activities until the tortoise moves out of harm's way. Prior to Project construction, the ROW would be fenced with tortoise fencing and tortoises would be moved outside of the ROW (Refer to mitigation measure described in Section 2.16.2, specifically 6). Portions of the gen-tie line and water pipeline would occur outside the fenced and tortoise-cleared ROW. Capturing, handling, and relocating desert tortoises out of the Project area may result in harassment and possibly injury or death (Blythe et al. 2003). To minimize this effect, tortoises would be handled in accordance with USFWS handling protocols (Refer to mitigation measures described in Section 2.16.2, specifically 4, 5, and 6).

Increased human activity and construction vehicle traffic, and operations traffic outside of the fenced ROW may also result in tortoise/vehicle collisions that result in tortoise injury or death. Tortoises may take shelter under parked vehicles and be killed, injured, or harassed. Mitigation measures such as WEAP, speed limits, and biological monitors would reduce or eliminate these effects (Refer to mitigation measures described in Section 2.16.2, specifically 8, 11, and 12).

Indirect effects are those that are caused by or result from the Proposed Action and may occur later in time but are reasonably certain to occur. Indirect effects include increased predation, which could be caused by the transmission lines. Predators such as ravens, coyotes, or other raptors may be attracted to the construction site due to an increase in food opportunities including construction site litter and voluntary feeding from construction staff; an increased number of perching opportunities due to new transmission towers, fences, or other opportunities; or increased water sources due to dust control protocols. An increased presence of predators could lead to a predation increase on smaller, more vulnerable tortoises. Mitigation measures such as a litter control program and raptor anti-perch and anti-nesting devices would reduce these effects (Refer to mitigation measures described in Section 2.16.2, specifically 8, 11, and 12).

Ground disturbing activities during construction may result in an increase of noxious and invasive plant species in the area. One invasive species, Sahara mustard, potentially occurs within the proposed ROW. Construction machinery may facilitate the spread of existing noxious or invasive species throughout the site, or may facilitate the introduction of new noxious weeds or invasive species. Noxious and invasive plants may displace native species that provide forage for tortoises resulting in reduced habitat quality and increased fire frequency. Implementation of a Weed Management Plan would reduce or eliminate these effects (Refer to mitigation measures discussed in Section 2.16.2, specifically 8).

Operation and Maintenance

Because the Project would be within tortoise-proof fencing, there is a low probability of tortoises wandering into the Project area and being injured or killed. Tortoises may be injured or killed during routine maintenance of facilities outside the fenced Project area, however, mainly from truck traffic along the gen-tie line and/or associated access roads. Mitigation measures, such as biological monitors, speed limits, and WEAP, would help to minimize impact to desert tortoise during these routine maintenance activities (Refer to Section 2.15.2 Operation and Maintenance Mitigation Measures 17-20).

Connectivity

The Proposed Action would not adversely affect local or regional genetic or demographic connectivity of the desert tortoise populations. The factors considered included the low quality habitat, the low-density desert tortoise habitat, and existing natural and anthropogenic barriers as discussed below.

Genetic Connectivity

Within this isolated area, tortoises around the Project area have sufficient corridors to move between the project and the natural barriers that isolate it; the Muddy River and Meadow Valley Wash are both about 2 km (~1 mile) from the project area. The specific width of corridor needed to maintain genetic connectivity for desert tortoise is unknown. USFWS acknowledges, "*…we do not know the exact area or land configuration required to support sustainable numbers of resident desert tortoises within any particular linkage, which would be dependent upon several factors.*" In the same BO, assuming a circular lifetime home range of 1.5 square miles for a desert tortoise, the USFWS estimated that a linkage would need to be at least 1.4 miles wide to accommodate the width of a single home range and that the minimum width of a linkage should accommodate several home ranges (USFWS 2012).

The existing railroad narrows the corridor to about one third of a mile wide. The railroad alignment contains culverts for channeling storm water flows and the culverts are also available for desert tortoise movement and therefore the railroad is considered a semipermeable barrier. Culverts are often used to increase the permeability of landscapes for wildlife, including tortoise, coyote, kit fox, jackrabbits, and ground squirrels, kangaroo rats, snakes, and lizards. The benefit of culverts as safe passages is well documented (Boarman and Sazaki 1996). The USFWS (2103) encourages the construction of culverts and acknowledges that, "while specifically intended for water conveyance, these culverts, if constructed properly, may be utilized by various wildlife species, including desert tortoise within the area." Supporting the finding that sufficient genetic connectivity would be maintained, Connor (2004) described construction of a culvert for tortoises to use to move between habitats on either side of a road and recognized that, "Because the desert tortoise has such a low reproductive rate, biologists believe that even minimal exchange between the populations would likely prevent any genetic isolation".

Given the existing natural and anthropogenic barriers to genetic connectivity, Project activities are unlikely to further reduce genetic connectivity in the area.

Demographic Connectivity

This Proposed Action somewhat limits the potential for demographic connectivity in the area to the west between the Project and the Muddy River. Nonetheless, demographic connectivity exists between the desert tortoise population in the Project area and populations in undeveloped lands to the north, and also the populations to the east because the railroad berm is functionally semipermeable due to existing culverts available for tortoise travel. Given that tortoises would be able to move around that project and large tracts of undeveloped land are located north of the area, demographic connectivity would be maintained.

Desert Tortoise Habitat Fragmentation

Because some existing habitat is available around the Project and the existing railroad has some culverts to allow tortoises to move around the project; no further habitat fragmentation is expected.

5.2 Moapa Dace

The Proposed Action is located several miles downstream of occupied habitat and the species no longer occurs in the mainstem of Muddy River in the vicinity of Project area because of exotic predatory fish and fish barriers. Based on these anticipated impacts to Moapa dace during construction and O&M, the recommended determination for the Moapa dace is ***no effect.*** Critical habitat has not been designated for this species.

5.3 Federally Listed Bird Species

This section presents the potential impacts to federally listed bird species. Direct effects to migratory birds species can occur by habitat loss and direct injury or mortality from collision with project elements (such as solar panels, transmission lines, fencing, or project buildings, vehicles etc.). Indirect potential impacts may result from surface water withdrawals, project dust, surface water runoff, hazardous waste spills, construction noise etc. Best management practices and mitigation measures would reduce the effects of these potential indirect impacts.

In addition, the Applicant will be required to prepare and implement a Bird and Bat Conservation Strategy (BBCS) that will include a robust systematic monitoring and adaptive management plan to assist in avoiding and minimizing impacts to migratory birds by the Project. This monitoring would include overall annual mortality, species composition, and spatial differentiation based on established searcher efficiency and carcass persistence trials at the site. Monitoring plans would be designed to account for seasonal differences and fatality events of rare species. These measures for assessing and preventing impacts to migratory birds will also help the Applicant manage and avoid any impacts to non-migratory, federally protected species like the Yuma clapper rail, Southwestern willow flycatcher, and yellow-billed cuckoo.

5.3.1 Yuma Clapper Rail

No Yuma clapper rail habitat occurs within the proposed Project; therefore, no Yuma clapper rail habitat would be removed or affected by the Proposed Action. Critical habitat has not been designated for this species.

The proposed Project would use surface water from the Muddy River via a water intake pump and water pipeline. Surface water withdrawals would be insignificant. Average annual discharge data near the Project (station 09419000, approximately 5 miles south of the project) have been 28,505 AF per year (for years 2012-2013 and historically for years 1950-2013 average annual discharge was 30,480 AF). The project would require approximately 500 AF of water from the Muddy River for the duration of the construction (15 months); the project water usage would less than 1.4 percent of annual river volume. Therefore, the amount of water withdrawn would be within the range of normal annual variation and too small to affect Yuma clapper rail habitat (e.g., hydrophytic vegetation).

It should be noted that there have been two isolated incidents involving Yuma clapper rail near solar projects. A Yuma clapper rail was discovered near the solar field at the Desert Sunlight Solar Project, just south of the Joshua Tree National Park in Riverside County, California. Field data collected in connection with that incident failed to provide evidence of any direct impact or collision with a PV module, however. Similarly, another suspected Yuma clapper rail incident involved the SolarGen2 Solar Project near Calipatria, California. In that instance, there was no evidence of any direct impact or collision with a PV module and, in fact, the nearest PV module was approximately 240 feet away.

In response to these incidents, USFWS recently addressed the potential for solar projects to take Yuma clapper rail in the context of its consultation on an application for an incidental take statement for the Blythe Solar Power Project pursuant to Section 7 of the ESA, 15 United States Code (USC) §§1531 et seq. Therein, USFWS recognized that interactions between Yuma clapper rail and PV facilities are improbable when such projects are distant from this species' habitat. Specifically, on July 30, 2014, USFWS concurred in the BLM's finding that the Blythe project, located near the Colorado River in Riverside County, California, was "not likely to adversely affect" Yuma clapper rail. Similar to this Project, the Blythe project did not include aquatic habitat for Yuma clapper rail, was "not located in a flight path that would connect aquatic features," and no Yuma clapper rail had been "observed on or over the Project site during project-specific resource surveys."

Due to the low number of mortalities at solar facilities, a lack of habitat near the Project area, and the distance to known occupied breeding habitat, the potential for direct mortality to this species is low; therefore, the recommended determination is ***may affect, not likely to adversely affect.***

5.3.2 Southwestern Willow Flycatcher

Southwestern willow flycatcher suitable habitat does not occur in the Muddy River proximal to the proposed Project. The habitat requirements for this species are not present, specifically there are no:

- Dense willow stands (or other tree species) at least 3 meters in height with high levels of green foliage
- Saturated soils, standing water, or nearby streams

- Habitat patches at least 0.25 acre in size and 30 feet wide

The nearest known breeding habitat occurs at the Overton Wildlife Management area, which is over 15 miles from the proposed Project. Additionally, little is known about specific southwestern willow flycatcher dispersal beyond its known habitat and range.

No southwestern willow flycatcher mortalities have been documented as PV solar facilities to date, but other flycatcher species have suffered mortalities.

Because there have been no documented southwestern willow flycatcher mortalities at solar facilities and no suitable habitat near the Project area, the potential for direct mortality to this species is low; therefore, the recommended determination is ***may affect, not likely to adversely affect.*** Additionally no USFWS designated critical habitat is found within or in close proximity to the Project area (nearest is along the Virgin River over 20 miles away); therefore, the project would have ***no effect*** on designated critical habitat.

5.3.3 Yellow-billed Cuckcoo

No suitable habitat was identified along the Muddy River near the proposed Project. Proposed critical habitat occurs approximately 4 miles upstream of the Project area near the Warm Springs. This habitat was burned, greatly diminishing the habitat quantity and quality; therefore, this habitat degradation reduced the source of birds that could have potentially used portions of the Muddy River near the Project.

It should be noted that in a recent study, one yellow-billed cuckoo mortality was observed at Ivanpah Solar Electric Generating System project (Kagan 2014). However, this facility is a "power tower" plant, which is a different technology then the proposed PV project. No mortality for this species from PV facilities was reported in this study.

Due to the low number of yellow-billed cuckoo mortalities at solar facilities and the lack of habitat near the Project area, the potential for direct mortality to this species is low, the Proposed Action ***may affect,*** **but is *not likely adversely affect*** the yellow-billed cuckoo**.** No proposed or designated critical habitat is within the project vicinity along the Muddy River; therefore, the project would have ***no effect*** to **proposed critical habitat**.

5.4 Cumulative Effects

Cumulative effects are those effects from future private, state, or Tribal activities that are likely to occur within the Action Area. Future federal actions are excluded as these are subject to Section 7 consultation under the ESA (50 CFR 402.02). Near the project location, the private, state, and Tribal actions that are most likely to contribute to cumulative effects on federally listed species may include urban and agricultural development on Tribal land. These activities could contribute to cumulative effects by reducing habitat quality and quantity in the area.

5.5 Desert Tortoise

Desert tortoise may be affected by future Tribal actions within the project vicinity. The Proposed Action would directly impact approximately 1,085 acres. The size, location, and nature of potential future

projects are unknown and would therefore be subjected to separate environmental review and analysis. Therefore, there is no contribution to cumulative effects beyond those of the project itself at this time.

5.6 Moapa Dace

As described in Section 5.2 no impacts to Moapa dace are anticipated as a result of the Project; therefore, no discussion of cumulative effects is warranted.

5.7 Federally Listed Birds

As described in Section 5.3, impacts to Yuma clapper rail, southwestern willow flycatcher, and yellow-billed cuckoo are expected to be negligible. No cumulative effects from the Proposed Action in combination with other projects are anticipated for these species. As previously discussed, a BBCS would be prepared and implemented for the Project and include a monitoring plan and contingency for adaptive management to assist in avoiding, minimizing, and detecting impacts to migratory birds by the Proposed Action.

6.0 REFERENCES

Averill-Murray RC, Darst CR, Strout N, Wong M. 2013. Conserving population linkages for the Mojave Desert Tortoise (*Gopherus agassizii*). Herpetological Conservation and Biology 8(1):1-15.

Averill-Murray RC, Hagerty BE. 2014. Translocation relative to spatial genetic structure of the Mojave Desert tortoise, *Gopherus agassizii*. Chelonian Conservation and Biology. 13(1):35-41.

Avian Power Line Interaction Committee. 2006. Suggested practices for avian protection on power lines: the state of the art in 2006 [Internet]. Washington, D.C. and Sacramento (CA): Edison Electric Institute, Avian Power Line Interaction Committee, the California Energy Commission; [accessed 2014 Jun 20]. http://www.aplic.org/uploads/files/2643/SuggestedPractices2006(LR-2).pdf.

Berry KH. 1986. Desert tortoise (*Gopherus agassizii*) relocation: implications of social behavior and movements. Herpetologica. 42(1):113-125.

Berry KH. 1990 (as amended). The status of the desert tortoise in California in 1989.U.S. Bureau of Land Management, Riverside, California; amended to include data from 1990, 1991, and 1992.

Berry KH, Nicholson LL. 1984. The distribution and density of desert tortoise populations in California in the 1970s. In: Berry, KH, editor. The status of desert tortoise (*Gopherus agassizii*) in the United States. Desert Tortoise Council report to USFWS. Order No. 11310-0083-81.

Berry KH, Bailey TY, Anderson KM. 2006. Attributes of desert tortoise populations at the National Training Center, central Mojave Desert, USA. Journal of Arid Environments. 67 Suppl:165-191.

Berry KH, Yee JL, Coble AA, Perry WM, Shields TA. 2013. Multiple factors affect a population of Agassiz's desert tortoise (*Gopherus agassizii*) in the northwestern Mojave Desert. Herpetological Monographs. 27:87-109.

Britten HB, Riddle BR, Brussard PF, Marlow R, Lee TE. 1997. Genetic delineation of management units for the desert tortoise, *Gopherus agassizii*, in northeastern Mojave Desert. Copeia. 1997(3):523-530.

Boarman WI, Sazaki M. 1996. Highway mortality in desert tortoises and small vertebrates: Success of barrier fences and culverts. Proceedings of Transportation Related Wildlife Mortality Seminar; 1996 Apr 30-May 2; Tallahassee, FL. Tallahassee (FL): Florida Department of Transportation, Environmental Management Office. p. 169-173.

Brooks ML, Lair BM. 2009. Ecological effects of vehicular routes in a desert ecosystem. In: Webb, RH, Fenstermaker LF, Heaton JS, Hughson DL, McDonald EV, Miller DM, editors. The Mojave Desert: ecosystem processes and sustainability. Reno (NV): University of Nevada Press. p. 168-195.

Burge BL. 1977. Daily and seasonal behavior, and areas utilized by the desert tortoise Gopherus agassizi in southern Nevada. In: Trotter M, editor. Proceedings of the Symposium of the Desert Tortoise Council; 1977 Mar 24-26; Las Vegas, NV. San Diego (CA): Desert Tortoise Council. p. 59-79.

Blythe AK, Swann DE, Steidl RJ, and Stitt EW. 2003. Movement patterns of translocated desert tortoises. In: Duncan, DK, Stewart, G, Tuegel M, Egan TB, Pond D, editors. Proceedings of the 2003 Symposium of the Desert Tortoise Council; 2003 Feb 21-23; Las Vegas, NV. Madison (WI): Omnipress. p. 81.

Clark County. 2002. Clark County multiple species habitat conservation plan and environmental impact statement for issuance of a permit to allow incidental take of 79 species in Clark County, Nevada. Las Vegas (NV): Department of Comprehensive Planning.

Connor MJ. 2004. Harper Lake Road tortoise crossing. Tortoise Tracks. 24(1):1-2.

Coulombe HN. 1971. Behavior and population ecology of the burrowing owl, *Speotyto cunicularia*, in the Imperial Valley of California. Condor 73:162-176.

Duda JJ, Krzysik AJ, Freilich JE. 1999. Effects of drought on desert tortoise movement and activity. Journal of Wildlife Management. 63:1181-1192.

Eddleman, WR. 1989. Biology of the Yuma clapper rail in the southwestern U.S. and northwestern Mexico. Final Report to Bureau of Reclamation, Yuma Projects Office and Fish and Wildlife Service, Region 2. Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming. 127 p.

Edwards T, Berry KH. 2013. Are captive tortoises a reservoir for conservation? An assessment of genealogical affiliation of captive *Gopherus agassizii* to local, wild populations. Conservation Genetics. 14:649-659.

Fahrig L. 2003. Effects of habitat fragmentation on biodiversity. Annual Review of Ecology and Systematics. 34:487-515.

Field KJ, Tracy CR, Medica PA, Marlow RW, and Corn PS. 2007. Return to the wild: translocation as a tool in conservation of the desert tortoise (*Gopherus agassizii*). Biological Conservation. 136(2):232-245.

Franks BR, Avery HW, Spotila JR. 2011. Home range and movement of desert tortoises *Gopherus agassizii* in the Mojave Desert of California, USA. Endangered Species Research. 13:191-201.

Freilich JE, Burnham KP, Collins CM, Garry CA. 2000. Factors affecting population assessments of desert tortoises. Conservation Biology. 14(5):1479-1489.

Green GA, Anthony RG. 1989. Nesting success and habitat relationships of burrowing owls in the Columbia Basin, Oregon. Condor. 91:347-354.

Grover MC, DeFalco LA. 1995. Desert tortoise (*Gopherus agassizii*): status-of-knowledge outline with references. General Technical Report INT-GTR-316. Ogden (UT): U.S. Department of Agriculture, Intermountain Research Station.

Harless ML, Walde AD, Delaney DK, Pater LL, Hayes WK. 2010. Sampling considerations for improving home range estimates of desert tortoises: effects of estimator, sampling regime, and sex. Herpetological Conservation and Biology. 5(3):374-387.

Hogan C. 2014. Habitat fragmentation [Internet]. [accessed 2014 September 19]. http://www.eoearth.org/view/article/153225.

Holt EA, Rautenstrauch KR. 1996. Three-year movement patterns of adult desert tortoises at Yucca Mountain. In: Dickinson V, editor. Proceedings of the 1995 Symposium of the Desert Tortoise Council; 1995 Mar 31-Apr 2; Las Vegas, NV. San Bernardino (CA): Desert Tortoise Council. p. 89-90.

Hughson DL, Darby N. 2013. Desert tortoise road mortality in Mojave National Preserve, California. Sacramento (CA): California Fish and Game Commission. 99(4):222-232.

Izbicki JA. 2007. Physical and temporal isolation of mountain headwater streams in the western Mojave Desert, southern California. Journal of the American Water Resources Association. 43(1):26-40.

Karl A, 1980. Distribution and relative densities of the desert tortoise in Nevada. In: Hashagen KA, editor. Proceedings of the 1980 Symposium of the Desert Tortoise Council; 1980 Mar 22-24; Riverside, CA. Palmdale (CA): Desert Tortoise Council. p. 75–87.

Kagan RA, Viner TC, Trail PW, Espinoza EO. 2014. Avian mortality at solar energy facilities in Southern California: A preliminary analysis. Ashland (OR): National Fish and Wildlife Forensics Laboratory.

Kindlmann P, Burel F. 2008. Connectivity measures: a review. Landscape Ecology. 23:879-890.

Latch EK, Boarman WI, Walde A, Fleischer RC. 2011. Fine-scale analysis reveals cryptic landscape genetic structure in desert tortoises. PLoS ONE. 6(11):e27794.

Longshore KM, Jaeger JR, Sappington JM. 2003. Desert tortoise (*Gopherus agassizii*) survival at two eastern Mojave Desert sites: death by short-term drought. Journal of Herpetology. 37(1):169-177.

Lovich JE, Yackulic CB, Freilich J, Agha M, Austin M, Meyer KP, Arundel TR, Hansen J, Vamstad MS, Root SA. 2014. Climatic variation and tortoise survival: has a desert species met its match? Biological Conservation. 169:214-224.

Lowe WH, Allendorf FW. 2010. What can genetics tell us about population connectivity? Molecular Ecology. 19(15):3038-3051.

Martin DJ. 1973. Selected aspects of burrowing owl ecology and behavior. The Condor. 75:446-456.

McLuckie, AM, Bennion MRM, Fridell. RA. 2007. Tortoise mortality within the Red Cliffs Desert Reserve following the 2005 wildfire. Report for Utah Division of Wildlife Resource Publication 07-05.

Medica PA, Lyons CL, Turner FB. 1985. A comparison of 1981 populations of desert tortoise (*Gopherus agassizii*) in grazed and ungrazed areas of Ivanpah Valley, California. In: Hashagen K, Trotter M, editors. Proceedings of the 1982 Symposium of the Desert Tortoise Council; 1985 Mar 30-Apr 1; Laughlin, NV. Long Beach (CA): Desert Tortoise Council. p. 99-124.

Murphy RW, Berry KH, Edwards T, McLuckie AM. 2007. A genetic assessment of the recovery units for the Mojave population of the desert tortoise, *Gopherus agassizii*. Chelonian Conservation and Biology. 6(2):229-251.

Nafus MG, Tuberville TD, Buhlmann KA, Todd BD. 2013. Relative abundance and demographic structure of Agassiz's desert tortoise (*Gopherus agassizii*) along roads of varying size and traffic volume. Biological Conservation. 162:100-106.

[NDOW] Nevada Department of Wildlife. 2007. Gila monster status, identification and reporting protocol for observations. Las Vegas (NV): NDOW Southern Region.

Nussear KE, Esque TC, Inman RD, Gass L, Thomas KA, Wallace CSA, Blainey JB, Miller DM, Webb RH. 2009. Modeling habitat of the desert tortoise (*Gopherus agassizii*) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona. Reston (VA): U.S. Geological Survey. Open-file report 2009-1102.

Nussear KE, Tracy CR, Medica PA, Wilson DS, Marlow RW, Corn PS. 2012. Translocation as a conservation tool for Agassiz's desert tortoises: survivorship, reproduction, and movements. Journal of Wildlife Management. 76(7):1341-1353.

O'Connor MP, Zimmerman LC, Ruby DE, Bulova SJ, Spotila JR. 1994. Home range size and movements by desert tortoises, *Gopherus agassizii*, in the eastern Mojave Desert. Herpetological Monographs. 8:60-71.

Oftedal OT, Hillard S, Morafka DJ. 2002. Selective spring foraging by juvenile desert tortoises (*Gopherus agassizii*) in the Mojave Desert: evidence of an adaptive nutritional strategy. Chelonian Conservation and Biology. 4:341-352.

Ono RD, Williams JD, Wagner A. 1983. Vanishing fishes of North America. Washington, D.C.: Stone Wall Press. 157 p.

Peterson CC. 1996. Ecological energetics of the desert tortoise (*Gopherus agassizii*): effects of rainfall and drought. Ecology. 77(6):1831-1844.

Rautenstrauch KR, Rakestraw DL, Brown GA, Boone JL, Lederle PE. 2002. Patterns of burrow use by desert tortoises (*Gopherus agassizii*) in southcentral Nevada. Chelonian Conservation Biology. 4(2):398-405.

Ruby DE, Spotila JR, Martin SK, Kemp SJ. 1994. Behavioral responses to barriers by desert tortoises: implications for wildlife management. Herpetological Monographs. 8:144-160.

Smith SD, Charlet TN, Zitzer SF, Abella SR, Vanier CH, Huxman TE. 2014. Long-term response of a Mojave Desert winter annual plant community to a whole-ecosystem atmospheric CO2 manipulation (FACE). Global Change Biology. 20(3):879-892.

SWCA Environmental Consultants. 2007. Southwestern willow flycatcher surveys, demography, and ecology along the lower Colorado River, 2006. Prepared for the U.S. Bureau of Reclamation. Boulder City, NV.

Todd, RL. 1977. Black rail, little black rail, black crake, farallon rail (*Laterallus jamaicensis*). In Sanderson GC, editor. Management of migratory shore and upland game birds in North America. Washington, D.C.: International Association of Fish and Wildlife Agencies. p.71-83.

Turner FB, Medica PA, Lyons CL. 1984. Reproduction and survival of the desert tortoise (*Scaptochelys agassizii*) in Ivanpah Valley, California. Copeia. 1984(4):811–820.

USGS. 2015. Water resources data for the United States, Water Year 2013: U.S. Geological Survey Water-Data Report WFR-US-3013, site 09419000 [Internet]. [accessed 2015 March 9] http://wdr.water.usgs.gov/wy2013/pdfs/0941900.2013.pdf.

[USFWS] U.S. Fish and Wildlife Service. 1983. Moapa dace recovery plan. Portland (OR): USFWS Region 1.

USFWS. 1994. Desert tortoise (Mojave population) recovery plan. Portland (OR): USFWS Region 1.

USFWS. 1995. Final rule determining endangered status for the southwestern willow flycatcher (*Empidonax traillii extimus*). Federal Register. 60:10694.

USFWS. 1996. Description and assessment of operations, maintenance, and sensitive species of the Lower Colorado River. Prepared by the U.S. Bureau of Reclamation, Lower Colorado Region for the USFWS and Lower Colorado River Multi-Species Conservation Program.

USFWS. 1997. Final determination of critical habitat for the southwestern willow flycatcher (*Empidonax traillii extimus*). Federal Register 62(140):39129-39147.

USFWS. 2002. Southwestern willow flycatcher (*Empidonax traillii extimus*) final recovery plan. Albuquerque (NM): USFWS Region 2.

USFWS. 2009a. Spotlight species action plan: Moapa dace 2010-2014. Sacramento (CA): USFWS Region 8.

USFWS. 2009b. Desert tortoise (Mojave population) field manual: *(Gopherus agassizii)*. Sacramento (CA): USFWS Region 8.

USFWS. 2010. Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*). Ventura (CA): USFWS.

USFWS. 2011. Revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). Sacramento (CA): USFWS Region 8.

USFWS. 2012. Status of the species and its critical habitat-Rangewide: February 9, 2012 [Internet]. USFWS; [accessed 2014 October 17]. http://www.fws.gov/nevada/desert_tortoise/documents/misc/Status_of_the_Species-DT_February_9_2012.pdf.

USFWS. 2013. Biological opinion for the Needles Highway Improvement Project, San Bernardino, California (8-8-13-F-42). Ventura (CA): Ventura Fish and Wildlife Office, USFWS.

USFWS. 2014a. IPaC – Information, Planning, and Conservation System [Internet]. Washington, D.C.: USFWS, U.S. Geological Survey; [accessed 2014 Jul 10]. http://ecos.fws.gov/ipac/.

USFWS. 2014b. Yuma clapper rail. Reno (NV): Nevada Fish and Wildlife Office; [9 November 2014]. http://www.fws.gov/nevada/protected_species/birds/species/yucr.html.

USFWS. 2014c. Western yellow-billed cuckoo. Portland (OR): Oregon Fish and Wildlife Office; [accessed 2014 Nov 14]._http://www.fws.gov/oregonfwo/Species/Data/YellowBilledCuckoo/.

USFWS. 2014d. Moapa dace (*Moapa coriacea*). Reno (NV): Nevada Fish and Wildlife Office; [accessed 2014 Sept 19]. http://www.fws.gov/nevada/protected_species/fish/species/moapa_dace.html.

Vogel J, Hughson DL. 2009. Historical patterns of road networks in Mojave National Preserve. In: Webb RH, Fenstermaker LF, Heaton JS, Hughson DL, McDonald EV, Miller DM, editors. The Mojave Desert: ecosystem processes and sustainability. Reno (NV): University of Nevada Press. p. 196-210.

von Seckendorff Hoff K., Marlow RW. 2002. Impacts of vehicle road traffic on desert tortoise populations with consideration of conservation of tortoise habitat in southern Nevada. Chelonian Conservation and Biology. 4:449-456.

Webster MS, Marra PP, Haig SM, Bensch S, Holmes RT. 2002. Links between worlds: unraveling migratory connectivity. Trends in Ecology and Evolution. 17(2):76-83.

Woodbury AM, Hardy R. 1948. Studies of the desert tortoise, *Gopherus agassizzi*. Ecological Monographs. 18:145-200.

Appendix A. USFWS Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Nevada Fish and Wildlife Office
1340 FINANCIAL BOULEVARD, SUITE 234
RENO, NV 89502
PHONE: (775)861-6300 FAX: (775)861-6301
URL: www.fws.gov/nevada/

Consultation Code: 08ENVD00-2015-SLI-0199 February 26, 2015
Event Code: 08ENVD00-2015-E-00171
Project Name: Aiya Solar Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The attached species list indicates threatened, endangered, proposed, and candidate species and designated or proposed critical habitat that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act of 1973, as amended (ESA, 16 U.S.C. 1531 *et seq*.), for projects that are authorized, funded, or carried out by a Federal agency. Candidate species have no protection under the ESA but are included for consideration because they could be listed prior to the completion of your project. Consideration of these species during project planning may assist species conservation efforts and may prevent the need for future listing actions. For additional information regarding species that may be found in the proposed project area, visit http://www.fws.gov/nevada/es/ipac.html.

The purpose of the ESA is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the ESA and its implementing regulations (50 CFR 402 *et seq*.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment

be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Guidelines for preparing a Biological Assessment can be found at: http://www.fws.gov/midwest/endangered/section7/ba_guide.html.

If a Federal action agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species, and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this species list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally listed, proposed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally, as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation, for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the attached list.

The Nevada Fish and Wildlife Office (NFWO) no longer provides species of concern lists. Most of these species for which we have concern are also on the Animal and Plant At-Risk Tracking List for Nevada (At-Risk list) maintained by the State of Nevada's Natural Heritage Program (Heritage). Instead of maintaining our own list, we adopted Heritage's At-Risk list and are partnering with them to provide distribution data and information on the conservation needs for at-risk species to agencies or project proponents. The mission of Heritage is to continually evaluate the conservation priorities of native plants, animals, and their habitats, particularly those most vulnerable to extinction or in serious decline. In addition, in order to avoid future conflicts, we ask that you consider these at-risk species early in your project planning and explore management alternatives that provide for their long-term conservation.

For a list of at-risk species by county, visit Heritage's website (http://heritage.nv.gov). For a specific list of at-risk species that may occur in the project area, you can obtain a data request form from the website (http://heritage.nv.gov/get_data) or by contacting the Administrator of Heritage at 901 South Stewart Street, Suite 5002, Carson City, Nevada 89701-5245, (775) 684-2900. Please indicate on the form that your request is being obtained as part of your coordination with the Service under the ESA. During your project analysis, if you obtain new information or data for any Nevada sensitive species, we request that you provide the information to Heritage at the above address.

Furthermore, certain species of fish and wildlife are classified as protected by the State of Nevada (http://www.leg.state.nv.us/NAC/NAC-503.html). You must first obtain the appropriate license, permit, or written authorization from the Nevada Department of Wildlife (NDOW) to

take, or possess any parts of protected fish and wildlife species. Please visit http://www.ndow.org or contact NDOW in northern Nevada (775) 688-1500, in southern Nevada (702) 486-5127, or in eastern Nevada (775) 777-2300.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq*.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the Service's wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

The Service's Pacific Southwest Region developed the *Interim Guidelines for the Development of a Project Specific Avian and Bat Protection Plan for Wind Energy Facilities* (Interim Guidelines). This document provides energy facility developers with a tool for assessing the risk of potential impacts to wildlife resources and delineates how best to design and operate a bird- and bat-friendly wind facility. These Interim Guidelines are available upon request from the NFWO. The intent of a Bird and Bat Conservation Strategy is to conserve wildlife resources while supporting project developers through: (1) establishing project development in an adaptive management framework; (2) identifying proper siting and project design strategies; (3) designing and implementing pre-construction surveys; (4) implementing appropriate conservation measures for each development phase; (5) designing and implementing appropriate post-construction monitoring strategies; (6) using post-construction studies to better understand the dynamics of mortality reduction (*e.g.*, changes in blade cut-in speed, assessments of blade “feathering” success, and studies on the effects of visual and acoustic deterrents) including efforts tied into Before-After/Control-Impact analysis; and (7) conducting a thorough risk assessment and validation leading to adjustments in management and mitigation actions.

The template and recommendations set forth in the Interim Guidelines were based upon the Avian Powerline Interaction Committee's Avian Protection Plan template (http://www.aplic.org/) developed for electric utilities and modified accordingly to address the unique concerns of wind energy facilities. These recommendations are also consistent with the Service's wind energy guidelines. We recommend contacting us as early as possible in the planning process to discuss the need and process for developing a site-specific Bird and Bat Conservation Strategy.

The Service has also developed guidance regarding wind power development in relation to prairie grouse leks (sage-grouse are included in this). This document can be found at: http://www.fws.gov/southwest/es/Oklahoma/documents/te_species/wind%20power/prairie%20gr

.

Migratory Birds are a Service Trust Resource. Based on the Service's conservation responsibilities and management authority for migratory birds under the Migratory Bird Treaty Act of 1918, as amended (MBTA; 16 U.S.C. 703 *et seq*.), we recommend that any land clearing or other surface disturbance associated with proposed actions within the project area be timed to avoid potential destruction of bird nests or young, or birds that breed in the area. Such destruction may be in violation of the MBTA. Under the MBTA, nests with eggs or young of migratory birds may not be harmed, nor may migratory birds be killed. Therefore, we recommend land clearing be conducted outside the avian breeding season. If this is not feasible,

we recommend a qualified biologist survey the area prior to land clearing. If nests are located, or if other evidence of nesting (*i.e.*, mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) should be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active.

Guidance for minimizing impacts to migratory birds for projects involving communications towers (*e.g.*, cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

If wetlands, springs, or streams are are known to occur in the project area or are present in the vicinity of the project area, we ask that you be aware of potential impacts project activities may have on these habitats. Discharge of fill material into wetlands or waters of the United States is regulated by the U.S. Army Corps of Engineers (ACOE) pursuant to section 404 of the Clean Water Act of 1972, as amended. We recommend you contact the ACOE's Regulatory Section regarding the possible need for a permit. For projects located in northern Nevada (Carson City, Churchill, Douglas, Elko, Esmeralda, Eureka, Humboldt, Lander, Lyon, Mineral, Pershing, Storey, and Washoe Counties) contact the Reno Regulatory Office at 300 Booth Street, Room 3060, Reno, Nevada 89509, (775) 784-5304; in southern Nevada (Clark, Lincoln, Nye, and White Pine Counties) contact the St. George Regulatory Office at 321 North Mall Drive, Suite L-101, St. George, Utah 84790-7314, (435) 986-3979; or in California along the eastern Sierra contact the Sacramento Regulatory Office at 650 Capitol Mall, Suite 5-200, Sacramento, California 95814, (916) 557-5250.

We appreciate your concern for threatened and endangered species. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment

Official Species List

Provided by:

Nevada Fish and Wildlife Office
1340 FINANCIAL BOULEVARD, SUITE 234
RENO, NV 89502
(775) 861-6300
http://www.fws.gov/nevada/

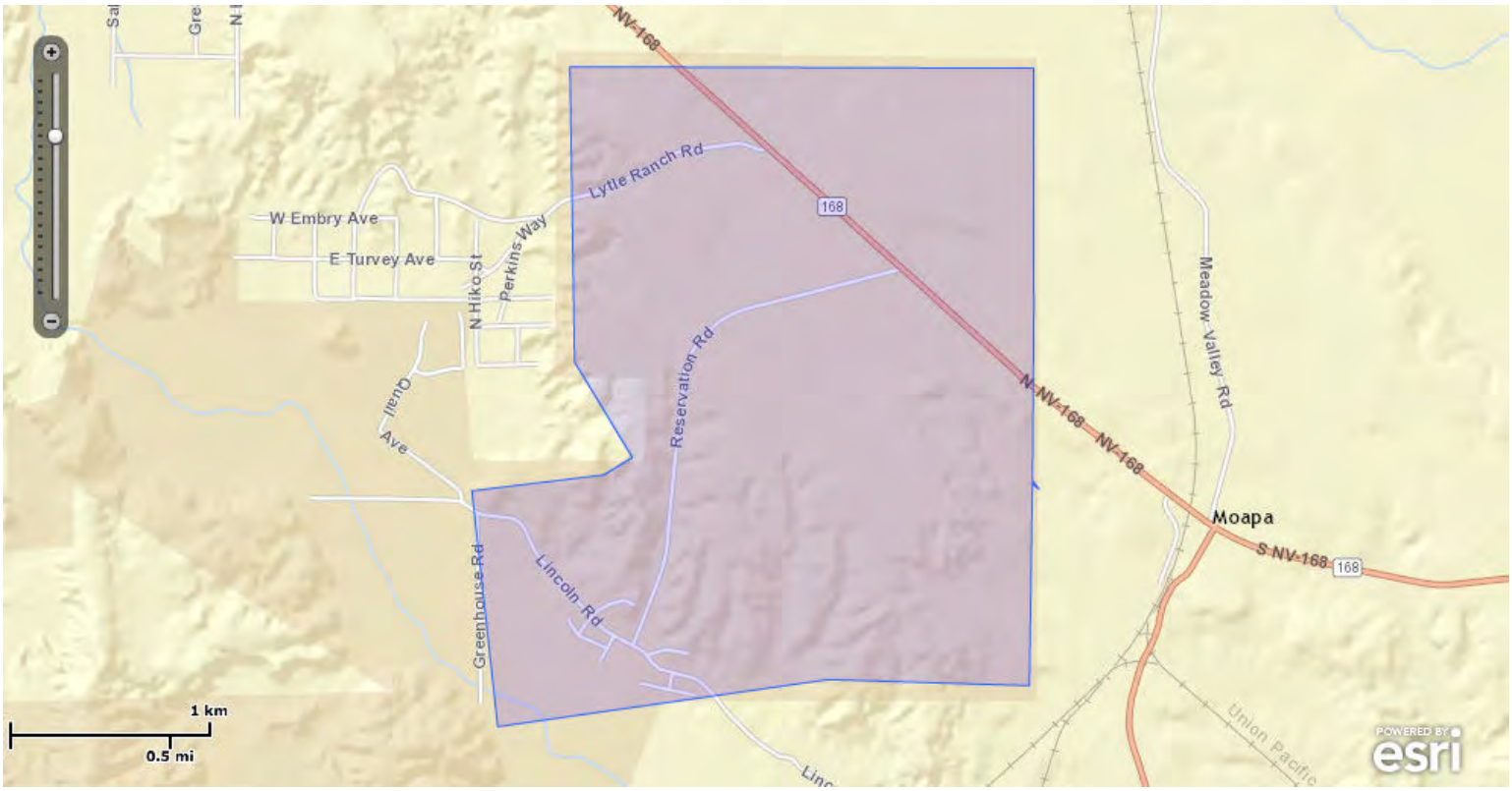
Consultation Code: 08ENVD00-2015-SLI-0199
Event Code: 08ENVD00-2015-E-00171

Project Type: Power Generation

Project Name: Aiya Solar Project
Project Description: 1000 acre solar project, water pipe line and transmission line.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-114.63030211 36.67704837, -114.6299427 36.676665, -114.6301873 36.6768199, -114.6303028 36.6769803, -114.63030211 36.67704837)), ((-114.63030211 36.67704837, -114.6303028 36.6770491, -114.6304663 36.6677741, -114.641856 36.6680529, -114.6604813 36.6659221, -114.661928 36.6765942, -114.6544779 36.6773067, -114.6528767 36.6781003, -114.6561378 36.6824182, -114.6563953 36.6957706, -114.6302126 36.6957018, -114.6302169 36.6855156, -114.63030211 36.67704837)))

Project Counties: Clark, NV

Endangered Species Act Species List

There are a total of 4 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Birds	**Status**	**Has Critical Habitat**	**Condition(s)**
Southwestern Willow flycatcher *(Empidonax traillii extimus)* Population: Entire	Endangered	Final designated	
Yellow-Billed Cuckoo *(Coccyzus americanus)* Population: Western U.S. DPS	Threatened	Proposed	
Yuma Clapper rail *(Rallus longirostris yumanensis)* Population: U.S.A. only	Endangered		
Reptiles			
Desert tortoise *(Gopherus agassizii)* Population: U.S.A., except in Sonoran Desert	Threatened	Final designated	

Critical habitats that lie within your project area

There are no critical habitats within your project area.

Appendix B. Tortoise Data Sheets

Date	**2014-05-19**						
Survey Biologists	Gina Robinson, Nate davenport, Liz Leon, Chelsea Morgan, Tressa Gibbard, Darren Daboda.						
Site Description	Moapa Aiya			County	Clark	Quad	
Survey Type	100% Coverage	Latitude	36.6813145671381	Longitude	-114.629814019533		
Start Time	8:36	End Time	16:05	Start Temp C	27	End Temp C	37

Live Tortoise

Latitude	Longitude	Tortoise Location	Approx MCL	Comments
36.6927945055409	-114.630545089128	In Burrow	>160mm	

Tortoise Sign

Latitude	Longitude	Type of Sign	Sign Class	Comments	Burrowing Owl
36.6922146353478	-114.636028949171	Carcass	Class 5	Disarticulated	
36.6892041516679	-114.633878488094	Burrow	Class 3		
36.6922923876314	-114.631996164205	Dead burrowing owl		Fresh, under power lines	
36.6922108317136	-114.630216350886	Carcass	Class 4	Dis articulated sun bleache	
36.6922021983533	-114.6302688216	Burrow	Class 3	Scat found in burrow can s	
36.6913658101453	-114.636834282535	Burrow		Class 5 burrow.	
36.6873484477742	-114.635585295143	Burrow		Burrowing owl burrow.	
36.6956573445692	-114.635288156676	Burrow		Class 3 burrow. Scat and tr	
36.690674768772	-114.632322136313	Burrow	Class 3		
36.6955706187485	-114.631793741137	Burrow	Class 3		
36.6960209515288	-114.631365425992	Burrow		Class 2.	
36.6961536789655	-114.629997918489	Scat		Fresh scat. Class 1. Small.	
36.6951302904977	-114.629854504126	Burrow		Class 2 burrow.	
36.6935836617245	-114.629862969848	Burrow		Class 3. Scat observed.	
36.6927774064584	-114.629761884096	Burrow		Class 5 burrow. Tracks obs	

Date	**2014-05-20**						
Survey Biologists	Gina Robinson, Nate Davenport, Liz Leon, Chelsea Morgan, Tressa Gibbard						
Site Description	Moapa Aiya			County	Clark	Quad	
Survey Type	100% Coverage	Latitude	36.6815537508846	Longitude	-114.629978556186		
Start Time	7:00	End Time	14:43	Start Temp C	22.1	End Temp C	30.1

Live Tortoise

Latitude	Longitude	Tortoise Location	Approx MCL	Comments
36.6863691235372	-114.638058710843	Open	>160mm	

Tortoise Sign

Latitude	Longitude	Type of Sign	Sign Class	Comments	Burrowing Owl
36.6880506002064	-114.629451166838	Carcass	Class 5	Disarticulated. White. Cru	

Date	**2014-05-21**						
Survey Biologists	Gina Robinson, Nate Davenport, Liz Leon, Chelsea Morgan, Tressa Gibbard						
Site Description	Moapa Aiya			County	Clark	Quad	
Survey Type	100% Coverage	Latitude	36.6796569547446	Longitude	-114.639886301011		
Start Time	7:22	End Time	14:47	Start Temp C	19.2	End Temp C	31.1

Live Tortoise

Latitude	Longitude	Tortoise Location	Approx MCL	Comments
36.6814743262126	-114.643625971037	In Burrow	>160mm	

Tortoise Sign

Latitude	Longitude	Type of Sign	Sign Class	Comments	Burrowing Owl
36.6789835179566	-114.645746592539	Burrow	Class 2		
36.6777976298112	-114.648550841957	Burrow	Class 2		
36.6829997487708	-114.641788741681	Burrow	Class 3		
36.6827742755755	-114.642763137924	Burrow	Class 2		
36.6826969525187	-114.644640348958	Burrow	Class 2		
36.6818184452473	-114.643378621074	Burrow	Class 2		
36.6811212385415	-114.643117943885	Burrow	Class 1	Looks back filled	
36.6788797499954	-114.647071855249	Burrow	Class 1	Back filled w/possible tort	
36.6790176323025	-114.64697655301	Burrow	Class 2		
36.679931075655	-114.644147660583	Scat	Class 2		
36.6789587913423	-114.64581314485	Burrow	Class 2		
36.6784429271116	-114.646636163923	Burrow	Class 2		
36.6785846231847	-114.648393262285	Burrow	Class 3		
36.6776013421236	-114.6456495301	Burrow	Class 3		
36.6805838328197	-114.64701645087	Carcass	Class 5	Inside a burrow	
36.6796925431459	-114.645531345266	Burrow	Class 4	Disarticulated carcass insid	
36.679378221777	-114.644363913792	Burrow	Class 3		
36.6815092368393	-114.643608536678	Burrow	Class 1		
36.6845445335253	-114.640382258328	Burrow	Class 2		
36.6836005216806	-114.639606261733	Carcass	Class 1	Found upside down, notch	

36.6837256215854	-114.644084712597	Burrow	Class 2	
36.6830738867043	-114.644572874638	Burrow	Class 4	
36.6826945636763	-114.642827594759	Burrow	Class 3	Back collapsed
36.6822099639444	-114.642322585093	Burrow	Class 2	
36.6785464954964	-114.645574260503	Raven		Flying over east end of site
36.6819163877859	-114.643368730428	Burrow	Class 2	fresh tracks
36.6794723992453	-114.644305910915	Burrow	Class 2	Scat in back of burrow
36.6851665106173	-114.638668242842	Burrow	Class 3	
36.6840974566872	-114.643697049469	Burrow	Class 3	
36.6842626001121	-114.641233775765	Burrow	Class 4	
36.6840348658209	-114.640486445278	Burrow	Class 4	
36.6810426263833	-114.647567477077	Burrow	Class 4	
36.679868239441	-114.644615035504	Burrow	Class 2	
36.6846800269901	-114.640381671595	Burrow	Class 2	
36.6817891924052	-114.641882618996	Burrow	Class 4	

Date	**2014-05-22**						
Survey Biologists	Gina Robinson, Nate Davenport, Liz Leon, Chelsea Morgan, Tressa Gibbard						
Site Description	Moapa Aiya			County	Clark	Quad	
Survey Type	100% Coverage	Latitude	36.6799700899601	Longitude	-114.650400895625		
Start Time	7:16	End Time	14:42	Start Temp C	19.8	End Temp C	34

Tortoise Sign

Latitude	Longitude	Type of Sign	Sign Class	Comments	Burrowing Owl
36.6855804110288	-114.654073426607	Burrow	Class 2		
36.6844672104685	-114.651804193961	Burrow	Class 4		
36.6883411590896	-114.65389078483	Carcass	Class 3	in burrow	
36.6886616646146	-114.654151964933	Burrow	Class 2		
36.6885871628112	-114.654220696539	Burrow	Class 2	Carcass inside	
36.688365087355	-114.65389078483	Burrow	Class 2		
36.6856259247543	-114.643102940172	Carcass	Class 1	Hit by a vehicle on reserva	
36.6846301003443	-114.652523193508	Scat	Class 3		
36.6846981266297	-114.652217756957	Scat	Class 3		

Date	**2014-05-23**						
Survey Biologists	Gina Robinson, Nate Davenport, Liz Leon, Chelsea Morgan, Tressa Gibbard						
Site Description	Moapa Aiya				County	Clark	Quad
Survey Type	100% Coverage	Latitude	36.6887558266441		Longitude	-114.641027916223	
Start Time	8:04	End Time	12:08	Start Temp C	22.5	End Temp C	30.5

Tortoise Sign

Latitude	Longitude	Type of Sign	Sign Class	Comments	Burrowing Owl
36.6936252359643	-114.649016792061	Burrow	Class 3		

Date	**2014-10-22**						
Survey Biologists	Justin Romanowitz, Andy Butsvich, Sean Milne						
Site Description	Moapa Aiya			County	Clark	Quad	
Survey Type	100% Coverage	Latitude	36.6706268443136	Longitude	-114.652596786725		
Start Time	8:17	End Time	16:00	Start Temp C	20	End Temp C	31

Tortoise Sign

Latitude	Longitude	Type of Sign	Sign Class	Comments	Burrowing Owl
36.6817640047862	-114.650718569862	Carcass			No

Date	**2014-10-24**						
Survey Biologists	Sean Milne, Justin Romanowitz, Andy Butsavich						
Site Description	Moapa Aiya			County	Clark	Quad	
Survey Type	100% Coverage	Latitude	36.6750060115351	Longitude	-114.63903428066		
Start Time	9:43	End Time	16:00	Start Temp C	20	End Temp C	27

Tortoise Sign

Latitude	Longitude	Type of Sign	Sign Class	Comments	Burrowing Owl
36.6690526809885	-114.635636005657	Burrow	Class 5		No
36.6704658698632	-114.637937592449	Burrow	Class 2	Pellets and feathers	Yes
36.6728182928978	-114.638314861911	Burrow	Class 3	Tortoise and owl scat	Yes

Date	**2014-10-25**						
Survey Biologists	Sean Milne, Justin Romanowitz, Andy Butsavich						
Site Description	Moapa Aiya			County	Clark	Quad	
Survey Type	100% Coverage	Latitude	36.6798708262264	Longitude	-114.64315650064		
Start Time	9:28	End Time	16:00	Start Temp C	18	End Temp C	25

Live Tortoise

Latitude	Longitude	Tortoise Location	Approx MCL	Comments
36.6760015301748	-114.63757658388	Open	>160mm	

Tortoise Sign

Latitude	Longitude	Type of Sign	Sign Class	Comments	Burrowing Owl
36.6790956678211	-114.637395953866	Carcass	Class 5		No
36.680512041819	-114.640611754837	Burrow	Class 5		No
36.6773701692342	-114.641498057278	Burrow	Class 4		No

Appendix L

Bird and Bat Conservation Strategy

Draft
Bird and Bat Conservation Strategy

Aiya Solar Project

April 2015

LIST OF ACRONYMS

AC	alternating current
ACEC	Area of Critical Environmental Concern
AOU	American Ornithologists' Union
APLIC	Avian and Power Line Interaction Committee
APM	Applicant Proposed Measure
Applicant	Playa Solar, LLC
Avian Lead	Lead Avian Biologist
Bat Lead	Lead Bat Biologist
BBCM	Bird and Bat Conservation Measure
BBCS	Bird and Bat Conservation Strategy
BCI	Bat Conservation International
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BLM-S	listed as a sensitive species by Bureau of Land Management
BMP	Best Management Practice
DOE	Department of Energy
Dry Lake SEZ	Dry Lake Solar Energy Zone
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESA-E	listed as endangered under the federal Endangered Species Act
FEIS	Final Environmental Impact Statement
First Solar	First Solar Development, LLC
ft	foot
GBBO	Great Basin Bird Observatory
ha	hectare
HEA	Habitat Equivalency Analysis
IBA	Important Bird Area
km	kilometer
kV	kilovolt
LVFO	Las Vegas Field Office
m	meter
MBTA	Migratory Bird Treaty Act
MW	Megawatt
NAC	Nevada Administrative Code
NDOW	Nevada Department of Wildlife
NDOW-SCP	Species of Conservation Priority under the Nevada State Wildlife Action Plan
NEPA	National Environmental Policy Act
NNHP	Nevada Natural Heritage Program
NRS	Nevada Revised Statutes
NV-EB	endangered bird in the State of Nevada
NV-PM	protected mammal in the State of Nevada
NV-S1	ranked as S1 (critically imperiled) in the State of Nevada
NV-S2	ranked as S2 (imperiled) in the State of Nevada
NV-SB	sensitive bird in the State of Nevada
NV-SM	sensitive mammal in the State of Nevada
NV-TM	threatened mammal in the State of Nevada
O&M	Operations and Maintenance
PEIS	Programmatic Environmental Impact Statement
Project	Playa Solar Project (Dry Lake Solar Energy Zone Parcels 2, 3, and 4)
PV	Photovoltaic
ROD	Record of Decision
ROW	right-of-way

S1	critically imperiled
S2	imperiled
SE	standard error
SEZ	Solar Energy Zone
Solar PEIS	*Programmatic Environmental Impact Statement (for Solar Energy Development in Six Southwestern States*
SPUT	Special Purpose Utility permit
SWCA	SWCA Environmental Consultants
SWPPP	Stormwater Pollution Prevention Plan
US	United States
USEPA	US Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USFWS-BCC	US Fish and Wildlife Service Bird of Conservation Concern
WEAP	Worker Environmental Awareness Program

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

No table of figures entries found.

LIST OF APPENDICES

1.0 INTRODUCTION

1.1 Purpose

This Bird and Bat Conservation Strategy (BBCS) was developed to provide a written record of the Applicant's efforts to understand potential project impacts to birds and bats and to document conservation measures that have or will be taken to avoid, minimize, and/or mitigate for those potential impacts.

The BBCS is intended to provide a summary of current biological conditions and describes conservation measures intended to avoid, minimize, and/or mitigate potential impacts to bird and bat species. Information in this BBCS is intended to correspond to the mitigation measures described in environmental review documentation prepared for the Project pursuant to the National Environmental Policy Act (NEPA), and includes the following objectives:

- Describe baseline conditions for bird and bat species present within the Project site, including results of surveys performed to date;
- Present a risk assessment identifying activities during the construction and operation and maintenance phases that may increase the potential of adverse effects to bird and bat species located on and adjacent to the Project components;
- Specify conservation measures that will be employed to avoid, minimize and/or mitigate any potential adverse effects to these species;
- Provide details for an Avian Fatality Monitoring Study to be conducted post-construction, including applicable approved protocols that would be used for any surveys and/or monitoring conducted; and
- Detail long-term monitoring and reporting goals for the Project.
- Adaptive management

1.2 Project Location and Description

The Proposed Project would be located approximately 40 miles northeast of Las Vegas in Clark County, Nevada (Figure 1-1). The solar project would be located on up to 900 leased acres within the Reservation in Mount Diablo Meridian, Township 14 South, Range 66 East, Sections 29, 30, 31,and 32. These lands are currently vacant except for roads, pipelines, and transmission line ROWs.

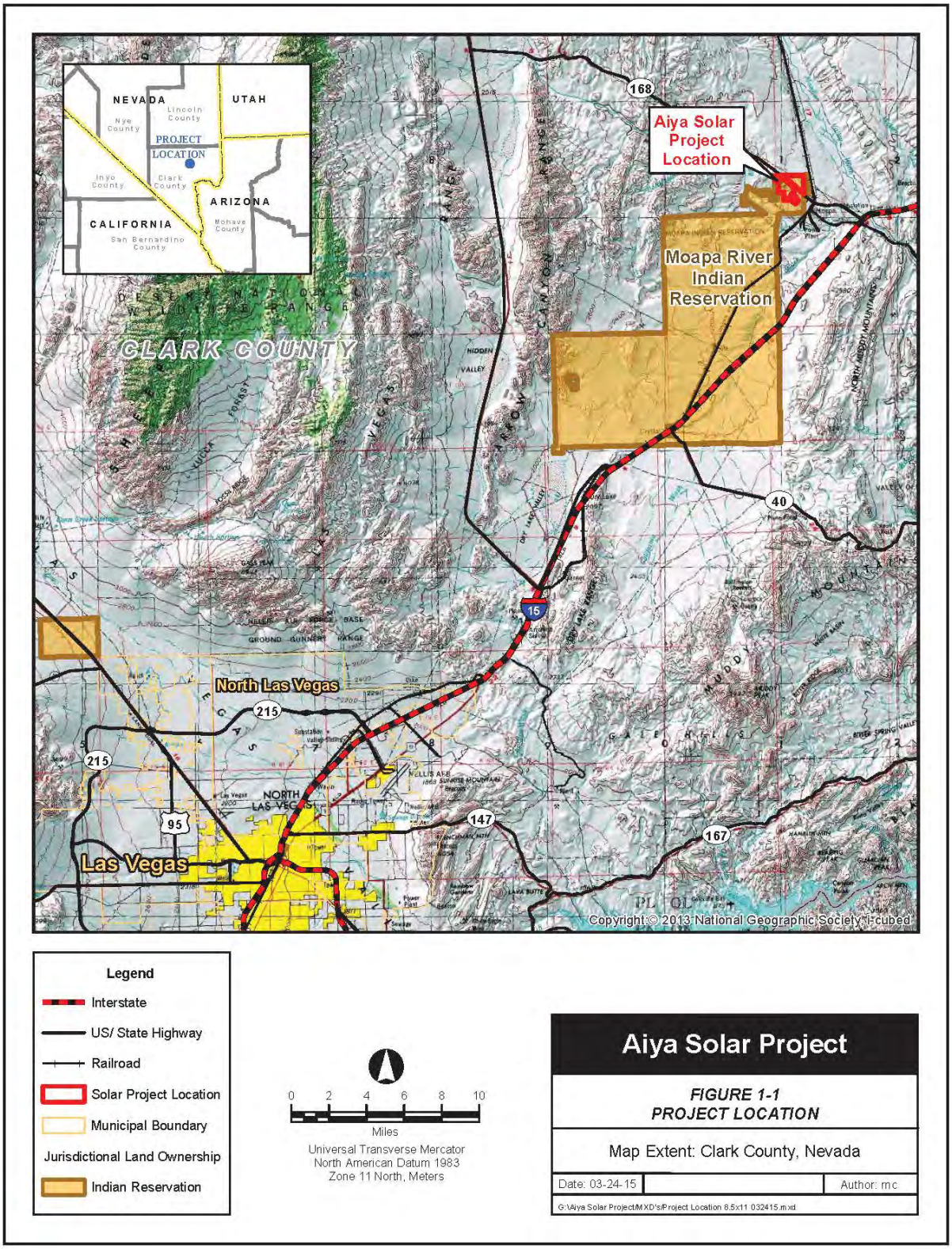
The gen-tie line would be located on Reservation lands, Federal lands managed by the BLM south of the solar site within Section 5 of Township 15 South and Range 66 East, and private lands (owned by NV Energy) adjacent to the Reid-Gardner Substation. The temporary water pipeline associated with the Project would be located on the Reservation south of the solar site

in Sections 30 and 31 in Township 14 South, Range 66 East and Section 6 of Township 15 South and Range 66 East. Figure 2 shows the location of the components of the Proposed Project and associated facilities.

The following describes the major features of the proposed project. For a comprehensive description of the proposed project, refer to the DEIS.

The project will consist of up to a 100 MW solar PV power generating facility on approximately 900 acres of land on the Moapa River Indian Reservation in Clark County, Nevada. 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 photovoltaic (PV) panels mounted on fixed tilt or tracking systems and associated equipment), a project substation, and operation and maintenance (O&M) facilities. The offsite facilities include an approximately two-mile 230 kV gen-tie located on the Reservation, BLM-administered lands, and private lands. 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. Temporary facilities, which would be removed at the end of the construction period, include the offsite water intake and pipeline mentioned above and 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 bulk transmission system via the gentie, which would interconnect to NV Energy's existing 230kV Reid-Gardner Substation. Once additional planned generation in the area comes online, NV Energy may build a proposed collector station near the existing Reid-Gardner Substation and, if so, the gen-tie would connect to it also. The exact site of the collector station and construction timing will be determined by NV Energy.


NEVADA
UTAH
ARIZONA
CALIFORNIA
PROJECT LOCATION
Lincoln County
Nye County
Clark County
Inyo County
Mohave County
San Bernardino County
Aiya Solar Project Location
Moapa River Indian Reservation
CLARK COUNTY
North Las Vegas
Las Vegas
168
40
15
215
95
147
167
Copyright © 2013 National Geographic Society, i-cubed
Legend
Interstate
US/ State Highway
Railroad
Solar Project Location
Municipal Boundary
Jurisdictional Land Ownership
Indian Reservation
0 2 4 6 8 10
Miles
Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters
Aiya Solar Project
FIGURE 1-1
PROJECT LOCATION
Map Extent: Clark County, Nevada
Date: 03-24-15
Author: mc
G:\Aiya Solar Project\MXD's\Project Location 8.5x11 032415.mxd

1.3 Regulatory Setting

Several federal and state laws and regulations, including the Endangered Species Act (ESA), the Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act (BGEPA), BLM Sensitive Species, and Nevada State Codes, provide the foundation for the development of this BBCS. This document represents a comprehensive plan to meet the requirements of these regulatory mechanisms as they apply to birds and bats in the Project area.

1.3.1 National Environmental Policy Act

Under NEPA (42 United States Code [USC] §§ 4321-4370h), federal agencies are required to prepare an environmental impact statement (EIS) for any major federal action significantly affecting the quality of the human environment. Agencies may also prepare an Environmental Assessment (EA) that is tiered to an EIS resulting in a Finding of No Significant Impact (FONSI) (also referred to as a "Finding of No New Significant Impact" (43 CFR 46.140(c)), so long as any significant effects of the individual action were analyzed in the EIS..

1.3.2 Endangered Species Act

Certain species at risk of extinction, including many birds and bats, are protected under the federal ESA of 1973, as amended. The ESA 1973 defines and lists species as "endangered" and "threatened" and provides regulatory protection for the listed species. The federal ESA provides a program for conservation and recovery of threatened and endangered species. Section 7(a)(2) directs all federal agencies to insure that any action they authorize, fund, or carry-out does not jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of designated or proposed designated critical habitat .

1.3.3 Migratory Bird Treaty Act

The MBTA (16 USC §§ 703, *et seq*.), passed by the US Congress and signed into law in 1918, makes it unlawful to "pursue, hunt, take, capture or kill; attempt to take capture or kill; possess; offer to or sell, barter, purchase, or deliver; or cause to be shipped, exported, imported, transported, or received any native migratory bird, part, nest, egg, or product." The MBTA, enforced by USFWS, protects all MBTA-listed migratory birds within the United States. In the continental US, native non-covered species generally belong to the Order Galliformes. Common non-native species not protect by the MBTA include rock pigeon (*Columba livia*), Eurasian collared-doves (*Streptopelia decaocto*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*) (United States Fish and Wildlife Service [USFWS] 2005). Although permits may be obtained to collect MBTA-listed birds for scientific purposes or to destroy depredating migratory birds, the MBTA does not provide any permit mechanism authorizing the incidental take of migratory birds in connection with otherwise lawful activities. Nevertheless, federal agencies such as the BLM have been directed to evaluate the effects of its actions on migratory birds, with an emphasis on species of concern (per Executive Order 13186).

1.3.4 Bald and Golden Eagle Protection Act

The BGEPA (16 USC §§ 668-668d) prohibits the take, defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb,” of any bald eagle (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*). Through recent regulation (50 Code of Federal Regulations [CFR] § 22.26; USFWS 2009), the USFWS can authorize take of bald and golden eagles when the take is associated with, but not the purpose of, an otherwise lawful activity and cannot practicably be avoided. The USFWS has issued Eagle Conservation Plan Guidance (USFWS 2013a) for land-based wind energy projects to help project proponents avoid unanticipated take of bald and golden eagles and comply with the BGEPA. Although the guidelines were developed for land-based wind energy projects, certain components of eagle surveys and monitoring are applicable to other renewable energy projects, including PV solar plants, and have been incorporated into this BBCS.

1.3.5 BLM Sensitive Species

BLM Sensitive Species are species designated by the State Director and includes only those species that are not already federal listed, proposed, or candidate species, or State listed because of potential endangerment. BLM’s policy for management of the lands under their jurisdiction is to "ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as threatened or endangered" (BLM, 2008)

1.3.6 Nevada State Codes

Under Nevada law and regulation, any wildlife receiving the distinction of fully protected species may not be captured, removed or destroyed at any time except with special permit as provided under Nevada Revised Statutes (NRS) 503.584-503.589 and Nevada Administrative Code (NAC) 503.093. Section 503.09-5 indicates that protected species include wildlife species that are classified as sensitive, threatened or endangered by Nevada Department of Wildlife (NDOW) and that an appropriate license, permit or authorization required to hunt, take or possess protected wildlife; (NRS 501.105, 501.181) is necessary. A number of bird and bat species are protected under NRS 501; protected species with potential to occur within the Project are listed within Section 2.1 of this BBCS.

1.4 Corporate Policy and Coordination

The Applicant maintains a commitment to work cooperatively to minimize adverse impacts to protected bird and bat species. Through the planning stages of the Project, the Applicant and its consultants have been working in coordination with federal and state agency personnel regarding necessary wildlife surveys and siting considerations to ensure that all parties understand the scope of the Project and potential issues that could be identified and addressed early in the planning process. The Applicant will continue to work with the agencies to implement conservation measures intended to avoid, minimize, and/or mitigate potential impacts to bird and bat species, including those measures identified in this BBCS.

1.5 Key Project Personnel Roles and Responsibilities

Four key positions will be responsible for the implementation of the BBCS: Lead Avian Biologist (Avian Lead), Lead Bat Biologist (Bat Lead), Avian Biologists, and Biological Monitors.

1.5.1 Lead Avian Biologist (Avian Lead)

The Applicant will assign an Avian Lead to the Project. The Avian Lead will be responsible for overseeing the implementation of the BBCS and ensuring all monitoring and reporting requirements are met. The Applicant will submit the resume of the proposed Avian Lead to the BIA and BLM for review in consultation with the NDOW and USFWS. The Applicant will also designate alternate Avian Leads with the same minimum qualifications as the Avian Lead, to be reviewed by the BIA, BLM and USFWS.

The Avian Lead and alternate Avian Leads will have the following minimum qualifications:

- A bachelor's degree in biological sciences, zoology, botany, ecology, or a related field and three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society; and
- At least one year of field experience with avian resources found in or near the Project site.

In lieu of the above requirements, the resume shall demonstrate to the satisfaction of BIA and BLM that the proposed Avian Lead and alternate Avian Leads have the appropriate training and background to effectively implement the BBCS. The Applicant will ensure that the Avian Lead performs the activities specified in the BBCS. The Lead Avian Biologist may be the same as the overall site lead given the individual meets the approval of BIA, BLM and USFWS.

1.5.2 Lead Bat Biologist (Bat Lead)

The Applicant will assign a Bat Lead to the Project. The Bat Lead will be responsible for overseeing the implementation of the portions of the BBCS addressing bat conservation and ensuring all bat-related monitoring and reporting requirements are met. The Applicant will submit the resume of the proposed Bat Lead to BIA and BLM for review in consultation with the NDOW and USFWS. The proposed Bat Lead must have experience with bat resources in the Mojave Desert; demonstrate proficiency at current bat survey and monitoring techniques; and possess at least a bachelor's degree in biological sciences, zoology, botany, ecology, or a related field and three years of experience in field biology or current certification of a nationally recognized biological society. The Lead Avian and Bat Biologists may be the same individual if they possess the proper qualifications.

1.5.3 Biological Monitors

The Applicant will designate Biological Monitors to the Project. Monitoring personnel may include solar facility staff. Monitors will be trained in distance-sampling search methodology, correct identification and documentation of carcasses, implementation of carcass removal trials and notification of a rehabilitation center in the event of injured birds or bats. Only

staff/technicians that are listed under a Special Purpose Utility (SPUT) permit will be allowed to handle carcasses. Accurate identification of rare, special status species will be emphasized during training. Training of personnel in monitoring methods will occur over a 2-day period and will be conducted by a qualified biologist prior to initiation of the study. Components of the training program will include:

- A classroom-based portion with lecture and handout materials, and photographic or specimen-based (if available) species identification;
- A field-based portion that allows trainees the opportunity to practice and receive feedback on conducting carcass searches and trials, identification of species, completing data forms, and following protocols for assessing and assisting injured birds and bats.
- Assessment of learning outcomes for each participant.
- A training log to be updated with each trainee's name and contact information upon successful completion of the course.

The biologist that will conduct the training will, minimally, have a master's degree in biological sciences, zoology, botany, ecology, or a related field, and at least one year of field experience with avian or bat research or monitoring in the region. A qualified biologist will be on call to assist with species identification (e.g., via review of photographs or onsite assistance if necessary) and other aspects of reporting.

2.0 BASELINE CONDITIONS

Biological resource information was obtained by field surveys and literature review conducted in 2014 and 2015. The following section indicates these findings.

2.1 Birds

As indicated in the Biological Assessment, a list of species that may occur within the Project area was obtained from the USFWS website Information, Planning, and Conservation System (IPaC) and other species were considered due to proximity to the Project area. Table 2 lists these species, their status, critical habitat (if any) and proximity of the same to the proposed Project area, and the recommended effects determination.

Table 1 USFWS Bird Species Considered

Species	Status	Critical Habitat/Location	Recommended Determination of Effects
Birds			
Yellow-billed cuckoo (*Coccyzus americanus*) Population: Western U.S. Distinct Population Unit	Threatened	USFWS Proposed Critical Habitat located approximately 4 miles northwest of the Project area	*May affect, not likely to adversely affect* *No effect to proposed critical habitat*
Yuma clapper rail (*Rallus longirostris yumanensis*) Population: U.S. only	Endangered	No USFWS Designated Critical Habitat	*May affect, not likely to adversely affect*
Southwestern willow flycatcher (*Empidonax trailii extimus*)	Endangered	USFWS Designated Critical Habitat approximately 20 miles east of the Project area	*May affect, not likely to adversely affect* *No effect to designated critical habitat*

Bird species observed during the biological surveys are listed in Table 2 below:

Table 2 Birds Observed during Fields Surveys

Birds	
Common raven	*Corvus corax*
Burrowing owl	*Athene cunicularia*
Red tail hawk	*Buteo jamaicensis*
Lesser nighthawk	*Chordeiles* sp.

2.2 Bats

The Draft Environmental Impact Statement for the Project, Section 3.8.3.1.1 provides information on the potential for bats within the Project area. There are no bats currently listed by the USFWS or the NNHP as threatened or endangered in Clark County, Nevada (USFWS 2013c, NNHP 2010). The BLM has designated twelve species of bat as sensitive species. BLM policy is to provide these species with the same level of protection as is provided for candidate species in BLM Manual 6840.06 C. The sensitive species designation is used for species that occur on BLM-administered lands for which BLM has the capability to significantly affect the conservation status of the species through management. The twelve protected bat species are: California leaf-nosed bat (*Macrotus californicus*), California myotis (*Myotis californicus*), Townsend's big-eared bat (*Plecotus townsendii*), western red bat (*Lasiurus blossevillii*), big

free-tailed bat (*Nyctinomops macrotis*), fringed myotis (*Myotis thysanodes*), Allen's lappet-eared bat (*Idionycteris phyllotis)*, spotted bat *(Euderma maculatum),* Western pipistrelle *(Pipistrellus hesperus*), Brazilian free-tailed bat (*Tadaroda brasiliensis),* pallid bat *(Antrozous pallidus)* and cave myotis (*Myotis velifer*). They are only expected to be present within the Proposed Project during nocturnal foraging events. There are no known or expected roosting locations or hibernacula within or in the immediate vicinity of the Proposed Project site.

3.0 RISK ASSESSMENT

The prediction of impacts to birds and bats from the construction and operation of various types of solar facilities is preliminary in nature as systematic studies detailing the impacts to birds and bats from these types of facilities are in an early stage of development and relevant information is presently being collected, analyzed and documented. The following section discusses potential risks by referring to known information regarding impacts to birds from other types of facilities (e.g., transmission facilities) as well as presenting some information that is just beginning to become available from a number of new and existing solar facilities where efforts have been made to collect data regarding impacts to birds. This emerging information appears to confirm that bats are not at risk for mortality during the operation of PV projects since they do not tend to collide with stationary (or slowly tilting) objects.

3.1 Direct Impacts

Direct impacts include disturbances to the landscape which potentially pose immediate threats to resident and migratory bird populations. Some potential direct impacts include:

- Collision risk: transmission lines, solar modules, meteorological towers or guy lines, vehicle and equipment collisions;
- Electrocution potential; or
- Habitat loss or alteration.

3.1.1 Collision Risk

3.1.1.1 3.1.1.1 Siting in High Risk Areas

Based on a review of sources of avian mortality at three existing utility scale PV solar projects in California, fatality rates due to collision with solar arrays, while preliminary, are low in relation to other anthropogenic mortality (WEST 2014). While concern over wind projects is primarily focused on raptor and bat mortality, few fatalities of those groups have been found at PV facilities. Overall, songbird fatalities appeared in the largest numbers at the PV facilities surveyed, which is consistent with their prolific population levels relative to other avian species. The observed mortality is spread out among species, with no species appearing to account for a large percentage of the fatality finds at all facilities.

Avian mortality concerns are typically elevated when projects are sited in high use areas for bird species, bird groups or taxa considered at risk from the particular mortality source. For example, concern over levels of raptor mortality at wind projects are elevated at sites with high raptor nesting, high prey base, topography that is believed to increase risk, and other factors. The collision risk for raptors from a solar project, consisting of relatively low profile, unmoving or slowly tilting panels, is much lower than a wind project. Historically, raptor fatalities have been an issue of special concern at wind facilities. In North America, raptors compose up to 8% of fatalities and wind facilities, and 6% regionally. As a function of energy output, PV facilities are

not expected to pose risk to raptors in the same way as wind energy facilities because PV facilities do not possess the density of tall structures found at wind facilities. As expected, in a study of three PV facilities where avian fatality monitoring data is available, few raptor fatalities were associated with the solar facilities. Raptor fatalities at the three solar facilities composed just over 1% of all fatalities (range: 0-3%), and included fatalities potentially attributed to overhead power lines, which would be present at any utility-scale power facility (WEST 2014).

Waterfowl and waterbird collision risk with tall structures such as unmarked transmission lines is often elevated near wetlands, playas and other suitable habitat; however, based on the landcover and habitat types present within the Project area, waterfowl/waterbird use of the Project is expected to be very low, and the 230-kilovolt (kV) transmission line would be designed following the most recent Avian and Power Line Interaction Committee (APLIC) guidelines (currently, APLIC 2012) for placing and installing bird flight diverters, to minimize avian collisions. Concerns over potential risk of collision for migrating songbirds with structures is often elevated when projects are located in high migration areas, such as the Texas Gulf Coast near significant migration stopover areas. However, night migration in the more arid western United States is known to be much less dense than in the eastern one-half of North America (Gauthreaux et al. 2003). As a result, we know of no large-scale fatality events at communication towers in the western United States, yet there are dozens reported from the eastern part of the country (Shire et al. 2000). This should translate to a relatively low risk of migrating songbird collision with Project infrastructure.

3.1.1.2 Vehicle and Equipment Collisions

Equipment and vehicles could collide with slower-moving species, species in subsurface burrows, and ground-nesting birds resulting in injury or mortality. Some species of birds go into a state of torpor and become immobile during periods of cold weather (Fletcher et al. 2004), increasing the potential for impacts from vehicles or equipment. For most bird species, direct impacts would be limited to areas within the Project footprint or immediately adjacent to it. Active bird nests in shrubs or on/near the ground would be vulnerable to crushing during ground-disturbing activities.

During the construction phase of the Project, an increase in vehicle traffic from construction personnel, biologists, and other project-related persons, potentially poses an increased risk to birds that inhabit remote desert regions. Birds nesting adjacent to Project access roads are more likely to be impacted due to an increase in the number of vehicles using the road.

Due to a decrease in project personnel and habitat alterations, these types of risks will be lessened during the operations and maintenance phase, compared to the construction phase. Conservation measures described in this document and in accordance with the mitigation measures identified in the DEIS would avoid and minimize this risk.

3.1.1.3 Height of Structures

A risk factor for avian collision mortality is the height of structures within a development. For songbirds, height of structures has been a significant risk factor, with taller structures (buildings,

communication towers) typically affecting more birds than shorter structures (Gehring et al. 2011). Particular dangers associated with buildings are the presence of windows and certain lighting regimes known to attract birds (Klem 2009). Very tall structures represent greater risk to birds because most night-migrating birds fly at heights between 1,350 and 6,560 ft (411 and 2,000 m; Kerlinger 2001), generally occurring in higher densities at greater heights above ground level (AGL). In studies by Gehring et al. (2011), the number of birds killed at communication towers was found to be positively correlated in a non-linear fashion with tower height. As the height of structures associated with the Project will be relatively low (Range 4 – 130 ft), risk of collision will also be low accordingly.

3.1.1.4 Light Attraction

In most studies to date, poor weather has been associated with large-scale mortality events that have occurred at tall structures, such as communication towers (Manville 2000; Kerlinger et al. 2010; Longcore et al. 2012, 2013), as well as street lights, lighthouses, water towers, ski lifts, and other tall, lit structures. In addition, large-scale fatality events have even been reported to occur at natural gas compressor stations that are equipped with bright flood lights. These events usually occur in inclement weather (fog, light rain, light snow, low ceiling) when navigational cues are obscured and as a result, attracted to the lights of facilities and structures, birds become disoriented and remain in the lighted zone where they circle the structures. This puts them at risk of collision with the tower and its guy wires, collision with each other, or possible exhaustion (Gauthreaux and Belser 2006). Fortunately, recent studies have demonstrated that avian collisions with manmade structures can be reduced dramatically with the adoption of certain lighting regimes that do not attract birds (Gehring et al. 2009, Kerlinger et al. 2010, Patterson 2012). Further, most birds (approximately 90%) that die after being attracted to communication towers by lighting are killed when they collide with the guy wires that support those towers (Gehring et al. 2011). The Applicant will prepare and implement measures in a Lighting Management Plan to be approved by the BIA and BLM. Included in the Lighting Management Plan will be measures to minimize new lighting, and any lighting associated with the Project will be designed to limit the lighted area (e.g., using shielding and/or downcast lights) to the minimum necessary for safety.

3.1.1.5 "Lake Effect Hypothesis"

The concern over deaths at solar facilities of waterbirds or waterfowl is centered around the hypothesis that these species may potentially mistake the extensive solar arrays for water features on which the birds can land, usually at night. Such collisions which also occur at structures like parking lots and train yards (usually a black cinder surface), both of which resemble water bodies at night, often do not result in direct mortality because the angle of collision is relatively shallow. Such birds sometimes cannot take off after collisions because they are adapted to take off from water, not dry land. However, it is important to note that there is no empirical evidence that solar facilities lead to significant avian mortality resulting from contact or collision with PV panels.

Ducks, geese, and other waterbirds rarely collide with structures and the minute percentages of birds that have been demonstrated to collide with tall towers (guy wires), buildings, and vehicles

have never been documented to result in a significant impact to any of their populations. An examination of permitted harvest of waterfowl by the USFWS and state wildlife agencies (see Table 2) provides some context to the magnitude of those harvests, and the resilience of these avian populations. These birds are harvested from the total duck population, which was estimated in 2013 at 45.6 ± 0.7 standard error (SE) million birds in North America (33% higher than the long-term average 1955-2012; USFWS 2013b).

Table 2. Population sizes and harvest for waterfowl.

	Ducks	Geese	Mallard
North America Population Est., 2013[a]	45,607,300[b]	--	10,372,000
US Harvest, 2012[c]	15,704,500 (± 6%)	3,191,200 (± 6%)	3,935,272
Canada Harvest, 2011[c]	1,161,061	1,066,969	509,889
California Harvest, 2012[d]	1,587,500 (± 21%)	151,000±18%	243,467

[a] USFWS 2013b

[b] Population estimate includes mallards (*Anas platyrhynchos*), gadwall (*Anas strepera*), American wigeon (*Anas americana*), green-winged teal (*Anas crecca*), blue-winged teal (*Anas discors*), American black ducks (*Anas rubripes*), ring-necked duck (*Aythya collaris*), goldeneyes (*Bucephala clangula* and *Bucephala islandica*) bufflehead (*Bucephala albeola*), and ruddy duck (*Oxyura jamaicensis*); excludes scoters (*Melanitta* spp.), eiders (*Somateria* spp.), long-tailed ducks (*Clangula hyemalis*), mergansers (*Mergus serrator* and *Mergus merganser*), and wood ducks (*Aix sponsa*); no sea duck harvests for special sea duck seasons/permits

[c] Gendron and Smith 2011

[d] Raftovich and Wilkins 2013

Other sources of mortality identified for waterbirds and waterfowl in Canada include road vehicle collisions, powerline electrocutions, communication tower collisions, cat (Felis silvestris catus) predation, agricultural pesticides, hunter harvest, and marine gillnets (Calvert et al. 2013). Nest destruction was attributed to haying and mowing, commercial forestry, transmission line maintenance, hydroelectric reservoirs, terrestrial oil and gas activities, mining, and road maintenance (Calvert et al. 2013). The biological significance of what is likely to be low numbers of avian deaths from collision with project infrastructure at this solar facility is expected to be statistically negligible compared to these other sources. Studies like that of Longcore et al. (2013) and Erickson et al. (2014, in revision) suggest that even cumulative avian mortality resulting from thousands of communication towers and wind turbines is likely insignificant for the great majority of species of waterfowl, waterbirds, and songbirds.

Finally, based on the landcover types and habitats present within the Project area, waterfowl/waterbird use of the Project is expected to be very low. Therefore, even if “lake effect” impacts do occur for PV solar projects, this Project is expected to pose a low risk to waterbird/waterfowl species. Monitoring conducted during the post-construction period will be used to validate these predictions.

3.1.2 Electrocution Potential

The potential for electrocutions depends of the arrangement and spacing of energized and grounded components of poles and towers that are sometimes used for perching, nesting and other activities (APLIC 2012). Research has found that nearly all electrocutions occur on smaller, more tightly spaced residential and commercial electrical distribution lines that are less than 69 kV (APLIC 2012).

All transmission and sub-transmission towers and poles will be designed to the extent practicable to be avian safe in accordance with the suggested practices outlined in, "Reducing Avian Collisions with Power Lines: State of the Art in 2012" (APLIC 2012) therefore avoiding the potential for electrocutions.

3.1.3 Habitat Loss or Alteration

Clearing and grubbing construction practices could result in habitat loss and displacement of local bird populations as vegetation communities and existing habitats are altered to support Project development. Altering the landscape through Project development will likely result in the loss of cover, perches, breeding habitat, shelter and foraging sites used by resident species and the loss of perches, roost sites and foraging sites for migratory species. Mojave creosote bush scrub is the vegetation community in the Project area. This vegetation community is dominant throughout Clark County. This community typically is dominated by creosote bush (Larrea tridentata) and white bursage (Ambrosia dumosa) with other associated species. Any effects of habitat loss will be minimized and offset by the conservation measures outlined in Section 4.

3.2 Indirect Impacts

Indirect impacts include changes to the landscape with unintended and often unforeseen consequences to bird populations. Indirect impacts associated with habitat loss, land alterations and Project development on existing bird populations within the vicinity of the Project are not easily assessed or determined.

Potential indirect impacts include:

- territory abandonment, nest and roost site abandonment;
- increased opportunities for predators of special status species;
- habitat fragmentation;
- wildlife avoidance due to increased human presence, noise and light;
- dust and hazardous materials; and
- altered hydrology.

3.2.1 Territory Abandonment, Nest and Roost Site Abandonment

Most wildlife species are susceptible to visual and noise disturbances caused by the presence of humans and construction equipment. Such disturbances can result in the alteration of species' behavior. Noise and visual disturbance caused by construction and vehicles would have the potential to cause nest abandonment or habitat avoidance directly adjacent to and within the proposed Project footprint. Birds avoiding habitat in the vicinity of the Project site may opt for less suitable habitat which could increase stress on these birds as a result of increased energetic

costs. This would also place additional stress on available resources through increased density of birds in off-site areas.

Without the inclusion of conservation measures (see Section 4), direct nest removal during vegetation clearing activities could result in nest and roost site disturbances and territory abandonment.

3.2.2 Increased Opportunities for Predators of Special Status Species

The Project may indirectly result in mortality to wildlife through an increased risk of predation. Some predator species such as ravens and coyotes are attracted to human activity. Installation of fencing and transmission towers create additional perching structures from which ravens and raptors may hunt for prey. Construction, operation, and maintenance of the Project would result in trash and debris that would further attract species, such as ravens (*Corvus corax*) and coyotes (*Canis latrans*). To avoid or minimize human impacts a Worker Environmental Awareness Program (WEAP) and trash abatement program will be implemented (see Section 4).

3.2.3 Habitat Fragmentation

The permanent fencing of the Project area would possibly reduce access for terrestrial species potentially resulting in habitat fragmentation. This fragmentation could cause wildlife to rely more heavily on habitat within the surrounding area for foraging, shelter, and nesting opportunities. This could have an indirect effect on wildlife inhabiting areas adjacent to the Project area. Wildlife inhabiting adjacent areas could be faced with increased competition as a result of the displaced individuals relocating into their home ranges.

3.2.4 Human Presence, Noise, and Light

Indirect impacts to wildlife species would result from human presence, noise, and light in the Project site. Increased levels of noise and human activity could be detrimental to many wildlife species. Noise from construction activities could temporarily discourage wildlife from foraging and nesting immediately adjacent to the Project site. Many bird species rely on vocalization during the breeding season to attract a mate within their territory. Noise levels from certain construction, operations, and decommissioning activities could reduce the reproductive success of nesting birds.

The most common wildlife responses to noise and human presence are avoidance or accommodation. Avoidance would result in displacement of wildlife from an area larger than the actual disturbance area. The total extent of habitat lost as a result of wildlife avoidance response is impossible to predict because the degree of this response varies from species to species, and can even vary between different individuals of the same species. Also, after initial avoidance of human activity and noise producing areas, certain wildlife species may acclimate to the activity and begin to reoccupy areas formerly avoided.

Artificial lighting impacts on wildlife species may include disorientation from and attraction to artificial light, collision-related mortality due to disorientation, and effects on the light-sensitive

cycles of many species (Saleh 2007). Lighting plays a substantial role in collision risk because lights attract nocturnal migrant songbirds, bats, and major bird kill events have been reported at lighted communications towers (Manville 2001). Bright night-lighting close to the ground can attract bats and flying insects and disturb wildlife (e.g., nesting birds, foraging mammals).

Impacts associated with human presence, noise, and light would be reduced through implementation of conservation measures (see Section 4).

3.2.5 Dust and Hazardous Materials

Direct habitat loss and degradation both inside and outside of the Project site could also occur if project activities resulted in release of dust or hazardous materials, resulted in modification of soil erosion or sedimentation rates, or introduced or encouraged the growth of noxious weeds. Hazardous material and pollutant releases could occur as a result of the Project. Materials released could include fuels and other materials used by work crews as part of routine construction and maintenance activities. Hazardous materials could also be released if construction-related excavation were to disturb areas that have existing environmental contamination. Hazardous materials release could impact biological resources by injuring or killing vegetation and wildlife through either short-term acute exposure or long-term chronic exposure. Soil erosion from site grading and use of heavy equipment affects vegetation and soil properties, which could adversely affect wildlife foraging and burrowing habitat on lands outside of the Project boundaries. Noxious weeds could impact wildlife species by displacing native vegetation species necessary for forage or cover.

Impacts associated with dust and hazardous materials would be reduced through implementation of conservation measures for dust control and the management of hazardous materials (see Section 4).

3.2.6 Altered Hydrology

Biological resources could potentially be impacted if the Project were to modify the availability or quality of surface water and/or groundwater. The baseline hydrologic conditions in the Project area, as described in the DEIS suggests that effects on water resources or hydrology resulting from implementation of the Project could include a reduction of groundwater availability for use in the Basin, and could cause an increase in sedimentation and scour in the Project drainages. It could also result in a higher volume of concentrated storm water due to drainage structures.,

Conservation measures designed to protect and mitigate for impacts to intermittent/ephemeral water features and groundwater depletion/quality are described in Section 4.

3.3 Potential Impacts to Special Status Species

As indicated in the DEIS, special status species were evaluated for their potential to occur within the Project site. Evaluation was based on observations recorded during baseline wildlife surveys in September 2014 as well as review of current regional scientific literature and assessing public

biological databases and resources: Nevada Department of Wildlife (NDOW) Diversity GIS Data National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), USGS topographic maps, Nevada Natural Heritage Program (NNHP) database, and aerial imagery as well as review of existing reports that were conducted for similar projects at or near the Project site. The list of federally threatened or endangered species occurring in Clark County was reviewed for potential occurrence in and around the Project area. Species listed under the Endangered Species Act (ESA), and the Bald and Golden Eagle Protection Act (BGEPA) were identified and include the Yuma clapper rail, southwestern willow flycatcher, yellow-billed cuckoo, and golden eagle.

3.3.1 Golden Eagle

The Project does not contain any nesting habitat for golden eagle and nest surveys within 10 miles of the Project identified only four potential raptor nests (red-tailed hawk or golden eagle), three of which were within ½ mile of one another. The nesting substrate observed during the survey was very low quality; therefore, it is highly unlikely that golden eagles nest within 10 miles of the Project. There is potential for golden eagles to use the Project area for foraging, but the 590 acres of this habitat that would be lost is very small (0.02 percent assuming 10-mile foraging area) in comparison to available habitat in the survey area. Golden eagles would be susceptible to visual and noise disturbance, potentially resulting in alteration of foraging behaviors.

Golden eagles would be susceptible to injury and/or mortality from collision or electrocution associated with the short gen-tie line that is part of the Project. The new line would represent a small percentage of the existing transmission lines currently in the vicinity of the Project area and would comply with APLIC standards.

Potential impacts to golden eagles would be reduced through implementation of conservation measures and mitigation measures required for protection of wildlife and other resources (see Section 4).

3.3.2 Yuma Clapper Rail

The Yuma clapper rail was listed endangered under the Endangered Species Preservation Act (ESA) of 1966 on March 11, 1967 (32 FR 4001). The Recovery Plan was finalized in 1983 and portions of the Action Plan were initiated over the ensuring years. Critical habitat has not been designated for the species.

The elusive species occupies marsh-like situations around rivers, ponds, and bogs where emergent vegetation such as cattails, bulrush, and reed grass occur (Eddleman 1989; Todd 1977). Densities of rails are highest in light cattail stands, followed in descending order by light bulrush stands, dense bulrush stands, and dense cattail stands. Stands dissected with narrow channels of flowing water have higher densities of birds. The bird begins nesting in February, with egg-laying occurring from March to July. Clutch size is typically 6 to 8 eggs, and young are precocial.

The Yuma clapper rail climbs around on flattened, floating materials and feeds mainly on crayfish although other invertebrates, arthropods, and fish are eaten as well. Nests can be found in a variety of situations within emergent wetland habitats as long as stable substrates are available (USFWS 1996).

The present range of the Yuma clapper rail in the U.S. includes portions of Arizona, California, and Nevada. The Yuma clapper rail lives in freshwater marshes dominated by cattail (*Typha* sp.) and bulrush (*Scirpus* spp.) with a mix of riparian tree and shrub species (*Salix exigua, S. gooddingii, Tamarix* sp*., Tessaria sericea, and Baccharis* sp.). Field reconnaissance of the Muddy River conducted in September 2014 found that there was no suitable habitat for this species in the vicinity. This species is known to occur along the Muddy River within the Overton Wildlife Management Area, over 15 miles from the Project. There is no suitable habitat within the Project area, though transitory or migratory individuals have the potential to pass over or through the area.

3.3.3 Southwestern Willow Flycatcher

The southwestern willow flycatcher was listed as endangered without critical habitat on February 27, 1995 (60 FR 10694; USFWS 1995). Critical habitat was later designated on July 22, 1997 (62 FR 39129; USFWS 1997). On October 19, 2005, the USFWS re- designated critical habitat for the southwestern willow flycatcher (70 FR 60886; USFWS 2005). A total of 737 river miles across southern California, Arizona, New Mexico, southern Nevada, and southern Utah were included in the final designation. The lateral extent of critical habitat includes areas within the 100-year floodplain. The primary constituent elements of critical habitat are based on riparian plant species, structure and quality of habitat and insects for prey. A recovery plan for the southwestern willow flycatcher was first completed in 2002 (USFWS 2002).

The nearest designated critical habitat is located along the Virgin River approximately 20 miles east of the Project area. No designated critical habitat is found along the Muddy River.

Southwestern willow flycatchers are insectivores that forage within and occasionally above dense riparian vegetation, taking insects on the wing and gleaning them from foliage (USFWS 1997). They generally nest in thickets of shrubs and trees 13-23 feet (min. 5 ft.) or more in height, with dense canopy foliage (>67%) from 0-14 feet above ground (USFWS 1995). Historically, this flycatcher nested primarily in willows, with a scattered cottonwood overstory (USFWS 1997). Habitats not selected for nesting or male song perches were narrower riparian zones, with greater distances between willows stands and individual willow plants. Southwestern willow flycatchers virtually always nest near surface water or saturated soils. Stream gradient might also be an important determinant of habitat suitability. No nest sites have been found along streams with gradients >4%, characterized by almost continuous riffles, rapids, falls, or other cataracts (USFWS 1995). This may be due to higher gradient streams forming or supporting inadequately narrow riparian corridors.

Breeding habitat selection is based primarily on vegetation structure, density, size and presence of water or saturated soils. During field reconnaissance conducted in September 2014, it was determined that habitat for the Southwestern willow flycatcher was moderate to poor at best. The invasive salt cedar (*Tamarix ramosissima*) provided some potential habitat, however the plants appeared to be dead, dying, or in generally poor physical condition. The likely cause is the tamarisk leaf beetle (*Diorhabda elongata*), which has moved into riparian habitats on the Virgin and Muddy Rivers and Meadow Valley Wash after releases in adjoining states, and has resulted in patchy but widespread defoliation of these monoculture tamarisk stands. Thus, potential habitat along the Muddy River is diminishing and will continue to do so unless efforts are undertaken to restore riparian habitats. The USFWS reports that the rapid loss of salt cedar in occupied habitats, without rapid replacement with native species, will likely result in the degradation and loss of habitat (USFWS 2002). This is evident within the survey area. No USFWS designated critical habitat is found within or near the Project site. There is no suitable habitat within the Project area, though transitory or disbursing individuals have the potential to pass over or through the area.

3.3.4 Western Yellow-Billed Cuckoo

On October 3, 2014, the western yellow-billed cuckoo was designated as a threatened species under the ESA (79 FR 59992; USFWS 2014c). The only known nesting sites in Nevada for the western yellow-billed cuckoo are at Warm Springs Ranch Natural Area along the Muddy River in Moapa Valley (Nevada Department of Wildlife [NDOW] 2007). The western yellow-billed cuckoo proposed USFWS Critical Habitat is at least 4 miles northwest of the Project.

The western population of the yellow-billed cuckoo has been associated with cottonwood- willow dominated riparian habitats, with the majority of nests located in willows and, to a lesser extent, in Fremont cottonwoods. Cuckoos have been found nesting in tamarisk and mesquite, with nests generally concealed by willow foliage, but are also concealed by other types of vegetation.

The western yellow-billed cuckoo requires large tracts of undisturbed riparian deciduous forests where willow, cottonwood, sycamore, or alder occur. Cuckoo nests have also been found in areas of tall mesquite with isolated cottonwood trees. Cuckoos prefer dense vegetation with a multi-layered canopy, which creates a humid environment.

Suitable habitat does not occur in the Muddy River proximal to the Project. Additionally, habitat identified by the USFWS as critical near the Warm Springs was recently burned and the habitat quantity and quality greatly diminished therefore this degradation of the critical habitat reduced the source of birds that could have potentially used portions of the Muddy River near the Project. Field reconnaissance of the Muddy River conducted in September 2014 found that there was no suitable habitat for this species (i.e. cotton-willow riparian habitats or undisturbed riparian deciduous forests) in the Project vicinity. However, because this valley contains the Muddy River, transitory or disbursing individuals have the potential to pass over or through the area.

The potential for impacts to these species would be further reduced through implementation of conservation measures required by BLM for protection of wildlife and other resources (see Section 4).

3.4 State Listed Wildlife, BLM Sensitive Wildlife Species, and Selected Birds Protected under the Migratory Bird Treaty Act.

There are a number of species that potentially occur in the area that have been identified by state and federal agencies as sensitive. The following discusses state listed wildlife, BLM sensitive wildlife, and selected birds protected under the Migratory Bird Treaty Act (MBTA).

3.4.1 Burrowing Owl

Burrowing owls inhabit the Mojave Desert portions of Clark County and are protected under the Migratory Bird Treaty Act (MBTA). Burrowing owls in Southern Nevada are active year- round, do not hibernate, and tend to be year-round residents as opposed to migratory (NDOW 2008).

Burrowing owls are found in open dry shrub/steppe grasslands, agricultural and range lands, and desert habitats associated with burrowing animals (NDOW 2010). They consume an assortment of prey items consisting of beetles, grasshoppers, scorpions, small mammals, reptiles, other birds and bats. These owls primarily reside and nest in the abandoned burrows of the desert tortoise, although the burrows of kit foxes and other mammals are used as well. The burrowing owl may be affected by the loss of suitable desert tortoise burrows as a result of the Proposed Project (NDOW 2008). These owls will also use man- made burrows, as well as pipes or small culverts, which are often found on construction sites (NDOW 2008).

Burrowing owl numbers are declining despite protection under the MBTA (USFWS 2007). These owls are not listed as threatened or endangered in Nevada, but biologists are starting to see a range-wide decline due to loss of habitat and collisions with vehicles (NDOW 2008). Loss of habitat from development and construction as well as high mortality rates from collisions with automobiles has caused range-wide decline of this species.

During the 2014 desert tortoise surveys, suitable burrowing owl burrows were documented, as well as one dead individual; no live burrowing owls were observed (Newfields 2014). The entire site is considered suitable foraging habitat for burrowing owls and the species is expected to occur on the site and along the linear facilities, though in very low densities.

The potential for impacts to these species would be reduced through implementation of conservation measures (see Section 4).

3.4.2 Le Conte's Thrasher

The Le Conte's thrasher (*Toxostoma lecontei*) is protected under the MBTA. The Le Conte's thrasher is an Evaluation Species under the Clark County Multiple Species Habitat Conservation Plan (MSHCP). Habitat consists of sparsely vegetated desert flats, dunes, alluvial fans, or gently

rolling hills having high proportion of one or more species of saltbush or shadscale and/or cholla cactus 3-6 feet high. Other desert habitats with similar structural profiles but lacking saltbush/shadscale or cholla cactus also are used. This species rarely occurs in habitats consisting entirely of creosote bush. The majority of shrubs rarely exceed 8 feet in height, except for isolated desert trees, yuccas, or tall, thin shrubs (NatureServe 2009a).

The Proposed Project site is dominated by creosote bush/white bursage habitat and the Le Conte's thrasher is not likely to occur within the area as there is little suitable habitat present. Le Conte's thrashers were not observed in the Proposed Project site and are not known to occur in the vicinity.

3.4.3 Loggerhead Shrike

Loggerhead Shrike (*Lanius ludovicianus*)is a BLM Sensitive Species, protected by the MBTA, and is a year-round resident in Clark County. The Loggerhead Shrike prefers open habitat with perches for hunting and fairly dense shrubs for nesting. Loggerhead Shrikes were not observed in the Project area during surveys, though they are expected to occur. The creosotebush-white bursage and xeroriparian habitats in the project area provide suitable foraging habitat for this species; tamarisk/mesquite habitats provide suitable nesting habitat.

The potential for impacts to these species would be reduced through implementation of conservation measures (see Section 4).

3.4.4 Phainopepla

Phainopepla (*Phainopepla nitens*) is a BLM Sensitive Species, protected by the MBTA, and is a nesting resident in Clark County between February and April. Phainopepla prefers similar habitats as Loggerhead Shrike (described above), though in the desert, Phainopeplas depend on fruiting desert mistletoe (*Phoradendron californicum*), which parasitizes the same trees used for nesting, and produces a stable, long-lasting supply of berries (Chu et. al 1999). No Phainopepla nests were identified during biological surveys, though the species may nest in the xeroriparian and tamarisk/mesquite habitats in the vicinity.

The potential for impacts to these species would be reduced through implementation of conservation measures (see Section 4).

3.5 Avian Risk Reduction Measures

Impacts to wildlife resulting from construction activities and during post-construction operational phases will be reduced through the implementation of applicant-proposed design features and Bird and Bat Conservation Measures (BBCMs). Design features specified in the Applicant's Draft Environmental Impact Statement (DEIS) and the Project's associated management plans would contribute to reducing potential direct and indirect impacts to local and migratory avifauna.

Detailed BBCMs including exclusion zones for bird nests, bat roosts, or other areas of high bird and bat use, presented in Section 4, address general conservation measures to be implemented for the Project, as well as measures specific to each phase of the Project including project siting, facility design and construction, operations and maintenance, and reclamation and decommissioning as outlined in the DEIS.

4.0 BIRD AND BAT CONSERVATION MEASURES

4.1 General Design Features for Ecological Resources

The following general design features will be implemented to avoid or minimize impacts on bird and bat resources, as relevant and applicable. These design features correspond to the requirements within Chapter 5 of the DEIS.

4.1.1 Construction Mitigation Measures

BBCM - 1 **Construction area flagging**. The lease area and ROW boundaries will be flagged prior to beginning construction activities and disturbance confined to the lease area and ROWs, as presented in Chapter 2. A biological monitor will escort all survey crews on site prior to construction. All survey crew vehicles will remain on existing roads and stay within the flagged areas to the maximum extent practicable. In cases where survey vehicles are required to go off existing roads, a biological monitor (on foot) will precede the vehicles.

BBCM - 2 **Worker Environmental Awareness Program (WEAP).** A WEAP 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. WEAP 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.

BBCM - 3 **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.

BBCM - 4 **Raptor control.** The applicant will inspect structures annually for nesting ravens and other predatory birds and report observations of nests to the USFWS 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 APLIC guidelines (APLIC 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.

4.1.2 Operation and Maintenance Mitigation Measures

BBCM - 5 **WEAP training.** WEAP 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 BMPs designed to reduce effects to the desert tortoise.

BBCM - 6 **Speed Limits.** Speed limits within the project area, along transmission line routes, and access roads will be restricted to 25 mph or less during operation and maintenance.

4.1.3 General Biological Mitigation Measures

BBCM - 7 Preconstruction surveys will be conducted by qualified biologists according to the most current USFWS, BLM or NDOW protocols, where available, by species. These surveys would confirm the presence of special status plants, noxious weeds, and general and special status wildlife species, to help prevent direct loss of vegetation and wildlife and to prevent the spread of noxious plant species.

BBCM - 8 Biological monitors will be assigned to the Proposed Project in areas of sensitive biological resources and along all roads used by Project personnel. Biological monitors would be in place along the access road during construction and/or temporary fencing utilized during the construction period to minimize any impacts from vehicle traffic during construction. The monitors will be responsible for ensuring that impacts to special status species, native vegetation, wildlife habitat, or unique resources would be avoided to the fullest extent possible. Where appropriate, monitors will flag the boundaries of areas where activities would need to be restricted to protect native plants and wildlife or special status species. Those restricted areas will be monitored to ensure their protection during construction.

BBCM - 9 The Applicant will implement controls at entry locations to facilitate weed management and invasive species control in order to minimize infestation to the Proposed Project site from an outside source. Trucks and other large equipment will be checked before entering the site for any invasive species debris or seed.

BBCM - 10 Monitoring for the presence of ravens and other potential human-subsidized predators of desert tortoises will be conducted and a Raven Control Plan will be implemented. BMPs to discourage the presence of ravens onsite include trash management, elimination of available water sources, designing structures to discourage potential nest sites, use of hazing to discourage raven presence, removal of nesting material prior to egg laying, and active monitoring of the site for presence of ravens.

BBCM - 11 To minimize activities that attract prey and predators during construction and operations, garbage will be placed in approved containers with lids and removed promptly when full to avoid creating attractive nuisances for wildlife. Open containers that may collect rainwater will also be removed or stored in a secure or covered location to not attract birds.

BBCM - 12 All work area boundaries will be conspicuously staked, flagged, or otherwise marked to minimize surface disturbance activities. All workers, equipment, vehicles, and construction materials shall remain within the ROW, existing roads, and designated areas. Staging areas will be located in previously disturbed areas whenever possible. Crushing of perennial vegetation in work areas will be avoided to the maximum extent practicable.

BBCM - 13 All transmission towers and poles will be designed to be avian-safe in accordance with the *Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006* (Avian Power Line Interaction Committee [APLIC] 2006) and the Avian Power Line Interaction Committee (APLIC 2006) and *Reducing Avian Collisions with Power Lines* by the U.S. Fish and Wildlife Service and the APLIC (APLIC 2012). Additionally, a post-construction bird study will be implemented to monitor for incidents of bird strikes during the operation of the Proposed Project. The scope and protocol of the post-construction surveys for the monitoring and reporting of bird strikes were determined in the Bird and Bat Conservation Strategy (BBCS) developed in coordination with USFWS. If the tubular-H design type transmission pole structures are used the horizontal member of the structure will be fitted with an inverted-Y bar to discourage perching. Similar measures will be used to deter nesting if lattice structures are utilized. The following measures identified in the Bird and Bat Conservation Strategy will also be put into place:

- Areas along the transmission line(s) with a high potential for collision would incorporate flight diverters on the static line to make it more visible. Static

lines are the smallest diameter lines, and potentially the most difficult for birds to see and avoid. Where any pole requiring guy wires is located near areas of concentrated bird activity, guy wires would be marked to increase visibility where possible. Currently, guy wire locations are not known. Post-construction monitoring and adaptive management will clarify areas of concentrated avian and/or bat use as well as areas experiencing a high degree of avian or bat mortality. Flight diverter types and locations would be determined through consultation with the BLM, USFWS, and/or NDOW. The number of structures requiring the use of guy wires would be kept to a minimum.

- To reduce perching along segments of the transmission line, perch deterrents would be installed during construction. Anti-perching and nesting devices are important tools for reducing the risk of avian electrocution and keeping the entire electrical system running smoothly. These deterrents also preclude the use of transmission lines and transmission line towers as hunting perches for raptor species, limiting the predation of other avian species or animals which use surrounding vegetation for foraging and nesting. Exact locations of perch deterrent poles would be determined in consultation with wildlife agencies prior to construction of the line.

- Inspections of lines and other areas where raptor or corvids (e.g. crows and ravens) might nest would be conducted annually. Inactive nests are not protected by the MBTA and removal would be conducted prior to the next breeding season. Should nesting activity become a long-term issue, alternate measures to discourage nesting activities and removal of nesting materials prior to eggs being laid would be implemented. Prior to removing or relocating any nests, facility personnel would consult with USFWS and when necessary, proper permitting would be obtained. More details are provided in the Raven Control Plan that has been developed for the project.

BBCM - 14 Vegetation clearing and ground-disturbing activities would be conducted outside the migratory bird nesting season when practical. If ground-disturbing activities cannot be avoided during this time period, a qualified biological monitor will conduct pre-construction nest surveys.

- For all bird species, surveys would cover all potential nesting habitat in and within 250 feet of the area to be disturbed (as landowner access allows). Any disturbance or harm to active nests would be reported within 24 hours to the USFWS and the BLM, if on BLM lands. The biological monitor would halt work if it is determined that active nests are being disturbed by construction activities and the appropriate agencies would be consulted.

- Qualified biologists would relocate or remove bird nests only after young have fledged and perform any mitigation measures necessary to reduce or eliminate negative effects to birds inhabiting the construction area.

BBCM - 15 A qualified biologist will conduct pre-construction surveys within 30 days prior to construction for Western Burrowing Owls within suitable habitat during the breeding season (February 1 through August 31). All areas within 250 feet of the Proposed Project will be surveyed (if landowner access allows), per USFWS 2007 Burrowing Owl guidance.

- If an active nest is identified, there will be no construction activities within 250 feet of the Burrowing Owl nest location to prevent disturbance until the chicks have fledged or the nest has been abandoned, as determined by a qualified biologist. Buffers may be increased or reduced as needed with the approval of the BLM, and USFWS.

- The occurrence and location of any Western Burrowing Owls will be documented by biological monitors in daily reports and submitted to the authorized biologist on a daily basis. The authorized biologist will report all incidents of disturbance or harm to Burrowing Owls within 24 hours to the USFWS.

BBCM - 16 Lighting would be designed to provide the minimum illumination needed to achieve O&M objectives and not emit excessive light to the night sky by installing light absorbing shields on top of all light fixtures, and focusing desired light in a downward direction (Reed et al. 1985). This would reduce the visibility of the lights to migratory birds traveling through the area. Downward facing lights would also reduce the number of insects attracted to lights resulting in a decrease of potential concentrated feeding areas for bats. Any additional lighting needed to perform activities such as repairs would be kept to a minimum and only used when these actions are in progress.

4.2 Exclusion Zones

Exclusion zones will be established to protect raptor and other bird nests, areas of high bird and bat use, and known bat roosts within the Project boundary and rights-of-way from disturbance related to the construction of the Project. Pre-construction nesting bird surveys will be conducted within 14 days prior to vegetation removal to locate any active passerine nests, burrowing owl burrows, or bat roosts. Vegetation removal will occur outside of the breeding season for special-status bird and bat species to the maximum extent possible. If any active nests, roosts, or burrows are located during these surveys, exclusion zones will be established. The Lead Avian Biologist will be responsible for ensuring all exclusion zones are correctly established and biologists will monitor nest activity to determine nest fate. Biological Monitors

and Avian Biologists working under the direction of the Lead Avian Biologist will also be responsible for managing the collection of data for these exclusion zones, nests, roosts, and burrows.

4.2.1 Passerines

Exclusion distances for active passerine nests will be determined by the Lead Avian Biologist based on species, terrain, habitat type, and existing anthropogenic activity level as these features related to the bird alert distance and bird flight initiation distance (Whitfield et al. 2008). Exclusion zones will initially be a minimum of 100 ft from any active nest. Any changes in this minimum exclusion distance based on circumstances such as topography and type of construction activities would be determined by the Avian Lead. Nests will be checked within a week prior to construction to determine success and whether young have fledged. The exclusion zone boundary will not be removed until the Avian Lead has determined that the nest has failed or the young have fledged.

4.2.2 Raptors and Eagles

Project-related disturbances such as construction traffic, noise, lighting and dust will be avoided within 500 ft (152 m) of an active raptor nest and within one mile of any active golden eagle nest. Any changes in this exclusion distance based on circumstances such as topography and type of construction activities would be determined by the Lead Avian Biologist. All nests will be checked within a week prior to construction to determine nest success and whether young have fledged. The exclusion zone boundary will not be removed until the biological monitor has determined that the nest has failed or the young have fledged.

4.2.3 Burrowing Owls

All active burrowing owl nests will be avoided with an exclusion of 250 ft (76 m) during the nesting season (February 1 – August 31). All occupied burrows outside or adjacent to construction areas will be avoided with an exclusion of 165 ft (50 m) during the non-breeding season (Sept 1 – January 31). Any changes to these exclusion distances, based on circumstances such as topography and type of construction activities, would be determined by the Lead Avian Biologist. Nests will be observed at least one week prior to construction to determine success and whether young have fledged. The exclusion zone boundary will not be removed until the biological monitor has determined that the nest has failed or the young have fledged.

4.2.4 Bats

Construction activities will avoid any bat roost sites, maternity colonies, or hibernacula found during clearance surveys. Appropriate exclusion distances will be established by the Lead Bat Biologist in consideration of the disturbance type, distance to roost or hibernacula, time of year, and the duration of the disturbance.

5.0 CONSTRUCTION AND POST-CONSTRUCTION MONITORING

A monitoring program will be implemented throughout the construction phase of the Project and for at least one year post-construction as specified below. The ongoing monitoring will inform adaptive management decisions regarding any additional appropriate and practicable BBCMs to avoid, minimize, and mitigate for observed impacts.

5.1 Construction and Post-Construction Monitoring

5.1.1 Passerine Nest Surveys and Monitoring

The Applicant will avoid potential impacts to protected birds within the Project area and will attempt to schedule construction activities near nesting areas outside the bird breeding season, which generally occurs from February 15th through August 31st. If construction needs to occur during the breeding season, then a qualified biologist will survey the area for nests 14 days prior to commencement of construction activities. This shall include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests are found, an appropriately-sized buffer area must be established and maintained until the young birds fledge. As the above dates are a general guideline, if active nests are observed outside this range they are to be avoided as described above.

5.1.2 Raptor Nest Surveys and Monitoring

Surveys and monitoring for raptor nests within the Project Site and a 1-mile buffer around the Project Site will be performed during the construction phase of the project, if applicable. These surveys will be conducted once per month during the breeding season (February 1 to August 31) and will entail inspecting all potentially suitable structures and trees in the Project vicinity for the presence of raptor nests to the extent practicable, with some potential access restrictions on private land. Active raptor nests will be monitored twice per month to determine nest fate and make behavioral observations to evaluate the effectiveness of associated exclusion zones.

5.1.3 Raven Management Plan

A Raven Management Plan is being developed for the project site in consultation with BIA, BLM, the USFWS, and NDOW, as required, to minimize the potential for the project to indirectly impact desert tortoises by subsidizing raven populations. The Raven Management Plan may require measures such as annual nest removal by a qualified biologist in consultation with the relevant agencies, removal of carrion from the Project, storage of garbage in raven-proof containers, and installation of anti-nesting devices on structures where raven nests could be built.

5.1.4 Incidental Sightings

Throughout the construction phase of the Project, all incidental sightings of special-status bird species, raptors, bats, and fatalities will be recorded by Biological Monitors and Avian Biologists. The Lead Avian Biologist will be responsible for keeping records and reporting the data.

Incidental data would not be used in quantitative analysis; rather the data would be reviewed for evidence of general changes in species composition that could warrant more focused evaluation.

5.1.5 Avian and Bat Fatality Monitoring Plan

Appendix A provides details of the avian fatality study to be conducted during the post-construction phase of the Project. This study will be implemented for at least one year post construction, with the potential for a second year contingent upon the findings from the first year of surveys. Data and results of the study will be used to inform adaptive management decisions and serve as a basis for avian fatality comparisons across other regional renewable energy projects.

5.2 Risk Assessment Validation

Using data collected throughout this process, the Applicant will attempt to validate the identified risks of the Project. The validation process will use data from ongoing monitoring to evaluate if the implemented conservation measures are adequately minimizing impacts to bird and bat resources to the maximum extent practicable, and if additional and appropriate conservation measures would likely further reduce avian and bat mortality rates. Updates on risk assessment validation will be made during each report as described in Section 6.0.

5.3 Adaptive Management

Adaptive management measures will be implemented during construction and for 1-3 years post-construction. This adaptive management approach will include the following six key concepts described by Williams and Brown (2012):

- Problem Assessment
- Design
- Implementation
- Monitoring
- Evaluation
- Adjustment

The Project will submit mortality survey results to the regulatory agencies on a quarterly basis. The BLM, in consultation with the Project Owner, USFWS and NDOW, will discuss the findings. Further avian and bat mortality monitoring for up to three years post-construction may be implemented to help understand impacts.

Post-construction decision making is complex and the results of action implementation may require several years of assessment before results are apparent. It is important for stakeholders and resource managers to incorporate statistically sound modeling into any iterative feedback

cycle prior to implementation of additional or modified control measures (Williams and Brown 2012).

After end of first year of post construction monitoring, the Project Owner will coordinate with BLM, NDOW, and USFWS to determine if additional monitoring would be required. If additional monitoring is required, triggers and thresholds for additional adaptive management measures will be established at that time.

6.0 REPORTING

Quarterly electronic summaries of all biological monitoring activities will be submitted to BIA, BLM, USFWS, and NDOW as appropriate. The reports will document results of the avian fatality study, and may also include recommendations for possible adaptive management actions.

7.0 REFERENCES

Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC, Washington D.C.

Bald and Golden Eagle Protection Act (BGEPA). 1940. 16 United States Code (USC) § 668-668d. Bald Eagle Protection Act of 1940, June 8, 1940, Chapter 278, § 2, 54 Statute (Stat.) 251; Expanded to include the related species of the golden eagle October 24, 1962, Public Law (PL) 87-884, 76 Stat. 1246. As amended: October 23, 1972, PL 92-535, § 2, 86 Stat. 1065; Nov. 8, 1978, PL 95-616, § 9, 92 Stat. 3114.

Bat Conservation International (BCI). 2014. BCI Species Profiles. BCI, Inc., Austin, Texas. Acessed 2014. Homepage: http://www.batcon.org; Range map data from 2003-2014.

Best, T. L., W. M. Kiser, and P. W. Freeman. 1996. *Eumops perotis*. Mammalian Species 534: 1-8.

Bureau of Land Management (BLM). 2008. Manual 6840 – Special Status Species Management. Available online at http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.43545.File.dat/6840.pdf

Bureau of Land Management (BLM). 2010. Instruction Memorandum No. 2010-156. Bald and Golden Eagle Protection Act – Golden Eagle National Environmental Policy Act and Avian Protection Plan Guidance for Renewable Energy. July 13, 2010. Expires September 30, 2011. Available online at: http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2010/IM_2010-156.html

Bureau of Land Management (BLM). 2011. Do Not Have.

Bureau of Land Management (BLM). 2012a. Approved Resource Management Plan Amendments/Record of Decision (ROD) for Solar Energy Development in Six Southwestern States. October 2012. US Department of the Interior (USDI) BLM. Available online at: http://solareis.anl.gov/documents/docs/Solar_PEIS_ROD.pdf

Calvert, A. M., C. A. Bishop, R. D. Elliot, E. A. Krebs, T. M. Kydd, C. S. Machtans, and G. J. Robertson. 2013. A Synthesis of Human-Related Avian Mortality in Canada. Avian Conservation and Ecology 8(2): 11; http://dx.doi.org/10.5751/ACE-00581-080211.

Endangered Species Act (ESA). 1973. 16 United States Code (USC) § 1531-1544, Public Law (PL) 93-205, December 28, 1973, as amended, PL 100-478 [16 USC 1531 *et seq.*]; 50 Code of Federal Regulations (CFR) 402.

Erickson, W. P., D. Johnson, J. L. Gehring, M. Wolfe, and K. Bay. 2014 (in revision). A Comprehensive Review and Analysis of Data on Small Passerine Fatality Impacts Due to Wind Energy Facilities with Comparisons to Impacts from Communications Towers and Other Sources. PLoS ONE.

Environmental Science Associates (ESA), 2014a. Dry Lake Cactus and Yucca Technical Memorandum. October, 2014.

Environmental Science Associates (ESA), 2014b. Dry Lake Solar Energy Zone Project Parcels 2, 3, and 4 Jurisdictional Delineation Report. October, 2014.

ESRI. 2014. Geographic Information System (GIS) Online Topographic Base Map. ESRI, producers of ArcGIS software. Redlands, California.

Executive Order (EO) 13186. 2001. Responsibilities of Federal Agencies to Protect Migratory Birds. EO 13186 of January 10, 2001. 66 Federal Register (FR) 11: 3853-3856. Published in the FR January 17, 2001. Available online at: https://www.fws.gov/migratorybirds/Partnerships/migbrdeo.pdf

Fletcher, Q. E., R. Fisher, C. Willis, and R. Brigham. 2004. Free-Ranging Common Nighthawks Use Topor. Journal of Thermal Biology 29: 9-14.

Gauthreaux, S.A. Jr. and C. G. Belser. 2006. Effects of Artificial Night Lighting on Migratory Birds. Pp. 67-93. *In*: C. Rich and T. Longcore, eds. Ecological Consequences of Artificial Night Lighting. Island Press, Washington, D.C.

Gauthreaux, S.A. Jr., C. G. Belser, and D. van Blaricom. 2003. Using a Network of Wsr 88-D Weather Surveillance Radars to Define Patterns of Bird Migration at Large Spatial Scales. Pp. 335-346. *In*: P. Berthold, E. Gwinner, and E. Sonnenschein, eds. Avian Migration. Berlin: Springer.

Gehring, J., P. Kerlinger, and A.M. Manville, II. 2009. Communication Towers, Lights, and Birds: Successful Methods of Reducing the Frequency of Avian Collisions. Ecological Applications 19(2): 505-514.

Gehring, J., P. Kerlinger, and A.M. Manville, II. 2011. The Role of Tower Height and Guy Wires on Avian Collisions with Communication Towers. Journal of Wildlife Management 75: 848-855.

Gendron, M. H. and A. C. Smith. 2011. National Harvest Survey. Version 1.2. Migratory Bird Populations Division, National Wildlife Research Centre, Canadian Wildlife Service, Ottawa, Ontario. Available online at: http://www.cws-scf.ec.gc.ca/harvest-prises/def_e.cfm

Great Basin Bird Observatory (GBBO). 2003. Nevada Bird Count. A Habitat-Based Monitoring Program for Breeding Birds of Nevada. Information available online at: http://www.gbbo.org/pdf/Instructions.2003.doc

Jantzen, M. K. and M. B. Fenton. 2013. The Depth of Edge Influence among Insectivorous Bats at Forest-Field Interfaces. Canadian Journal of Zoology 91: 287-292.

Kerlinger, P. 2001. How Birds Migrate. Stackpole Books, Mechanicsburg, Pennsylvania.

Kerlinger, P., J. L. Gehring, W. P. Erickson, R. Curry, A. Jain, and J. Guarnaccia. 2010. Night Migrant Fatalities and Obstruction Lighting at Wind Turbines in North America. Wilson Journal of Ornithology 122(4): 744-754.

Kerlinger, P., J. Guarnaccia, A. Hasch, R. C. E. Culver, R. C. Curry, L. Tran, M. J. Stewart, and D. Riser-Espinoza. 2012. Avian Collision Mortality at 50- and 60-M Guyed Towers in Central California. Condor 114(3): 462-469.

Klem, D. Jr. 2009. Avian Mortality at Windows: The Second Largest Human Source of Bird Mortality on Earth. Pp. 244-251. *In*: T. D. Rich, C. Arizmendi, D. Demarest, and C. Thompson, eds. Proceedings of the 4th International Partners in Flight Conference: Tundra to Tropics. McAllen, Texas.

Longcore, T., C. Rich, P. Mineau, B. MacDonald, D. G. Bert, L. M. Sullivan, E. Mutrie, S.A. Gauthreaux, Jr., M. L. Avery, R. L. Crawford, A.M. Manville, II, E. R. Travis, and D. Drake. 2012. An Estimate of Avian Mortality at Communication Towers in the United States and Canada. PLoS ONE 7(4): e34025. doi: 10.1371/journal.pone.0034025.

Longcore, T., C. Rich, P. Mineau, B. MacDonald, D. G. Bert, L. M. Sullivan, E. Mutrie, S.A. Gauthreaux, Jr., M. L. Avery, R. L. Crawford, A.M. Manville, II, E. R. Travis, and D. Drake. 2013. Avian Mortality at Communication Towers in the United States and Canada: Which Species, How Many, and Where? USDA National Wildlife Research Center - Staff Publications. Paper 1162. http://digitalcommons.unl.edu/icwdm_usdanwrc/1162

Manville, A. 2000. Avian Mortality at Communication Towers: Background and Overview. Pp. *In*: W. R. Evans and A. M. Manville, II, eds. Proceedings of the Workshop on Avian Mortality at Communication Towers; 1-5. Available online at: http://migratorybirds.fws.gov/issues/towers/agenda.html

Manville, A. M. 2001. Avian Mortality at Communication Towers: Steps to Alleviate a Growing Problem. B. B. Levitt, ed. *In*: Cell Towers - Wireless Convenience? Or Environmental Hazard? Proceedings of the "Cell Towers Forum," State of the Science/State of the Law. Dec. 2, 2000. Litchfield, Connecticut. New Century Publishing 2000, Markham, Ontario. Pp. 75-86.

Martin, T.E., and Geupel, G.R. 1993. Nest-monitoring plots: methods for locating nests and monitoring success. Journal of Field Ornithology 64(4):507-519.

Migratory Bird Treaty Act (MBTA). 1918. 16 United States Code (USC) § 703-712. July 13, 1918.

Morris, A. D., D. A. Miller, and M. C. Kalcounis-Rueppell. 2010. Use of Forest Edges by Bats in a Managed Pine Forest Landscape. Journal of Wildlife Management 74(1): 26-34.

National Environmental Policy Act (NEPA). 1970. 42 United States Code (USC) 4321-4370h. Pub. L. 91–190, § 2, Jan. 1, 1970, 83 Stat. 852.

National Invasive Species Council. 2008. 2008-2012 National Invasive Species Management Plan. August 2008. Available online at: http://www.invasivespecies.gov/home_documents/2008-2012%20National%20Invasive%20Species%20Management%20Plan.pdf

Nebraska Natural Heritage Program (NNHP). 2014. Species Data. NNHP, Nebraska Game and Parks Commission (NGPC).

Nevada Administrative Code (NAC) 503.030. Protected, Threatened and Sensitive Mammals. Available online at: https://www.leg.state.nv.us/NAC/NAC-503.html#NAC503Sec030

Nevada Administrative Code (NAC) 503.050. Protected, Endangered and Sensitive Birds. Available online at: https://www.leg.state.nv.us/NAC/NAC-503.html#NAC503Sec050

Nevada Administrative Code (NAC) 503.093. Appropriate License, Permit or Authorization Required to Hunt, Take or Possess Protected Wildlife; Exceptions; Limitation on Possession of Desert Tortoises. Available online at: https://www.leg.state.nv.us/NAC/NAC-503.html#NAC503Sec093

Nevada Department of Wildlife (NDOW). 2012. Nevada State Wildlife Action Plan. Developed by the Wildlife Action Plan Team. NDOW, Reno, Nevada. Submitted September 6, 2012. Approved March 1, 2013. Available online from: http://www.ndow.org/Nevada_Wildlife/Conservation/Nevada_Wildlife_Action_Plan/

Nevada Revised Statute (NRS) 501.105-501.181. 1947. Title 45 - Wildlife; Chapter 501 - Administration and Enforcement. As amended.

Nevada Revised Statute (NRS) 503. Chapter 503 - Hunting, Fishing and Trapping; Miscellaneous Protective Measures. As amended. Available online at: http://www.leg.state.nv.us/NRS/NRS-503.html

NV Dry Lake, LLC. 2014. Plan of Development. Prepared for Bureau of Land Management, Pahrump Field Office. Prepared by NV Dry Lake, LLC With technical assistance from Environmental Science Associates.

Pagel, J. E., D. M. Whittington, and G. T. Allen. 2010. Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance. US Fish and Wildlife Service (USFWS). February 2010. Available online at: http://steinadlerschutz.lbv.de/fileadmin/www.steinadlerschutz.de/terimGoldenEagleTechnicalGuidanceProtocols25March2010_1_.pdf

Patterson, J.W. Jr. 2012. Evaluation of New Obstruction Lighting Techniques to Reduce Avian Fatalities. DOT/FAA/TC-TN12/9. National Technical Information Services (NTIS), Springfield, Virginia. May 2012. Available online from the Federal Aviation Administration William J. Hughes Technical Center at: http://www.faa.gov/about/office_org/headquarters_offices/ang/offices/tc/library/

Raftovich, R. V. and K. A. Wilkins. 2013. Migratory Bird Hunting Activity and Harvest During the 2011-12 and 2012-13 Hunting Seasons. US Fish and Wildlife Service (USFWS), Laurel, Maryland.

Saleh, T. 2007. Effects of Artificial Light on Wildlife. Wildlife CPR Notes.

Shire, G. G., K. Brown, and G. Winegrad. 2000. Communication Towers: A Deadly Hazard to Birds. A Report Compiled by American Bird Conservancy Documenting the Killing of 230 Bird Species. American Bird Conservancy, Washington, DC.

SWCA Environmental Consultants (SWCA). 2009. Dry Lake Integrated Solar Combined Cycle Project Wildlife Report. Prepared for NV Energy. Prepared by SWCA Environmental Consultants. July 2009.

US Department of Agriculture (USDA) National Agriculture Imagery Program (NAIP). 2006. NAIP Imagery and Status Maps.

US Environmental Protection Agency (USEPA). 2007. Level III and IV Ecoregions. National Health and Environmental Effects Research Laboratory, USEPA. Available online at http://www.epa.gov/wed/pages/ecoregions.htm; Level III and Level IV ecoregion data of the continental United States available at http://www.epa.gov/wed/pages/ecoregions/level_iii.htm and http://www.epa.gov/wed/pages/ecoregions/level_iv.htm

US Fish and Wildlife Service (USFWS). 2008. Birds of Conservation Concern 2008. December 2008. Division of Migratory Bird Management. Arlington, Virginia. http://www.fws.gov/migratorybirds/NewReportsPublications/SpecialTopics/BCC2008/BCC2008.pdf

US Fish and Wildlife Service (USFWS). 2009. Title 50 - Wildlife and Fisheries. Chapter I - United States Fish and Wildlife Service, Department of the Interior (Continued). Subchapter B - Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants (Continued). Part 22 - Eagle Permits. Subpart C - Eagle Permits: Permits for Eagle Take That Is Associated with, but Not the Purpose of, an Activity. 50 CFR § 22.26 (a)(2). October 1, 2009.

US Fish and Wildlife Service (USFWS). 2010. Interim Guidance for Solar Energy Facilities.

US Fish and Wildlife Service (USFWS). 2013a. Eagle Conservation Plan Guidance. Module 1 - Land-Based Wind Energy. Version 2. Division of Migratory Bird Management, USFWS. April 2013. Available online at: http://www.fws.gov/migratorybirds/Eagle_Conservation_Plan_Guidance-Module%201.pdf

US Fish and Wildlife Service (USFWS). 2013b. Waterfowl: Population Status, 2013. US Department of the Interior (USDOI), Washington, D.C. July 24, 2013. Available online at: https://www.fws.gov/migratorybirds/NewReportsPublications/PopulationStatus/Waterfowl/StatusReport2013.pdf

Verboom, B. and H. Huitema. 1997. The Importance to Linear Landscape Elements for the Pipistrelle, *Pipistrellus Pipstrellus*, and the Serotine Bat, *Eptesicus Serotinus*. Landscape Ecology 12: 117-125.

Western EcoSystems Technology, Inc. (WEST). 2014. Sources of Avian Mortality and Risk Factors Based on Empirical Data from Three Photovoltaic Solar Facilities. Unpublished review paper.

Whitfield, D. P., A. H. Fielding, D. R. A. McLeod, and P. F. Haworth. 2008. A Conservation Framework for the Golden Eagle in Scotland: Implications for Their Conservation and Management in Scotland. Scottish Natural Heritage Commissioned Report No.193.

Williams, B. K. and E. D. Brown. 2012. Adaptive Management: The US Department of the Interior Applications Guide. Adaptive Management Working Group, US Department of the Interior, Washington, D.C.

Appendix A. Avian Post-Construction Fatality Monitoring Plan

Avian Post-Construction Fatality Monitoring Plan
Aiya Solar Project
Clark County, Nevada

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

REPORT REFERENCE

Western EcoSystems Technology, Inc. (WEST). 2014. Avian and Bat Post-Construction Fatality Monitoring Plan for the Playa Solar Project (Dry Lake Solar Energy Zone Project - Parcels 2, 3, and 4) Clark County, Nevada. Prepared for NV Dry Lake, LLC, San Francisco, California. Prepared by WEST, Cheyenne, Wyoming.

1.0 INTRODUCTION

This Avian and Bat Fatality Monitoring Plan (hereafter referred to as the "Plan") establishes search protocols to monitor avian and bat fatalities at the site, and establishes analytic methods to estimate post-construction avian and bat fatality rates associated with development of the Project. This Plan outlines a standardized approach to document bird and bat fatalities and injuries, and to estimate post-construction fatality rates associated with the Project. In particular, the Plan outlines a statistically sound yet reasonable spatial and temporal sampling plan, including protocols for establishing corrections for detection biases associated with estimating fatality rates, including searcher-efficiency and scavenger removal biases. It describes specific data to collect during scheduled carcass searches, protocols to address any injured birds that are found, and procedures for reporting incidents involving federally or state-listed species to US Fish and Wildlife Service (USFWS) or the Nevada Department of Wildlife (NDOW), as appropriate. This Plan is modeled on the plan for the Silver State Solar South Project, which was approved by BLM and USFWS in February 2014.

1.1 Goals and Objectives

The goal of this Plan is to provide data and analysis that will assess the level of bird and bat fatalities within the PV array field and associated infrastructure (i.e., the perimeter fence and generation tie line [gen-tie line]) over a minimum of one year.

The specific objectives of this Plan are as follows:

1. Conduct fatality searches for at least one year after construction is complete according to a spatial and temporal sampling plan that provides representative and statistically sound coverage of the solar array field, perimeter fence and gen-tie line.
2. Conduct statistically sound assessments to quantify and evaluate carcass removal rates (i.e., carcass removal, destruction, or burial in sand due to scavengers, decay, or other abiotic [e.g., wind] or human [e.g., vehicle activity] factors) and support calculation of adjusted fatality rates that account for variation in carcass removal rates by carcass type/size classes.
3. Use current, scientifically validated and accepted methods for calculating fatality rates adjusted for searcher efficiency, carcass removal rates, and spatial and temporal sampling intensity.

2.0 MONITORING METHODS

2.1 Post-Construction Monitoring

The fundamental components of a sampling program designed to produce valid estimates of fatality rates for a solar facility include sampling methods, spatial sample coverage, temporal sample coverage, adjustment of counts for search efficiency, adjustment of counts for carcass removal, and selection of an appropriate statistical fatality estimator.

The following hierarchical terminology is useful for describing the spatial and temporal sampling design outlined here:

1) **PV module:** the basic unit of a photovoltaic solar facility consisting of a semiconductor material sandwiched between two layers of glass and measuring about 0.6 m by 1.2 m (2 feet by 4 feet)
2) **Row:** A collection PV modules that are mounted on 18-m (60 foot) long steel and aluminum support structures in a horizontal tracking device that follows the sun.
3) **Array:** A collection of rows treated as one electrical system and covering approximately 2.8 ha (7 acres).
4) **PV Array Field,** The composition of all of the arrays that comprise the solar facility.

2.1.1 Sampling Methods

Sampling strategies used in carcass searches at wind facilities have typically involved transect sampling, whereby searchers walk along pre-defined transects and search for carcasses in a swath that may be 10 – 30 m (33 – 98 ft) wide. The layout of a PV array field presents problems for a transect-sampling strategy, but it is highly amenable to a distance-sampling strategy. The problem with transect sampling within a PV array is that the rows of panels are close together (generally less than five m [16 ft]). Because the modules are either fixed-tilt in nature or are mounted on tracking devices to follow the sun, modules may be for most daylight hours off-horizontal and a searcher walking a transect between two rows can only effectively search one side of the transect (a 2.5-m [8.2-ft] swath), and the other side is obscured by the edge of a PV row. Because the transect width is only 2.5 m, transects would need to be four to 12 times as long as if the width was 10 – 30 m to maintain the same search area.

On the other hand, the PV array field (and perimeter fence and gen-tie line) is flat and relatively clear of obstructions (i.e. vegetation), which sets up a scenario that is suitable for a distance sampling design. Distance sampling still involves searchers walking, or driving slowly, a transect line, but the transect is on the roads between solar arrays, and searchers search between the PV rows without leaving the road. Analytically, distance sampling departs from transect survey methodology in its treatment of carcass detection. Distance sampling starts from the assumption that searcher efficiency decreases (possibly dramatically) as a function of distance from the observer. This leads to the expectation that the number of carcasses documented by a searcher will be highest along the transect line, and will decrease with distance from the transect. Searcher efficiency can be estimated as a function of distance using the distance-related decrease in documented carcasses.

For searcher efficiency to be estimated from the carcass data, it is necessary to assume that the probability of carcass occurrence does not change with distance from the transect. If carcass occurrence varied systematically within solar arrays, the detection function and the fatality estimate would be biased. Spatial analysis of carcass distribution from post-construction monitoring at another photovoltaic solar facility in central California (California Valley Solar Ranch; H.T. Harvey and Associates 2014) has indicated no systematic spatial variation of carcasses among the arrays suggesting that distance sampling is a viable option for mortality surveys within PV solar array fields.

One way to conceive of the way distance sampling adjusts carcass counts to account for variable searcher efficiency is that it estimates the *effective* area searched. Effective area is the actual area multiplied by the probability of detection at that distance. As a highly simplified example, if a searcher walks a 10-m long transect line and detects 100% of carcasses within 5 m of the line, 80% of all carcasses 5 to 10 m from the line, and 60% of carcasses that are 10 to 20 m from the line, then the effective area between 0 and 5 m would be $5\,m \times 10\,m \times 1.0 = 50\,m^2$ the effective area searched between 5 and 10 m would be $5\,m \times 10\,m \times 0.8 = 40\,m^2$, and the effective area searched between 10 and 20 m would be $10\,m \times 10\,m \times 0.6 = 60\,m^2$. For the total 10 by 20-m area, the adjustment factor would be $\frac{50\,m^2 + 40\,m^2 + 60\,m^2}{50\,m^2 + 50\,m^2 + 100\,m^2} = 0.75$. In

practice, searcher efficiency is modeled as a continuous function of distance, and the detection function is estimated from the carcass data (as opposed to a bias trial). One advantage to a data-driven detection function is that it is not necessary to specify a transect width: the detection function includes information about the distance at which searcher efficiency drops to zero.

Distance sampling is a mature methodology that is well equipped to estimate population sizes even when the detection function indicates a rapid decay in detectability with distance, and is ideally suited to situations in which animals (or carcasses) are sparsely distributed across a landscape (Buckland et al. 1993). On this basis, fatality sampling will proceed using distance-sampling survey techniques and analytical methods, which include estimating and accounting for distance-related variation in searcher efficiency based on the carcass data. (Carcass removal bias trials will address carcass persistence and are described below.)

2.1.2 Spatial Sampling Design

Recent statistical power and precision analyses provides some guidance for developing a spatial sampling regime (TerraStat Consulting Group 2013). The analyses were based on simulation data assuming a 340 ha (841 acre) heliostat field (similar to Unit 1 at Ivanpah Solar Energy Generation System). The simulations were based on projected sampling across the entire 340 ha site, so the results may not accurately reflect the expectation at facilities of different sizes; nevertheless, the general guidance they provide is useful. The simulation analyses were parameterized based on carcass removal rates and searcher efficiency rates typical of wind-energy studies conducted in desert scrub and grassland in California (e.g. Chatfield et al 2009, Chatfield et al 2010), and incorporated one of several well-studied mathematical approaches for estimating fatality rates adjusted for proportion of area sampled, search interval, searcher efficiency, and carcass persistence (Shoenfeld 2004). The power analyses assessed the effect of varying the proportion of area sampled from 1% to 30%, using search intervals of seven, 21, and 25 days, and simulating four hypothetical mortality rates (0.5, 1.0, 5.0, and 10 fatalities/MW/year), assuming exponentially distributed carcass removal rates with means of 7.4 or 21.8 days and searcher efficiencies of 0.55 and 0.69 for small and large birds, respectively. The simulation results indicated that the 90% confidence interval for the facility-wide fatality estimate narrowed as the survey area increased, as the search interval decreased, and as the simulated mortality rate increased. The coefficient of variation (CV: $100\% \times \frac{standard\ deviation}{mean}$) provides a way to evaluate the relative amount of imprecision in an estimate. The CV is useful because it doesn't depend on the size of the estimate and so can be compared between large and small estimates. Larger values of CV are associated with estimates that are less precise: a CV of 100% indicates an estimate with a standard deviation that is equal to the mean. At all of the simulated mortality rates, and based on a 21-day search interval, the CV for the fatality estimates approached an asymptote once the proportion of area searched reached about 20%. In addition, at the 20% sample level, the CV for the fatality estimates was less than 25% for mortality rates that exceeded 1.0 fatality/MW/year. This level of precision generally is considered adequate for answering the primary questions of interest in such fatality studies (Strickland et al. 2011). At the lowest simulated mortality rate, with a 21-day search interval, the coefficient of variation was above 50% at 20% of area sampled, which would be considered a marginal precision level for answering the questions of interest, but from

a practical standpoint, the importance of precision is diminished when impacts are low (as with low mortality rates).

At the lower simulated mortality rates, increasing the proportion of area sampled from 20% to 30% had less impact on the precision compared to decreasing the search interval from 21 days to seven days. For the two highest simulated mortality rates, however, varying the search interval had less effect on the precision of the adjusted fatality estimates, whether based on 20% or 30% of area sampled, with the CVs remaining between about 8% - 19%. At the 1.0 fatality/MW/year mortality rate with 20% of the area sampled, the CV increased from about 25% with a 7-day search interval to about 40% with a 21-day search interval. At the 0.5 fatalities/MW/year mortality rate with 20% of the area sampled, the relevant change in the CV was from 37% to 57%.

Analysis of data from the California Valley Solar Ranch (CVSR) in San Luis Obispo County, California (H.T. Harvey and Associates 2014) corroborates the simulation results. CVSR is a recently completed 250-MW solar PV facility comprising nine discrete solar arrays, which collectively cover approximately 642 ha (1,586 acres) of primarily degraded annual grassland. Beginning in fall 2012, 100% of two arrays was surveyed weekly for bird and bat fatalities. A total of 175 avian fatalities were found during standardized surveys in the two arrays over 10 months. The Huso (2010) estimator was used to estimate the number of fatalities based on documented fatalities adjusted for searcher efficiency and carcass persistence.

Two methods were used to evaluate the potential effects of reduced search area on fatality estimates. Spatial clustering of fatalities was evaluated using Global Moran's I index, which indicates whether objects are clumped, uniform, or random in their spatial distribution (ESRI ArcInfo 10.0, geographic statistical toolbox). Spatial clumping of fatalities within the individual arrays would introduce additional uncertainty into the fatality estimates if sampling covered considerably less than 100% of the survey area. The second method involved resampling the observed fatality data to generate distributions of fatality estimates that would have resulted from searching less than 100% of the study area. Sample sizes varied from one sample unit (a "tracker unit" comprising 18 rows of solar panels and covering approximately 0.34 ha [0.85 acres]) up to the total number of sample units in the study area (180). For each sample size, 2,000 simulated datasets were generated from the original data. Then, for each simulated dataset, the total number of fatalities for the study area was calculated by scaling the sample count according to the proportion of area represented in the sample. This procedure resulted in a distribution of possible fatality estimates for each level of area sampled. Based on these distributions, means, 90% confidence intervals (CI), and CVs were calculated for each sample size to evaluate the effect of sampling variation on the magnitude and precision of the fatality estimates.

The geospatial analysis indicated that the distribution of fatalities in the two arrays did not differ significantly from a random distribution (H.T. Harvey and Associates 2014). Results of the resampling analysis indicated that the mean fatality estimates and the 90% CIs for those estimates stabilized at about 20% of area sampled (Figure 2). Examined in a different way, the

results indicated that the CVs of the sample distributions declined with increasing sample size and that, again beyond about 20% of area sampled, further increases in area sampled resulted in only small increases in precision (Figure 3). Moreover, at the 20% sample level, the CV for the fatality estimates was well below 20%, which is a level of precision that is considered adequate for answering the primary questions of interest in such fatality studies (Strickland et al. 2011). With regard to applying these results to other sites, it is important to note that the results may be sensitive to: 1) the relative proportions of large and small birds represented in the fatality sample, which were combined for this analysis; 2) the number and distribution of fatalities across the site; and 3) the influence of variation in searcher efficiency and carcass persistence.

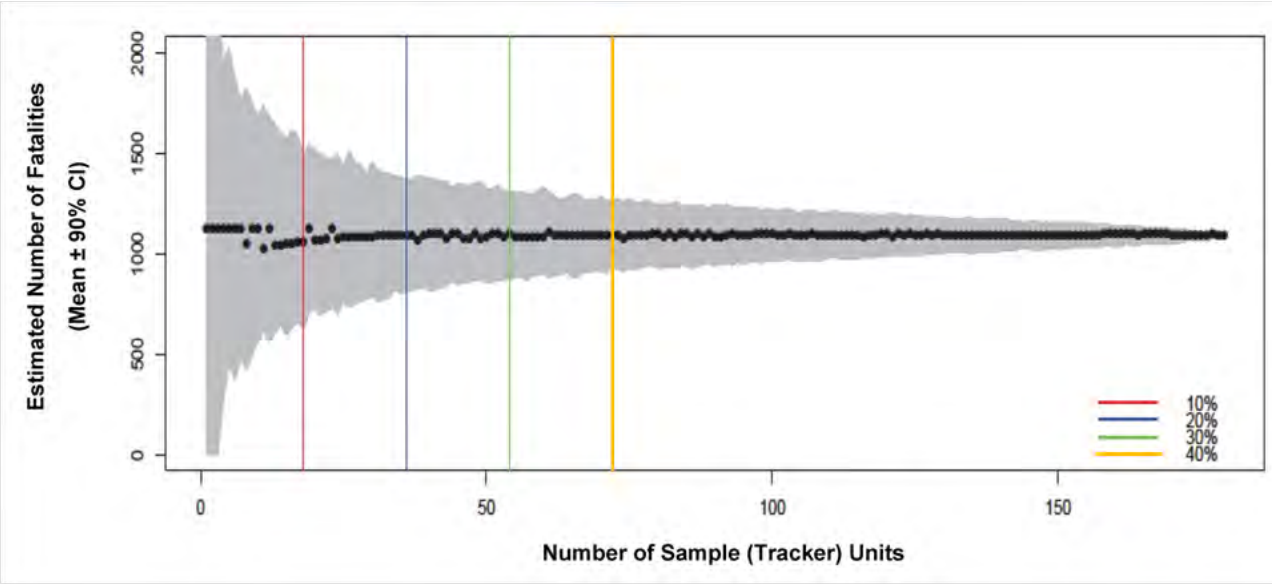


Figure 2. Resampling results from the California Valley Solar Ranch illustrating how the accuracy and precision of fatality estimates and varies with proportion of area sampled.

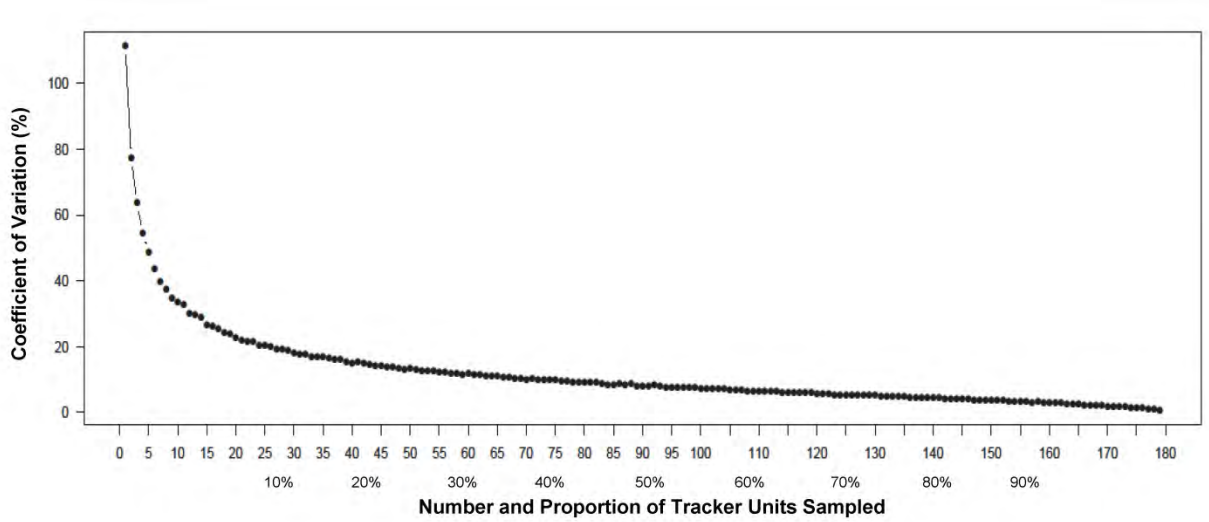


Figure 3. Resampling results from the California Valley Solar Ranch illustrating how the coefficient of variation for fatality estimates varies with proportion of area sampled.

Based on the simulation analyses and the data from CVSR, the Applicant will employ a conservative mortality monitoring methodology such that initial sampling will encompass approximately 25% of the solar arrays, perimeter fence, and gen-tie line. To ensure representative coverage of the PV array field, perimeter fence, and gen-tie line, arrays and portions of the perimeter fence and gen-tie line to be sampled ('sampling units') will be chosen in a systematic design with a random start point.

Observers will survey sampling units by either walking or driving slowly along the outer edges of rows, along the perimeter fence, or under the gen-tie line, scanning between each row or along the linear features for fatalities. Each side-specific survey within the array field will cover half the width of the array (Figure 4). Observers will carry binoculars, which they will use at their discretion to help identify objects that may be carcasses. The walking or driving surveys of the arrays will occur along roadways that run perpendicular to the rows, to facilitate scanning between rows. The perimeter-only survey design reflects two concerns: 1) minimizing movement between rows of solar panels, because the area between electrified panel rows is an area of elevated risk and best practices are to avoid sending personnel into elevated risk zones unnecessarily; and 2) achieving an effective balance between logistic efficiency and sampling rigor. In support of the latter objective, a field trial was conducted at another California solar facility (Desert Sunlight) to evaluate the ability of observers to detect carcasses of different types and sizes based on perimeter-only surveys (H.T. Harvey and Associates 2013). The field-trial surveys involved walking along edges of arrays perpendicular to the rows of panels and using naked-eye and binocular-aided scanning to search for placed carcasses of five non-native bird species, ranging in size from small house sparrows (*Passer domesticus*) to large ring-necked pheasants (*Phasianus colchicus*). Results showed that effective sampling for medium and larger birds could be expected to extend to 140 m, and for smaller birds or bats, effective sampling could extend to 35 to 70 m. Given the considerably smaller width (18 m) of sampling units at the Project, distance sampling is expected to produce acceptable searcher efficiency.

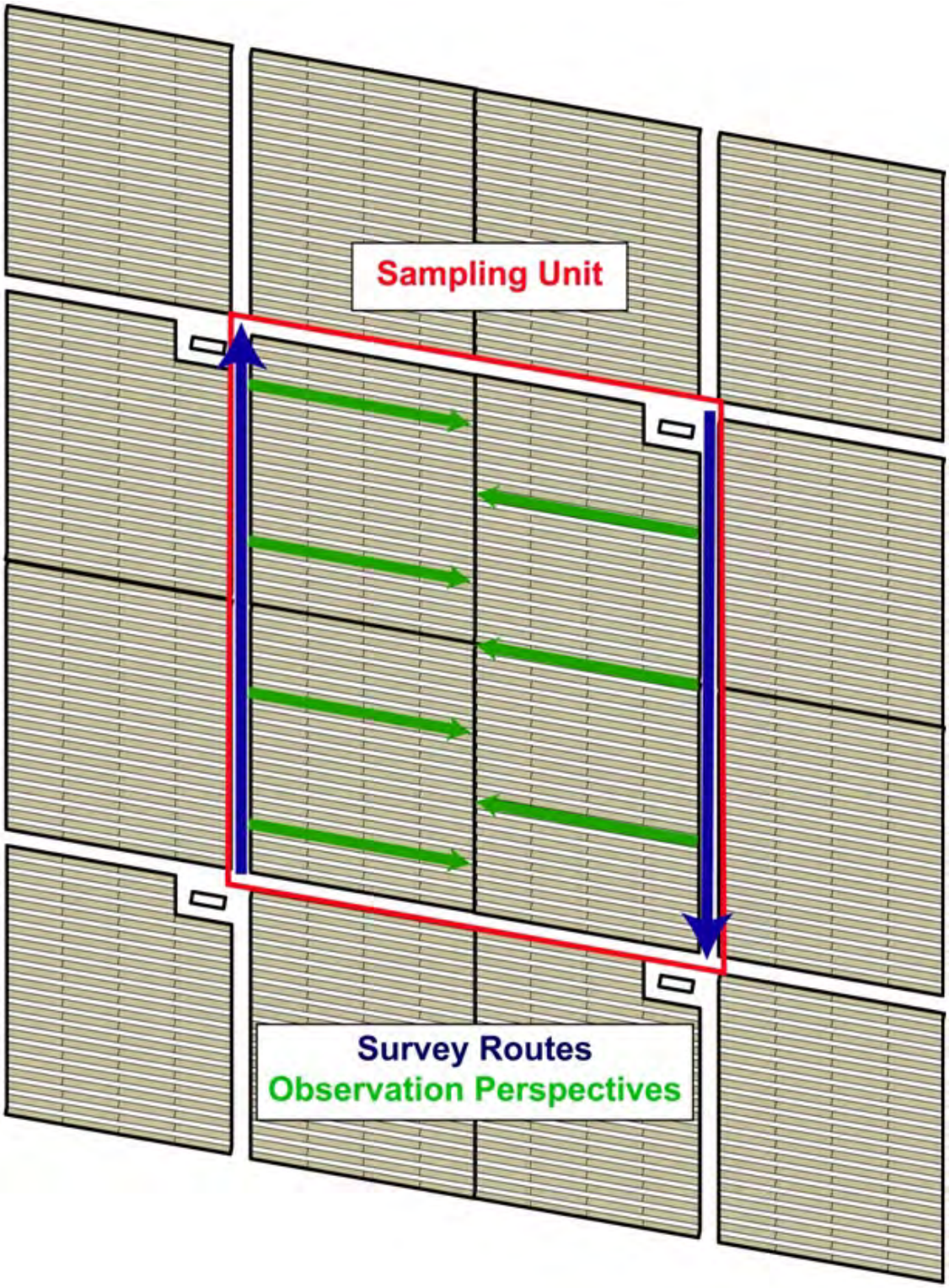


Figure 4. Illustration of a typical sampling unit and perimeter survey with travel routes and search areas ('observation perspectives').

2.1.3 Gen-tie Line

Overhead power lines present a potential collision threat both inside the solar farm, where 34.5kV lines connect array blocks to the onsite substation, and outside the solar farm, where a 230kV line transmits energy to NV Energy's existing Harry Allen Substation. The distribution of birds killed or injured as a result of colliding with overhead lines depends on several factors, including species, flight speed, wind and height of the lines above ground. Overhead lines within the solar farm are typically suspended on wood poles (≤75ft high) alongside access roads where an absence of vegetation enhances search detections, but along the Gen Tie line, taller (≤130ft) monopole support structures spaced more widely over uneven terrain and vegetative cover will reduce sample efficiency. To account for these differences:

- Surveys along the Gen-tie line will be conducted as a 40m wide belt transect with passes centered 10m apart (at 5m and 15m respectively) on each side of the line.
- The gen-tie will be divided into 20 segments of equal length and sampled using a systematic sample with a random start point.
- Five segments will be included in the sample.

2.1.4 Perimeter Fence

The Project will be bounded by a chain-link security fence. Fences that interrupt unbroken, open expanses, with few intervening obstacles present a potential collision threat to flying birds; especially in low-light conditions. The nature of the barrier results in associated fatalities remaining close to the fence, a phenomenon that supports high search efficiency from a relatively narrow search transect. This search will be conducted for at least one year to determine if longer term monitoring is necessary.

- The perimeter fence will be divided into 20 segments of equal length. A start segment will be randomly selected and sampled using a systematic sample with a random start point. Five segments will be included in the sample.
- Surveys of perimeter fencing will be conducted as two 10m wide transects. One transect will be centered 5m from the fence line, outside of the project footprint and the second transect will be centered 5m from the fence line inside the project footprint. Surveyors will search 5m on either side of the transect line. Both transects will cover the same predetermined segments.

2.1.5 Temporal Sampling Design

The appropriate frequency of fatality surveys depends on the species of interest and average carcass persistence times (Smallwood 2007, Strickland et al. 2011, USFWS 2012). Large raptors tend to persist and remain detectable for extended periods (weeks to months) due to low scavenging rates and relatively slow decay rates. If only large species were of interest, extended search intervals of 30–45 days might be appropriate; however, smaller birds and bats typically disappear at much faster rates, so shorter search intervals are required to ensure effective documentation of fatality rates among these species. Carcass persistence times may vary substantially depending on the habitat, the types of scavengers present, climatic conditions, the season, and the number of carcasses typically present on the landscape (Smallwood 2007, 2013).

The search interval for fatality monitoring ideally should not be more than twice the median persistence time for a carcass. Comparative analyses have demonstrated, however, that biases can be limited by using different analytical methods to estimate fatality rates corrected for searcher efficiency and carcass persistence, depending on whether the search interval is shorter or longer than the average carcass-persistence time (Huso 2010, 2012; Korner-Nievergelt et al. 2011; Strickland et al. 2011).

The search interval for fatality monitoring will be decided in consultation with the BLM.

2.1.6 Survey and Data Collection Protocols

Policies outlined in the First Solar Wildlife Incident Reporting Procedures (Appendix A) generally guide the protocols specified here.

Fatality surveys will be conducted on foot or by slow moving vehicle, with the observers striving for a consistent pace and approach, and a uniform search effort throughout the search. Searchers will use binoculars at their discretion to survey for carcasses between each row of panels. When on foot, monitors will never be far from a truck with air conditioning and will be encouraged to take breaks. Additionally, Playa Solar, LLC has rigorous safety protocols that address heat issues.

If an observer detects a potential carcass or injured bird or bat, the observer shall immediately proceed down the row to confirm the detection and, if valid, fully document it according to standard protocols (see below). For those species protected pursuant to relevant federal or state law, carcasses and injured animals cannot be handled unless appropriate permits are obtained. To avoid counting carcasses multiple times during successive searches, the observer will mark the carcass by placing a brightly colored pin-flag next to it.

Carcasses will be classified as a fatality according to commonly applied standards (California (Altamont Pass Monitoring Team 2007, CEC and CDFG 2007), which dictate that when only feathers are found, to be classified as a fatality, each find must include a feather spot of at least five tail feathers or two primaries within five meters (16.4 ft) or less of each other, or a total of 10 feathers. Searchers will make their best attempt to classify feather spots by species and/or size according to the sizes or identifying features of the feathers. If size classification is impossible, these fatalities will be assigned to large or small bird categories at random, in proportion to the observed data so that they can be included in the fatality estimates. Digital photographs will be taken to document all incidents, and when possible, plausible cause of death will be indicated on data sheets based on evidence (such as blood or fecal smears on solar panels, burns that may indicate electrocution or blunt trauma that may indicate collisions).

Two additional protocols will be followed to ensure accurate distance-based estimation of fatality densities. First, to ensure accurate delineation of the fatality locations, the observer will record both Global Positioning System (GPS) coordinates at the site of the fatality, using a handheld device accurate to ± three to four meters (9.8 to 13.1 ft), and a measurement of the distance from the fatality location to the end of the panel row from which the carcass was detected, using

a laser rangefinder accurate to one or two meters (3.3–6.6 ft). To ensure precise measuring with a laser rangefinder, before proceeding down the row, the observer will place a marker at the beginning of the row that is known to serve as a reliable laser reflection point. Second, when an observer proceeds down panel rows to confirm and document detected fatalities, they may detect other fatalities that they did not observe based on the perimeter-only survey. Including such detections in the fatality estimate will confound estimation of fatality density based on application of standard distance-sampling analytical methodology. Therefore, all such supplementary detections will be classified as "incidental" finds (discussed further below) and will be excluded from calculation of adjusted fatality estimates.

Data records for each survey will also include: 1) full first and last names of all relevant surveyors in case of future questions; 2) start and stop times for each individual sampling-unit survey; 3) a description of the weather conditions during each search; 4) a standardized description of the current habitat and visibility classes represented within each sampling unit; and 5) a description of any search-area access issues, if relevant.

Surveyors will record any injured or rescued birds and bats found during the surveys. Observers will immediately report injured birds and bats to the nearest permitted rehabilitation facility for rescue and proper care. Waterbirds that are stranded and unable to take off but otherwise uninjured will be immediately reported to the nearest permitted rehabilitation facility for rescue. Injured raptors will be handled only by experienced personnel and will be taken only to rehabilitation facilities that are permitted to handle raptors; this provision is particularly important for eagles. From the Project site, the closest rehabilitation facility capable of handling all avian and bat species (respectively) is:

- Animal Kingdom Veterinary Hospital, 1325 Vegas Valley Dr, Las Vegas, NV 89169. Phone: (702) 735-7184.

If a surveyor discovers a dead individual of a species that is fully protected federally or by the state or state-listed as threatened or endangered, he/she will collect data and photos as for any other fatality. If it is a federally or state-listed species, the surveyor will within 24 hours contact a USFWS or NDOW office (as applicable) to determine the appropriate follow-up action.

2.1.7 Incidentally Discovered Carcasses and Fatalities

Bird and bat carcasses that are discovered incidentally will be documented and reported under the First Solar Wildlife Incident Reporting Procedures, but will not be included in fatality estimates. The statistical assumptions necessary in a distance sampling framework preclude using incidental discoveries in fatality estimates. However, in keeping with the general goal of providing a bellwether assessment of bird and bat fatality in the PV array field, incidental reporting of fatalities and injuries are another mechanism by which problematic fatality events may be detected.

2.1.8 Searcher-Efficiency

Estimating searcher-efficiency (distance-related detection functions) is a standard component of the distance-sampling approach. Moreover, because estimating detection functions is applied to all survey data and can be organized to variably adjust in relation to covariates of interest (e.g., season, habitat, and carcass size classes), application of this approach can account for typical factors of interest for fatality studies (CEC and CDFG 2007, Huso 2010, Korner-Nievergelt et al. 2011, USFWS 2012, Smallwood 2013). In the context of a distance sampling strategy, searcher efficiency trials are not needed.

2.1.9 Carcass Removal Assessments

The degree to which carcasses persist on the landscape depends on a variety of factors reflecting seasonal and inter-annual variation in landscape/climatic conditions and the scavenger community. The composition and activity patterns of the scavenger community often vary seasonally as birds migrate, new juvenile birds and mammals join the local population, and mammalian scavengers variably hibernate or estivate. The scavenger community may also vary substantially from year to year because of variation in annual reproduction and survival related to changes in landscape condition. Seasonally and annually variable climatic conditions also may contribute to variation in carcass decay and removal rates due to variation in temperatures, solar insolation, wind patterns, and the frequency of flooding events. Therefore, to ensure accurate treatment of this bias factor, carcass-removal rates typically are assessed on a quarterly or at least semi-annual basis during each year that fatality surveys are conducted (USFWS 2012, Smallwood 2013). It is also imperative that carcass-removal trials effectively account for the influence of carcass type/size, given that persistence times may vary widely depending on the species and size class involved (Smallwood 2013).

To quantify carcass removal rates, At least ten fresh carcasses in each size class will be distributed in each season to assess carcass removal throughout the year, and carcasses will be dispersed to random locations throughout the study site and a few at a time to avoid affecting scavenger behavior. The carcasses will be monitored using motion-triggered, digital trail cameras (e.g., see Smallwood et al. 2010), for 30 days or until the carcass has been removed to the point where it would no longer qualify as a documentable fatality. Fake cameras or cameras without bias trial carcasses will also be placed to avoid training scavengers to recognize cameras as “feeding stations”. To minimize potential bias caused by scavenger swamping (Smallwood 2007, Smallwood et al. 2010), carcass-removal specimens will be distributed across the entire Solar Facility, not just in areas subject to standard surveys. Unlike many carcass removal bias trials, this protocol relies entirely on data from trail cameras to establish time to removal. This may result in some data loss, or the introduction of a conservative bias (if carcasses are moved from the camera field of view but not fully scavenged), but the protocol reflects the notion that the goal is to detect problematic levels of impact.

Trial specimens will include only intact, fresh (i.e., estimated to be no more than one or two days old and not noticeably desiccated) bird carcasses that are either discovered during the study or are acquired from other sources after having been frozen immediately following death. Fresh

carcasses that are discovered during searches will be preferred to surrogates, such as game birds and domestic waterfowl, because the scavenging rates for these birds may be artificially high (Smallwood 2007, 2013). Carcasses discovered during searches will need to be monitored where they are found, rather than randomly placed.

To reduce possible biases related to leaving scent traces or visual cues that may unnecessarily alert potential scavengers, all carcasses used in carcass-removal trials will be handled with latex gloves, and handling time will be minimized. All trial specimens will be inconspicuously marked with a small piece of green electrical tape wrapped around a leg to distinguish them from unmarked fatalities.

Upon conclusion of the relevant monitoring period, each trial specimen will be classified into one of the following categories:

Intact: Whole and unscavenged other than by insects

Scavenged/depredated: Carcass present but incomplete, dismembered, or flesh removed

Feather spot: Carcass scavenged and removed, but sufficient feathers remain to qualify as a fatality, as defined above

Removed: Not enough remains to be considered a fatality during standard surveys, as defined above

2.1.10 Estimating Adjusted Fatality Rates

The sampling design will enable calculation of fatality estimates adjusted for searcher-efficiency, carcass-removal rates, and proportion of area sampled. The adjustment for searcher efficiency will occur by virtue of applying standard methods for analyzing detection data collected using distance-sampling methods.

The fatality estimates will be adjusted for variation in carcass persistence, by applying seasonal and carcass-size-specific correction factors to the fatality estimates that have been adjusted for distance-related variation in the probability of detection.

The analytical approach used to calculate adjusted fatality estimates will be similar to that applied in cases where the fatality estimates are derived from strip transects. It is instructive to briefly review the history of methodologies applied in the context of renewable-energy studies, relevant insights about important factors to consider, and example formulations that will be applicable. It is also important to recognize that developing methods for conducting fatality surveys and associated bias trials, and for deriving accurate, adjusted, facility-wide fatality estimates is an actively evolving science. Accordingly, the analytical methods ultimately applied in this investigation may evolve over time to ensure application of the most current, rigorous and scientifically sound methods.

The recent history of estimating bird and bat fatalities at renewable-energy facilities involves use of primarily four estimators (Korner-Nievergelt et al. 2011, Smallwood 2013, Warren-Hicks et al.

2013). Erickson et al. (2000) and Johnson et al. (2000, 2003) first developed and used a "naïve" estimator, representing a straightforward adjustment of the raw fatality count for the probability of carcass persistence and probability of detection. Shoenfeld (2004) modified the "naïve" estimator by assuming a Poisson process for the occurrence of bird deaths and scavenger removal, with that modification applied by Kerns and Kerlinger (2004) and Erickson et al. (2004). The modified estimator proved to be biased low, however, after which Smallwood (2007) developed an estimator that incorporated an adjustment for periodic repetition of search events. Yet in practice, periods between searches often are inconsistent, which violates a primary assumption of Smallwood's estimator. Huso (2010) then conducted simulations and conceptualized the logic behind development of a new estimator, based on Thompson (1992). Huso's estimator is more flexible than the Shoenfeld and Smallwood estimators because it allows for unequal probability sampling, accounting for potential differences in searchability among plots and variation in detectability due to carcass size or type of habitat. It also incorporates an "effective search interval," based on the mean carcass persistence time, which is defined as the length of time during which the probability of a carcass persisting is more than 1%. Based on simulations, Huso (2010) found that her estimator was consistently less biased than the Shoenfeld and Smallwood estimators. In addition, although the Shoenfeld estimator could perform similarly under certain conditions (e.g., when search intervals are relatively long [14–28 days] and mean carcass-persistence time is relatively short [less than 16 days]), Arnett et al. (2009) found that it greatly underestimated fatality when search efficiency was low (e.g., 13% for some bats).

A potential problem with both the Huso and Shoenfeld estimators is that their formulations assume that a given carcass is available to be discovered by a surveyor only once (Huso 2010), or that it is detectable with the same probability until it is removed (Shoenfeld 2004). In other words, the estimators make unrealistic assumptions about the probability that a carcass can be discovered in a subsequent survey if it was missed during the first survey conducted after deposition on the landscape. The idea that a given carcass may persist through more than one survey period is called "bleed through" (Smallwood 2013, Warren-Hicks et al. 2013).

More recently, Korner-Nievergelt et al. (2011) developed a new estimator, based on an explicit process model built from the conceptual model originally developed by Baerwald and Barclay (2009), which allowed for detection of carcasses during repeated searches, and accommodated decreasing searcher efficiency in repeated searches due to factors such as carcass decay. Based on simulations, they found that the Shoenfeld (2004) estimator generally underestimated fatalities unless carcass-persistence time was long. They found that the naïve (Johnson et al. 2003) and Huso (2010) estimators overestimated fatalities when searcher efficiency was constant (and low for the Huso estimator), the search interval was short (1-, 7-, and 14-day intervals were analyzed), and average persistence time was long (30 days), but both estimators performed well when searcher efficiency decreased over time. The Korner-Nievergelt estimator appeared unbiased under all simulated scenarios where searcher efficiency and the probability of carcass removal remained constant over time, but it underestimated fatalities when searcher efficiency decreased over time. The Huso estimator proved robust when searcher efficiency and the probability of carcass removal decreased over time, whereas the Korner-Nievergelt

estimator appeared robust to decreasing removal probability, but underestimated fatalities when searcher efficiency decreased over time and the search interval was short. All of the compared estimators were similarly biased low when the probability of carcass removal was high and increased through time. In the end, Korner-Nievergelt et al. (2011) concluded that no single estimator consistently outperformed the others and was likely to work optimally in all study situations. For this reason, the estimator that will ultimately be used for this study will depend on the conditions measured at the site.

The expectations for the survey area (subject to modification as data are collected) are that: 1) overall searcher efficiency will be high and remain relatively constant through time; 2) carcass persistence times will be short to moderate; 3) the probability of carcass removal will decrease over time (because hot, dry conditions rapidly dry out carcasses, rendering them unattractive to scavengers). Therefore, based on the insights outlined above, analogs of both the Huso and Korner-Nievergelt estimators should perform well for the Project. Korner-Nievergelt et al. (2011) touted their new estimator as adaptable to different situations, because it was based on an explicit process model; however, the Huso (2010) estimator and related software (Huso et al. 2012; developed for wind-energy assessments but easily adaptable to solar-energy investigations) incorporates additional parameterization to model the influence carcass removal of covariates, such as season, carcass type/size, and habitat visibility classes.

For illustrative purposes, we summarize here a modification of the Huso estimator that accommodates distance sampling. The Huso estimator is currently the best-suited estimator for the proposed study design, but it should be noted that fatality estimation is an area of active research and 'best methods' are changing rapidly. The model is formulated in terms of different strata, or groups. Essentially, the smallest group for which fatalities are estimated can be considered a stratum, with stratum *k* representing, for example, a set of similarly sized birds within a defined habitat visibility class. Note that strata should be defined to ensure minimum variance in detection probabilities within individual strata, whereas probabilities may vary considerably among strata (e.g., for small versus large birds, or in habitats of low versus high visibility). Depending on the circumstances, there can be strata based on species groups, size classes, seasons, habitats, and/or infrastructure types.

For a particular stratum *k* for a given survey plot and search interval, fatality can be estimated as:

$$\hat{F}_k = \frac{c_k}{g_k},$$

where c_k is the number of observed carcasses and g_k is the probability of detecting a carcass. For simplicity, we drop the notation for stratum, understanding that the following applies to each stratum.

The detection probability *g* typically is the product of three variables: the probability of a carcass persisting (*r*), the probability of a carcass being observed given that it persists (*p*), and the effective proportion of the interval sampled (*v*):

$$\hat{g} = \hat{p} * \hat{r} * \hat{v} .$$

The probability of a carcass being observed given that it persists (i.e., searcher efficiency) is estimated using techniques for analyzing distance sampling data (Buckland et al. 1993). Without going into detail, detection (*d*) is estimated from the carcass data as a function of distance, (*x*):

$$\hat{d} = \hat{f}(x)$$

and the overall probability of detection is the average value of the detection function between 0 (carcasses on the transect line) and some distance, *w*, which is the width of the search area (half the width of an array row):

$$\hat{p} = \frac{\int_0^w \hat{f}(x)\, dx}{w}$$

The probability of a carcass persisting is estimated as:

$$\hat{r} = \frac{\bar{t}(1 - e^{-I/\bar{t}})}{I},$$

where $\bar{t}$ is the estimated mean carcass persistence time and *I* is estimated as:

$$I = \min(I_a, \tilde{I}),$$

where I_a is the minimum actual time between searches and $\tilde{I}$ is the effective search interval, defined as:

$$\tilde{I} = -\log(0.01) \cdot \bar{t} .$$

The effective proportion of the interval sampled is estimated as:

$$\hat{v} = \min(1, \tilde{I} / I_a) .$$

For a given plot in search interval *j*, the adjusted total number of fatalities is calculated as:

$$\hat{F}_j = \sum_{k=1}^{K} \hat{F}_{jk} \ ,$$

where $\hat{F}_{jk}$ is the estimated number of fatalities within stratum *k* of search interval *j*.

Finally, the estimate of Project-wide total fatalities during a given search interval is estimated as:

$$\hat{F} = \frac{1}{a} \times \left(\sum_{i=1}^{n} \sum_{j=1}^{J} \widehat{F_{ij}} \right)$$

where $\hat{F}_{ij}$ is the number of fatalities on plot *i* in search interval *j*, and *a* is the proportion of sample units that was searched. The total number of searched sample units is *n*, and the number of search intervals is *J*, assuming that there is the same number of search intervals for each plot. In practice, one need not assume that *J* is constant, but presenting it this way simplifies the notation.

Adjusted fatality estimates for the Solar Facility will be expressed per MW of nameplate capacity per year.

2.1.11 Clearance Surveys

A clearance survey will be conducted beginning 14 days before the first round of official surveys begins. The purpose of this survey will be to clear the survey area of any accumulated carcasses that may be present. This is necessary to ensure that carcasses detected during the first round of surveys represent only fatalities that occurred during a preceding interval equivalent to the search interval that will apply afterward. Carcasses that are missed during the clearance survey will cause an upward (conservative) bias in the fatality estimate.

2.1.12 Minimum Credentials of Monitoring Personnel or Appropriate Training

Monitoring personnel may include solar facility staff. Monitors will be trained in distance-sampling search methodology, correct identification and documentation of carcasses, implementation of carcass removal trials and notification of a rehabilitation center in the event of injured birds or bats. Only staff/technicians that are listed under the SPUT permit will be allowed to handle carcasses. Accurate identification of rare, special status species will be emphasized during training. Training of personnel in monitoring methods will occur over a 2-day period and will be conducted by a qualified biologist prior to initiation of the study. Components of the training program will include:

- A classroom-based portion with lecture and handout materials, and photographic or specimen-based (if available) species identification;
- A field-based portion that allows trainees the opportunity to practice and receive feedback on conducting carcass searches and trials, identification of species, completing data forms, and following protocols for assessing and assisting injured birds and bats.
- Assessment of learning outcomes for each participant.
- A training log to be updated with each trainee's name and contact information upon successful completion of the course.

The biologist that will conduct the training will, minimally, have a master's degree in biological sciences, zoology, botany, ecology, or a related field, and at least one year of field experience with avian or bat research or monitoring in the region. A qualified biologist will be on call to assist with species identification (e.g., via review of photographs or onsite assistance if necessary) and other aspects of reporting.

3.0 REPORTING TO THE BLM

Playa Solar, LLC will maintain an internal system in which to organize information derived from this monitoring program. This internal system will be designed to provide comprehensive tracking of survey effort, details of documented injuries and fatalities, and any relevant actions/responses taken to rectify or mitigate documented issues.

After the fourth quarter of monitoring, Playa Solar, LLC or its consultants will prepare and submit to the BLM a report that will summarize the dates, durations, and results of all fatality monitoring conducted to date. The report will analyze any Project-related bird and bat fatalities or injuries detected; and provide context for the findings in the form of fatality rates at similar PV solar facilities or suitable reference sites. If the BLM determines, based on post-construction monitoring, that bird mortality caused by solar facilities is substantial and is having potentially adverse impacts on special-status bird populations, they may recommend adaptive management strategies such as installing additional bird flight diverters, alterations to project components that have been identified as key mortality features, or implementing other appropriate actions to address the relevant findings based on the data. To address the specific objectives of the monitoring plan, summary reports will include overall fatality estimates with confidence intervals.

4.0 ADAPTIVE MANAGEMENT

It is important for stakeholders and resource managers to incorporate statistically sound modeling into any iterative feedback cycle prior to implementation of additional or modified control measures (Williams and Brown 2012). However, the dearth of information pertaining to avian mortality at large-scale photovoltaic solar energy facilities makes the establishment of additional adaptive management recommendations and trigger thresholds difficult. The Project will continue to consult with BLM, USFWS, and NDOW to determine if any additional

management action, including changes to the monitoring protocol, may be needed based on the initial results of the mortality surveys.

Mortality monitoring protocols must also integrate with other monitoring components of the Project, including the Raven Management Plan. For example, if monitoring data suggests an increase in Raven activity in the Project area as a consequence of Carcass Removal Trials, adaptive management may be required to address both the methods and metrics of all associated protocols.

5.0 LITERATURE CITED

Altamont Pass Avian Monitoring Team. 2007. Altamont Pass Wind Resource Area Bird and Bat Monitoring Protocols. Accessed June 2013. Available online at: http://www.altamontsrc.org/alt_doc/m1_apwra_monitoring_protocol_6_5_07.pdf

Arnett, E. B., M. R. Schirmacher, M. M. P. Huso, and J. P. Hayes. 2009. Patterns of Bat Fatality at the Casselman Wind Project in South-Central Pennsylvania. 2008 Annual Report. Annual report prepared for the Bats and Wind Energy Cooperative (BWEC) and the Pennsylvania Game C ommission. Bat Conservation International (BCI), Austin, Texas. June 2009. Available online at: http://www.batsandwind.org/pdf/2008%20Casselman%20Fatality%20Report.pdf

Avian Power Line Interaction Committee (APLIC). 2005. Avian Protection Plan (APP) Guidelines. Edison Electric Institute and US Fish and Wildlife Service (USFWS), Washington, D.C.

Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Public Interest Energy Research Program (PIER) Final Project Report CEC-500-2006-022. Edison Electric Institute, APLIC, and the California Energy Commission. Washington D.C. and Sacramento, California.

Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC, Washington D.C.

Baerwald, E. F. and R. M. R. Barclay. 2009. Geographic Variation in Activity and Fatality of Migratory Bats at Wind Energy Facilities. Journal of Mammalogy 90(6): 1341–1349.

Buckland, S. T., D. R. Anderson, K. P. Burnham, and J. L. Laake. 1993. Distance Sampling: Estimating Abundance of Biological Populations. Chapman & Hall, London, United Kingdom.

Bureau of Land Management (BLM). 1998. Las Vegas Resource Management Plan and Final Environmental Impact Statement. US Department of the Interior BLM, Las Vegas, Nevada. Available online at: http://www.blm.gov/nv/st/en/fo/lvfo/blm_programs/planning/las_vegas_field_office.html

California Energy Commission (CEC) and California Department of Fish and Game (CDFG). 2007. California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development. Commission Final Report. CEC, Renewables Committee, and Energy Facilities Siting Division, and CDFG, Resources Management and Policy Division. CEC-700-2007-008-CMF.

Chatfield, A., W. Erickson, and K. Bay. 2009. Avian and Bat Fatality Study, Dillon Wind-Energy Facility, Riverside County, California. Final Report: March 26, 2008 - March 26, 2009. Prepared for Iberdrola Renewables, Portland, Oregon. Prepared by Western EcoSystems Technology, Inc. (WEST), Cheyenne, Wyoming. June 3, 2009.

Chatfield, A., W.P. Erickson, and K. Bay. 2010. Final Report: Avian and Bat Fatality Study at the Alite Wind-Energy Facility, Kern County, California. Final Report: June 15, 2009 – June 15, 2010. Prepared by Western EcoSystems Technology, Inc. (WEST), Cheyenne, Wyoming. Prepared for CH2M HILL, Oakland, California.

Erickson, W. P., J. Jeffrey, K. Kronner, and K. Bay. 2004. Stateline Wind Project Wildlife Monitoring Annual Report. July 2001 - December 2003. Technical report peer-reviewed by and submitted to FPL Energy, the Oregon Energy Facility Siting Council, and the Stateline Technical Advisory Committee. Western EcoSystems Technology, Inc. (WEST), Cheyenne, Wyoming, and Northwest Wildlife Consultants, Inc. (NWC), Pendleton, Oregon. December 2004.

Erickson, W. P., G. D. Johnson, M. D. Strickland, and K. Kronner. 2000. Avian and Bat Mortality Associated with the Vansycle Wind Project, Umatilla County, Oregon: 1999 Study Year. Final report prepared for Umatilla County Department of Resource Services and Development, Pendleton, Oregon. February 7, 2000.

ESRI. ArcInfo 10.0. ESRI, producers of ArcGIS software. Redlands, California.

H.T. Harvey and Associates. 2013. Desert Sunlight Solar Farm Carcass Detectability Study. Fresno, California. Prepared for Desert Sunlight Holdings, LLC, Oakland, California.

H.T. Harvey and Associates. 2014. Avian and Bat Protection Plan Annual Postconstruction Fatality Report for the California Valley Solar Ranch Project Covering 16 August 2012 to 15 August 2013. Prepared for High Plains Ranch II, LLC, Carlsbad, California.

Huso, M. 2010. An Estimator of Wildlife Fatality from Observed Carcasses. Environmetrics 22(3): 318-329. doi: 10.1002/env.1052.

Huso, M., N. Som, and L. Ladd. 2012. Fatality Estimator User's Guide. US Geological Survey (USGS) Data Series 729. Accessed April 2013. Available online at: http://pubs.usgs.gov/ds/729/pdf/ds729.pdf

Johnson, G. D., W. P. Erickson, M. D. Strickland, M. F. Shepherd, and D. A. Shepherd. 2000. Avian Monitoring Studies at the Buffalo Ridge Wind Resource Area, Minnesota: Results of a 4-Year Study. Final report prepared for Northern States Power Company, Minneapolis, Minnesota, by Western EcoSystems Technology, Inc. (WEST), Cheyenne, Wyoming. September 22, 2000. 212 pp. http://www.west-inc.com

Johnson, G. D., W. P. Erickson, M. D. Strickland, M. F. Shepherd, D. A. Shepherd, and S. A. Sarappo. 2003. Mortality of Bats at a Large-Scale Wind Power Development at Buffalo Ridge, Minnesota. The American Midland Naturalist 150: 332-342.

Kerns, J. and P. Kerlinger. 2004. A Study of Bird and Bat Collision Fatalities at the Mountaineer Wind Energy Center, Tucker County, West Virginia: Annual Report for 2003. Prepared for FPL Energy and the Mountaineer Wind Energy Center Technical Review Committee. February 14, 2004. 39 pp. http://www.wvhighlands.org/Birds/MountaineerFinalAvianRpt-%203-15-04PKJK.pdf

Korner-Nievergelt, F., P. Korner-Nievergelt, O. Behr, I. Niermann, R. Brinkmann, and B. Hellriegel. 2011. A New Method to Determine Bird and Bat Fatality at Wind Energy Turbines from Carcass Searches. Wildlife Biology 17: 350-363.

Shoenfeld, P. 2004. Suggestions Regarding Avian Mortality Extrapolation. Technical memo provided to FPL Energy. West Virginia Highlands Conservancy, HC70, Box 553, Davis, West Virginia, 26260.

Smallwood, K. S. 2007. Estimating Wind Turbine-Caused Bird Mortality. Journal of Wildlife Management 71: 2781-2791.

Smallwood, K. S. 2013. Comparing Bird and Bat Fatality-Rate Estimates among North American Wind-Energy Projects. Wildlife Society Bulletin 37(1): 19-33.

Smallwood, K. S., D. A. Bell, S. A. Snyder, and J. E. DiDonato. 2010. Novel Scavenger Removal Trials Increase Wind Turbine-Caused Avian Fatality Estimates. Journal of Wildlife Management 74: 1089-1097.

Strickland, M. D., E. B. Arnett, W. P. Erickson, D. H. Johnson, G. D. Johnson, M. L. Morrison, J. A. Shaffer, and W. Warren-Hicks. 2011. Comprehensive Guide to Studying Wind Energy/Wildlife Interactions. Prepared for the National Wind Coordinating Collaborative (NWCC), Washington, D.C., USA. June 2011. Available online at: http://www.batsandwind.org/pdf/Comprehensive_Guide_to_Studying_Wind_Energy_Wildlife_Interactions_2011.pdf

TerraStat Consulting Group. 2013. Estimation of 90% Confidence Bounds for Avian Mortality Estimates at Ivanpah 1. Seattle, Washington. Technical memorandum prepared on 13 August 2013 for H.T. Harvey and Associates, Los Gatos, California. Accessed June 5, 2014. Available online at: ftp://lgftp.harveyecology.com/DesertSun/TerraStat_Estimation%20of%20CIs%20for%20avian%20mortality%20studies%20at%20Ivanpah%20I_HTH%20Tech%20Memo%20Aug2013.pdf

Thompson, S. K. 1992. Sampling. John Wiley and Sons, Inc., New York, New York.

US Fish and Wildlife Service (USFWS). 2012. Final Land-Based Wind Energy Guidelines. March 23, 2012. 82 pp. Available online at: http://www.fws.gov/windenergy/docs/WEG_final.pdf

Warren-Hicks, W., J. Newman, R. Wolpert, B. Karas, and L. Tran. 2013. Improving Methods for Estimating Fatality of Birds and Bats at Wind Energy Facilities. Public Interest Energy Research (PIER) Program CEC-500-2012-086. Final Project Report. Prepared for the California Energy Commission, Prepared on behalf of the California Wind Energy Association (CalWEA). February 2013. Available online at: http://www.energy.ca.gov/2012publications/CEC-500-2012-086/CEC-500-2012-086.pdf

Appendix A:
First Solar
Wildlife Incident Reporting System (WIRS)

FIRST SOLAR
WILDLIFE INCIDENT REPORTING SYSTEM (WIRS)

BACKGROUND AND INTRODUCTION

First Solar has voluntarily implemented a wildlife incident response and reporting system for all their solar facilities. This system is being implemented for the purpose of providing long-term monitoring data for First Solar's fleet of projects. First Solar will record and report all dead and injured wildlife including but not limited to birds found incidentally in the project areas over the entire life of the project as part of the project operations and monitoring efforts. The purpose of this Wildlife Incident Reporting System (WIRS) is to standardize the actions taken by site personnel in response to wildlife incidents found within project boundaries. The WIRS provides direction for site personnel who may encounter a wildlife incident in an effort to fulfill obligations in reporting wildlife incidents. Wildlife fatalities or injuries found by project personnel or others will be reported and processed following the protocols described in this document.

FIRST SOLAR WIRS POLICY

This WIRS will be active for the life of the solar projects. All employees, contractors and subcontractors of First Solar have a responsibility to comply with all environmental laws and regulations. Most birds are protected by the federal MBTA, and eagles are further protected by the BGEPA. In addition, the state of California has an Endangered Species Act (CESA). Under the federal statutes, it is illegal to harm, harass, kill, or collect birds that may be found in the solar facility. A summary of these statutes is presented below. It is recognized that other wildlife including bats are generally not protected by federal or state law unless listed as a threatened or endangered species. However, it is the policy of FS to treat all wildlife incidents the same as avian incidents and include them in the WIRS.

It is illegal to collect an injured or dead bird without appropriate federal and state permits. **THE TOUCHING, POSSESSION, TRANSFER, OR TAMPERING WITH ANY WILDLIFE SPECIES (ALIVE OR DEAD) BY FIRST SOLAR EMPLOYEES OR SUBCONTRACTORS IS STRICTLY PROHIBITED.** The WIRS is designed to provide a means of recording and collecting data about wildlife species found in the solar facilities to increase the understanding of solar and wildlife interactions. First Solar maintains an ongoing commitment to investigate wildlife incidents involving company facilities and to work cooperatively with federal and state agencies in an effort to minimize the potential for future bird and wildlife fatalities. The objective of this policy is to insure that the best available information about wildlife incidents found in First Solar facilities is recorded and the proper authorities are notified. It is the responsibility of First Solar employees, contractors and subcontractors to report all wildlife incidents as outlined in this WIRS.

FIRST SOLAR WILDLIFE INCIDENT REPORTING

The following procedures are to be followed when First Solar personnel or subcontractors discover a wildlife fatality or injury while on site. These procedures are intended to be in place for the life of the project and are independent of the post-construction monitoring studies. Prior to the initiation of operations, on-site training will be provided to First Solar personnel and subcontractors regarding the implementation of this WIRS.

When To Use The WIRS - What Constitutes A Reportable Incident?

For the purposes of this reporting system, *incident* is a general term that refers to any wildlife species, or evidence thereof, that is found dead or injured within the solar project. Note that an incident may include an injured animal and does not necessarily refer only to a carcass or fatality.

An intact carcass, carcass parts, bones, scattered feathers, or an injured wildlife species all represent reportable incidents. First Solar personnel and subcontractors shall report all such discoveries even if you are uncertain if the carcass or parts are associated with the facility.

A ***fatality*** is any find where death occurred, such as a carcass, carcass parts, bones, or feather spot (10 or more feathers).

An ***injury*** or injured animal is any wildlife species with an apparent injury, or that exhibits signs of distress to the point where it cannot move under normal means or does not display normal escape or defense behavior.

Prior to assuming a wildlife species is injured, it should be observed to determine if it cannot or does not display normal behaviors. For example, raptors will occasionally walk on the ground, especially if they have captured a prey item. Raptors also "mantle" or hold their wings out and down to cover a prey item. These types of behaviors may make the wings appear broken or the animal injured. Identification of specific behaviors typical to the life cycles and distress behaviors of wildlife will be part of the First Solar wildlife education program. Always exercise caution before approaching an injured wildlife species. **Under no circumstances are site personnel permitted to handle carcasses or injured animals.**

Note: *Any incident involving a federally or state listed threatened or endangered species, bald eagle, or golden eagle must be reported to USFWS and/or Nevada Department of Wildlife (NDOW) within 24 hours of identification. See project personnel listing for contact information.*

MATERIALS NEEDED TO REPORT AN INCIDENT

1. A copy of this WIRS
2. A Wildlife Incident Report Form (see Attachment 1)
3. Project Personnel Listing and Contact Information
4. Pencil, Pen
5. Camera
6. Flagging

FIRST SOLAR WILDLIFE INCIDENT REPORTING PROCEDURES

The following procedures apply if the incident involves a **Wildlife Fatality** or **Injured Wildlife Species**:

- **Leave the subject animal in place**. A flag may be used to mark its location for easy finding while the data sheet is being completed. It is recommended that any flagging be marked with the date, time, and initials of the recorder. **DO NOT HANDLE THE CARCASS.**

- **Report** the find to the Site Operations Manager immediately.

- The Site Operations Manager shall complete the following steps:

    - **Photograph** the incident as it was found in the field. Take at least two pictures: a close up shot of the animal as it lays in the field and a broader view of the animal (marked by a flag) with the road, turbines, or other local features in the view. For the close up picture, place an object (e.g., radio, pencil, coin, etc.) next to the carcass for a scale of size.

    - **Prepare a Wildlife Incident Report Form.** The form and associated instructions are presented below.

    - **Report** the find to First Solar's Environmental Affairs Lead (EAL) immediately.

The following procedures apply if the incident involves an **Injured Wildlife Species**:

- **Move** to a distance far enough away that it is not visibly disturbed or uneasy due to your presence. **DO NOT ATTEMPT TO CAPTURE OR HANDLE AN INJURED ANIMAL.**

- **Report** the find immediately to the Operations Site Manager

- The Site Operations Manager shall complete the following steps:

    - **Report** the find to the Environmental Affairs Lead immediately.

    - **Contact** a local rehabilitation center (*see contact list below*) for further instructions on handling and transport/pickup of the injured animal.

    - **Prepare a Wildlife Incident Report Form.** The form and instructions for filling out the form are provided below.

*** Any incident involving a federally or state listed threatened or endangered species or a bald or golden eagle must be reported to the USFWS and/or NDOW within 24 hours of identification. These incidents will be reported to the agency verbally by the Operations Manager or First Solar's Environmental Affairs Lead (*see contact list below)*.**

FIRST SOLAR
WILDLIFE INCIDENT REPORTING FORM

INCIDENT DETAILS

Project Location/Name:

Name of Observer/s:_____ Date: _____ Time: _____

Type of Incident: ☐ Injury ☐ Fatality

Carcass Condition: ☐ Intact Carcass ☐ Partial Carcass ☐ Feathers Only

Age of Remains (days): ☐ 1-2 (fluid filled eyes) ☐ 2-4 (maggots) ☐ 5+ (dried bones/feathers)

Photos Taken: ☐ Yes ☐ No (Take photos of - Birds: beak, legs, feathers, body. Wildlife: face and ears, tail and feet, body)

Who was notified of incident? (see contact list below)_____

Comments on Carcass Condition or Behavior of Injured Animal:_____

_____

_____

LOCATION

Where Found: ☐ On Access Road ☐ Solar Array ☐ Under Power Line ☐ Substation

GPS Coordinates: UTM N:_____ UTM E:
DATUM:_____

Comments on Location:

_____

_____

_____

IDENTIFICATION

☐ Bird ☐ Bat ☐ Mammal ☐ Other:_____

Species (to best of ability):_____

Description of Color/Markings:_____

Does Animal Resemble a Species of Concern discussed at Training? ☐ Yes ☐ No

Identification Remarks:_____

_____

_____

(Describe details of - Birds: beak size, color, and shape; leg size, color, and shape; feather color; body size. Bats: color of fur and wings; muzzle long or short, tail attached or extending; ear color and shape); Other Wildlife: color of fur, any markings, and body size. _____

_____

ENVIRONMENTAL CONDITIONS

Weather (Check all that apply): ☐ Clear ☐ Cloudy ☐ Rain ☐ Dust Storm

Approximate Temperature (F°):_____

Wind: ☐ Calm ☐ Breezy/Gusty ☐ Strong Winds

Habitat where found: ☐ Gravel (access road/turbine pad) ☐ Bare Ground ☐ Wash ☐ Desert scrub

OTHER NOTES/COMMENTS:

_____

_____

_____

CONTACT LIST (Immediately notify one of these individuals of incident)

1. Operations Manager:
2. Environmental Affairs Lead:

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

TABLE OF CONTENTS

APPENDICES

APPENDIX A – NOTICE OF AVAILABILITY

APPENDIX B – LETTERS/NOTICES

APPENDIX C – PUBLIC MEETING MATERIALS

APPENDIX D –COMMENT LETTERS APPENDIX

APPENDIX E – COMMENT/RESPONSE MATRIX

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).*

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.

Latest | More Top Stories

Banks fined $2.5 billion, to plead guilty to market rigging

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

MORE COMMUNITY NEWS

- Las Vegas
- Henderson
- North Las Vegas
- Boulder City
- Summerlin

TODAY'S PAPER

MOST POPULAR

Viewed | Discussed | Trending

1. Henderson to consider 4-month moratorium on massage parlors
2. Rick Harrison of 'Pawn Stars' hosting Rubio fundraiser
3. Stevie Wonder, Imagine Dragons, Duran Duran, Kendrick Lamar confirmed at 2015 Life Is Beautiful
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

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).

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:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

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 LNEV Pipeline	2275 Corporate Circle Suite 275, Henderson NV	elizabeth@trosperconmunications.com
Doris Kerylu K Gerrad BLM	4701 N. Torrey Pines	~~dkgerrard~~ dkerylukgerrard@BIM.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	2400 N. Central Phx AZ 85004	tamera.dawes@lig.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, ROWs 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
4654 East Avenue S #257B
Palmdale, California 93552
www.deserttortoise.org
ed.larue@verizon.net

28 June 2015

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

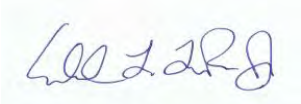
accordance with USFWS protocols to BLM-managed lands or Tribal lands, outside of the nearest fence in suitable habitat." We feel strongly that any tortoises dying as a result of being relocated into adjacent areas should be applied to the mortality take limit identified in the Biological Opinion issued 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

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**
		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

TABLE OF CONTENTS

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

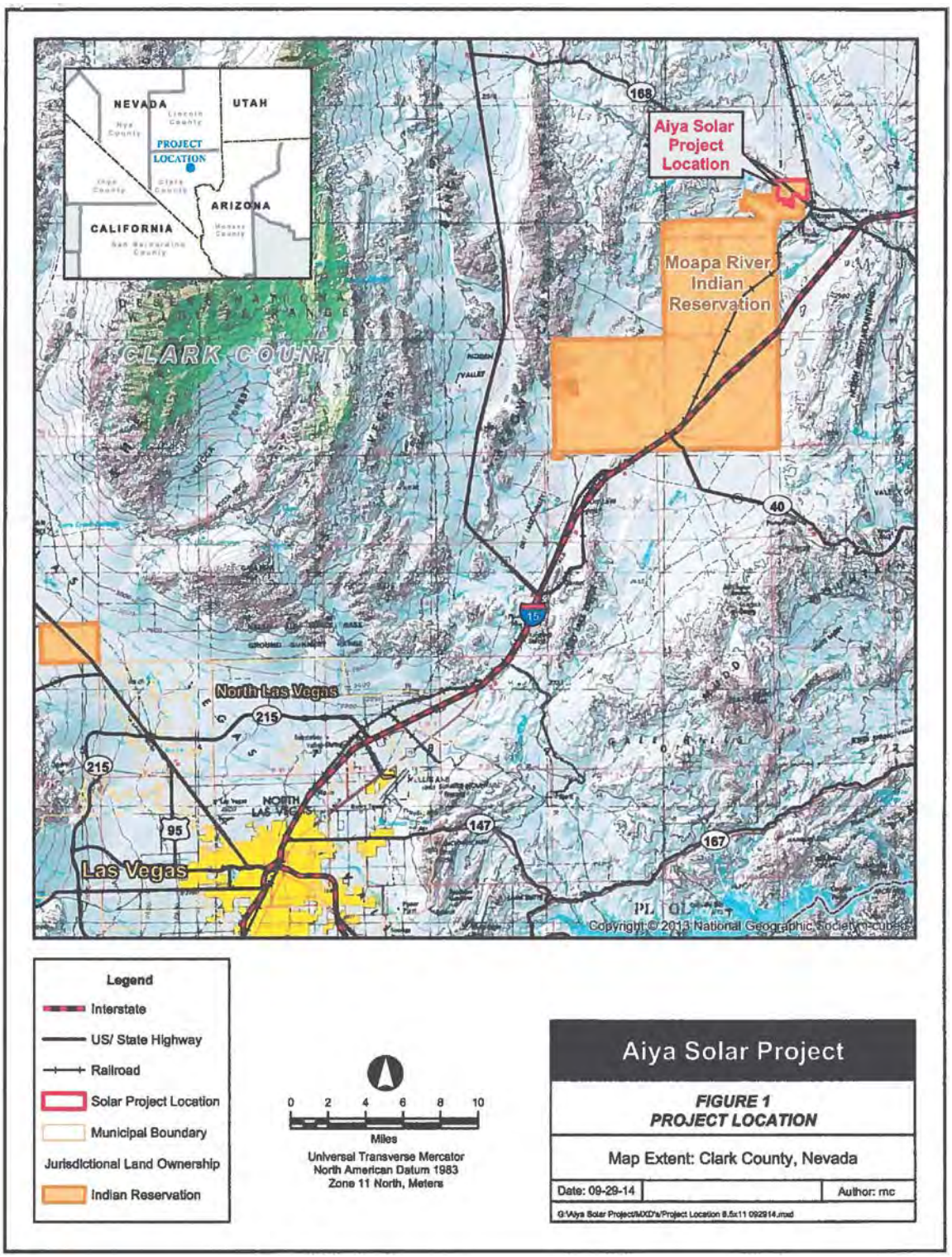


Figure 1: Aiya Solar Project Location

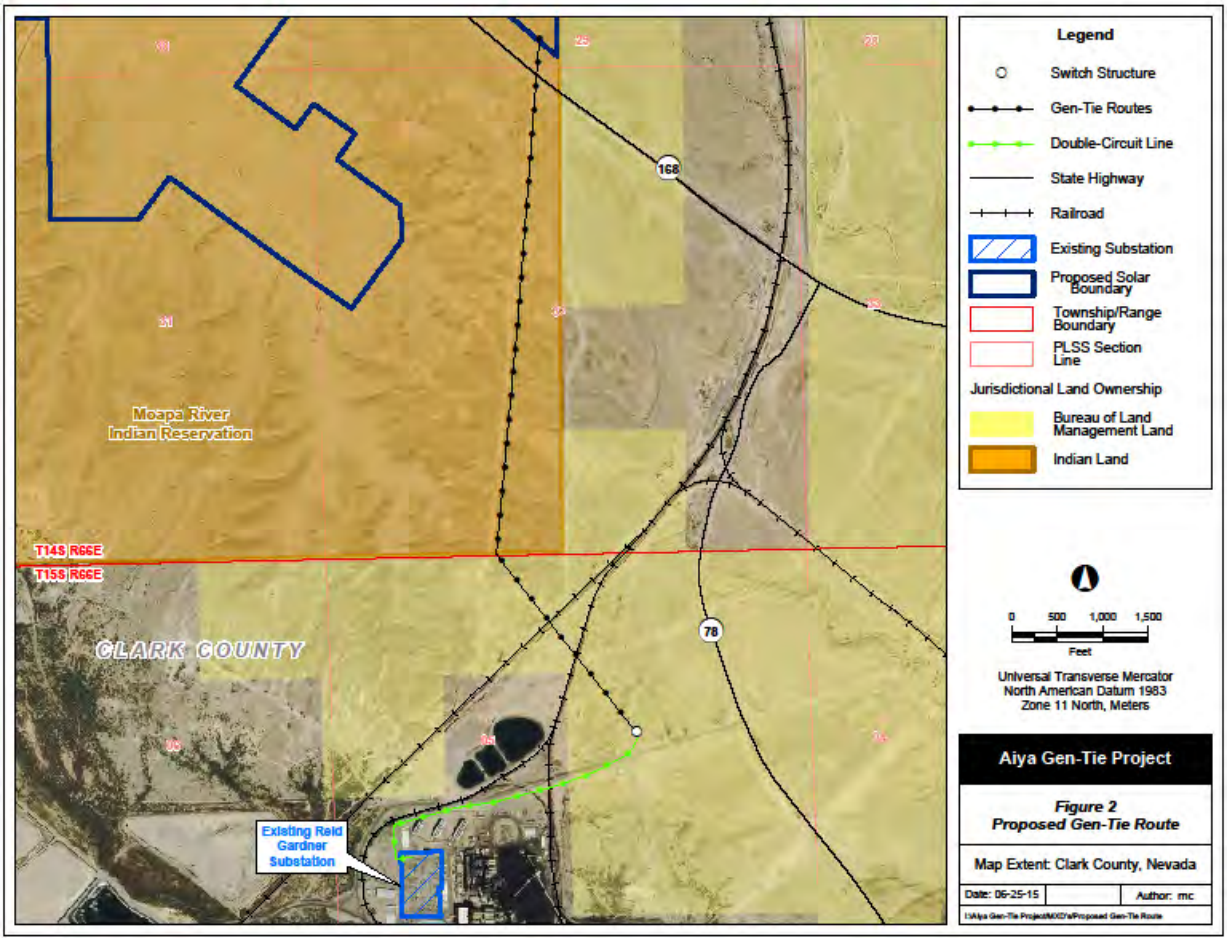


Figure 2: Proposed Gen-Tie Route

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).

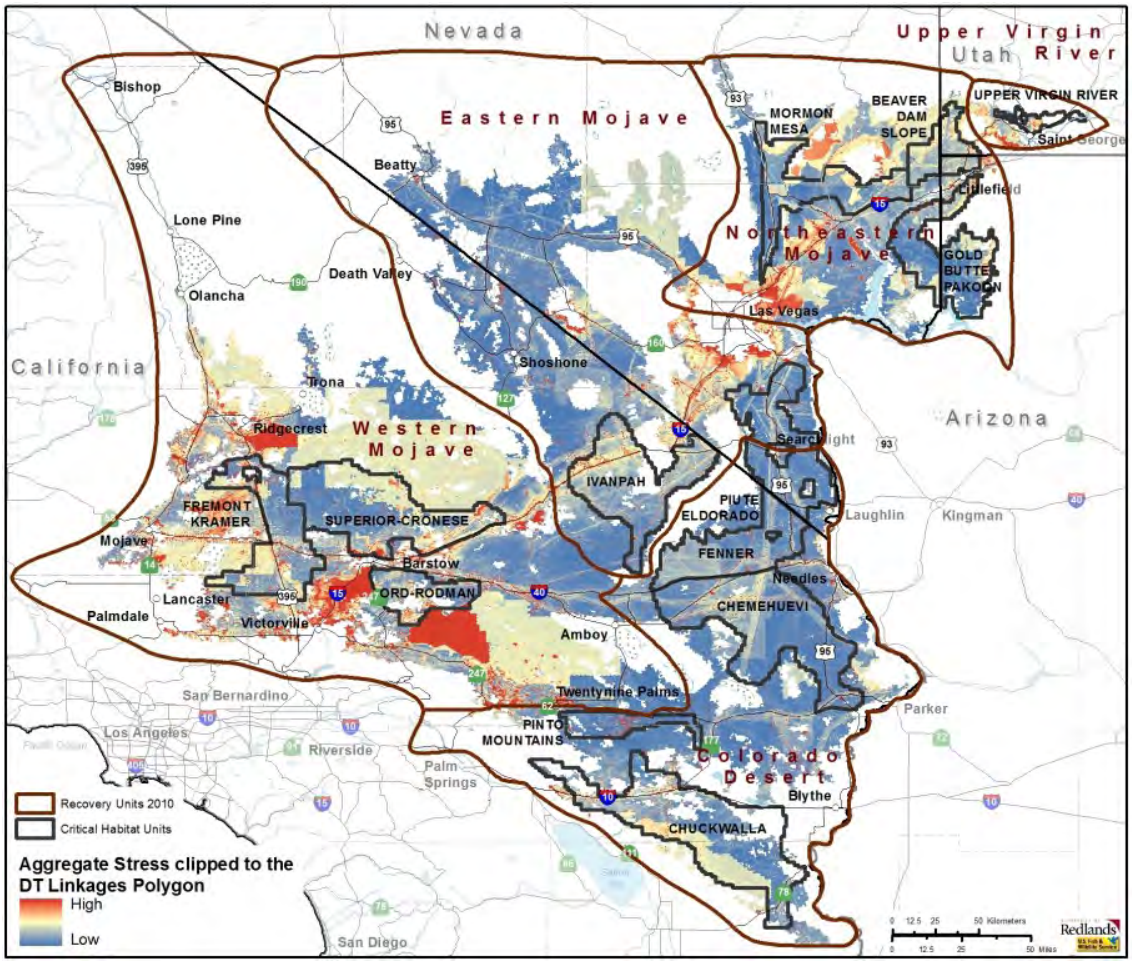


Figure 3: Critical habitat units of the desert tortoise, linkages between conservation areas for the desert tortoise, and the aggregate stress that multiple, synergistic threats place on desert tortoise populations.

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

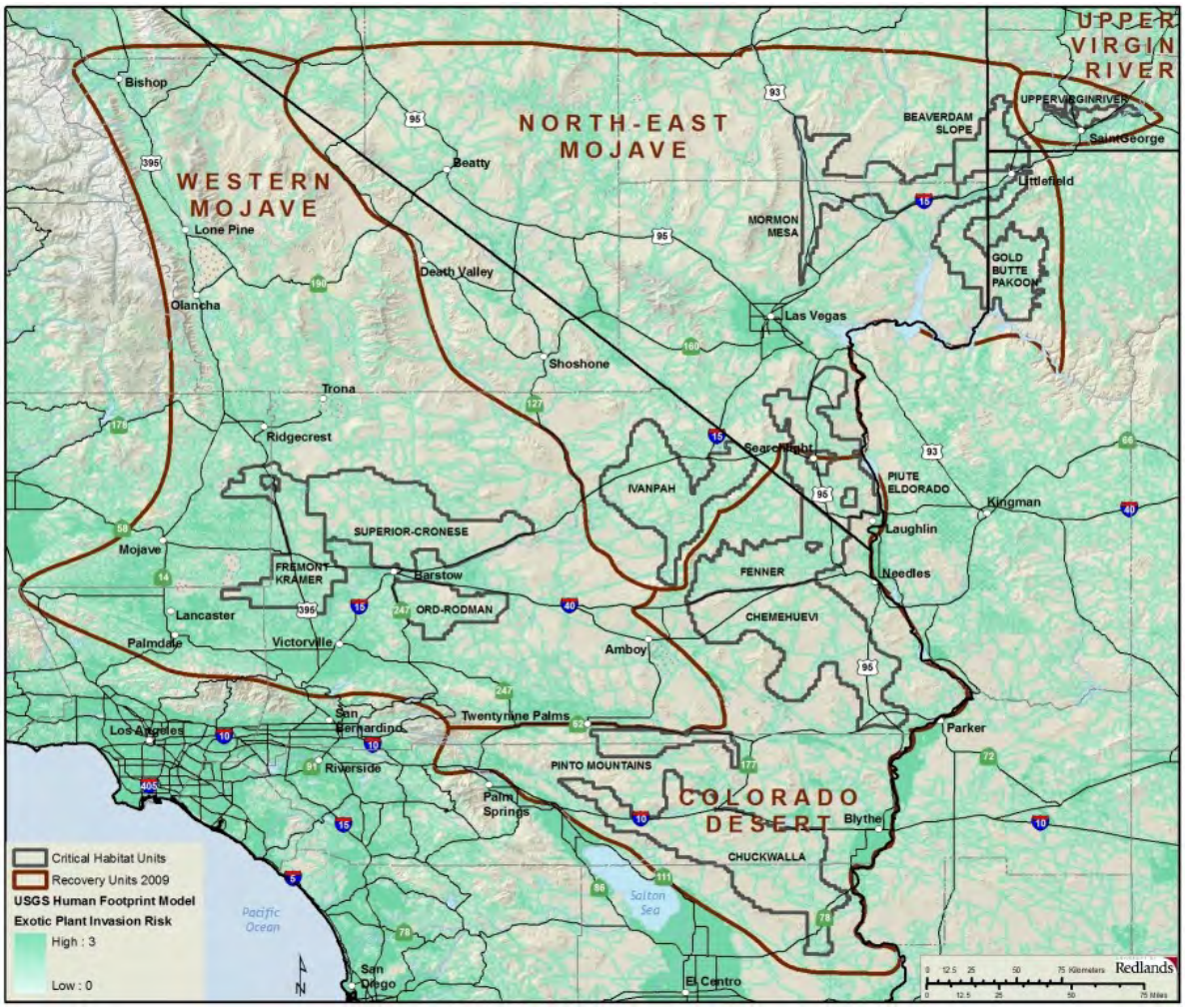


Figure 4: Invasion risk of non-native invasive plant species within the range of the desert tortoise.

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.

LITERATURE CITED

Abella, S.R. 2010. Disturbance and plant succession in the Mojave and Sonoran deserts of the American Southwest. International Journal of Environmental Research and Public Health 7:1248-1284.

Allen, M.F., and A. McHughen. 2011. Solar power in the desert: are the current large-scale solar developments really improving California's environment? Center for Conservation Biology, University of California. Riverside, California

Averill-Murray, R. C. 2002. Effects on survival of desert tortoises (*Gopherus agassizii*) urinating during handling. Chelonian Conservation and Biology 4:430-435.

Averill-Murray, R.C., C.R. Darst, N. Strout, and M. Wong. 2013. Conserving population linkages for the Mojave desert tortoise (*Gopherus agassizii*). Herpetological Conservation and Biology 8(1):1-15.

Avian Power Line Interaction Committee. 2006. Suggested practices for avian protection on power lines: the state of the art in 2006 [Internet]. Washington, D.C. and Sacramento (CA): Edison Electric Institute, Avian Power Line Interaction Committee, the California Energy Commission; http://www.aplic.org/uploads/files/2643/SuggestedPractices2006(LR-2).pdf.

Boarman, W.I. 2002. Threats to desert tortoise populations: a critical review of the literature. Dated August 9. Western Ecological Research Center, U.S. Geological Survey. Sacramento, California.

Bowles, A. E., E. Eckert, L. Starke, E. Berg, L. Wolski, and J. Matesic, Jr. 1999. Effects of flight noise from jet aircraft and sonic booms on hearing, behavior, heart rate, and oxygen consumption of desert tortoise (*Gopherus agassizii*). AFRL-HE-WP-TR-1999-0170. Sea World Research Institute, Hubbs Marine Research Center, San Diego, California. 157 pp.

Brooks, M. L. 2003. Effects of increased soil nitrogen on the dominance of alien annual plants in the Mojave Desert. Journal of Applied Ecology 40:344-353.

Bureau of Indian Affairs (BIA). 2011. K-Road Moapa Solar Facility desert tortoise translocation plan (December 2011). Prepared by ARCADIS-US, Austin, Texas. 56 pp.

Bureau of Land Management. 1990. Draft raven management plan for the California Desert Conservation Area. Prepared by Bureau of Land Management, California Desert District, Riverside, California.

Bureau of Land Management. 2014. Common raven management plan for energy development within the BLM Southern Nevada District. 15 pages.

Burroughs, M. 2013b. Electronic mail. Comments on the draft biological opinion for the Stateline and Silver State Solar South projects, San Bernardino County, California, and Clark County, Nevada (Stateline: 2800(P), CACA-048669, CAD090.01; Silver State South: 6840 (NV-052)) (Stateline: 8-8-13-F-43; Silver State South: 84320-2010-F-0208-

R003). Dated September 23. Biologist, Southern Nevada Field Office, U.S. Fish and Wildlife Service. Las Vegas, Nevada.

Caltrans. 2014. One-way gates in wildlife fencing to reduce wildlife- vehicle collisions for small- and medium-sized animals. Caltrans Division of Research, Innovation and System Information. October 2.

Darst, C. 2014. Electronic mail. Calculations of modeled desert tortoise habitat by recovery unit with impervious surfaces. Dated May 14. Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service. Reno, Nevada.

Edwards, T., C.S. Goldberg, M.E. Kaplan, C.R. Schwalbe, and D.E. Swann. 2004. Implications of anthropogenic landscape change on inter-population movements of the desert tortoise (Gopherus agassizii). Conservation Genetics 5:485-499.

Fernandes, J., N. Flynn, S. Gibbes, M. Griffis, T. Isshiki, S. Killian, L. Palombi, N. Rujanavech, S. Tomsky, and M. Tondre. 2010. Renewable energy in the California desert. Mechanisms for evaluating solar development on public lands. School of Natural Resources and Environment, University of Michigan. Ann Arbor, Michigan.

Fischer, J., and D. B. Lindenmayer. 2007. Landscape modification and habitat fragmentation: a synthesis. Global Ecology and Biogeography 16(3):265-280.

Fry J., G. Xian, S. Jin, J. Dewitz, C. Homer, L. Yang, C. Barnes, N. Herold, and J. Wickham. 2011. National Land Cover Database 2006 Percent Developed Imperviousness. Raster digital data. MRLC.gov. www.mrlc.gov/nlcd06_data.php.

Latch, E. K., W. I. Boarman, A. Walde, and R. C. Fleischer. 2011. Fine-scale analysis reveals cryptic landscape genetic structure in desert tortoises. PLoS ONE 6(11): e27794. doi:10.1371/journal.pone.0027794.

Longshore, K.M., J.R Jaeger, and M. Sappington. 2003. Desert tortoise (Gopherus agassizii) survival at two eastern Mojave desert sites: death by short-term drought? Journal of Herpetology 37(1):169-177.

Lovich, J. E., and D. Bainbridge. 1999. Anthropogenic degradation of the southern California desert ecosystem and prospects for natural recovery and restoration. Environmental Management 249:309-326.

Millstein, D., and M. Menon. 2011. Regional climate consequences of large-scale cool roof and photovoltaic array deployment. IOPscience 6:1-9.

Nevada Department of Transportation. 2015. TRINA- traffic records information access. Traffic data for station 0030204, SR 168, Geldale-Moapa Rd, 6.7 miles east of US 93. [http://apps.nevadadot.com/TRINA/TRINA_Map.aspx]

NewFields. 2015. Biological assessment for Aiya solar project. June 2015. Unpublished report provided for the Bureau of Indian Affairs, Phoenix, Arizona. 70 pages plus appendices.

Noss, R.F., and K.M. Daly. 2006. Incorporating connectivity into broad-scale conservation planning. Pages 587-619 in K.R. Crooks and M. Sanjayan (eds.), Connectivity Conservation. Cambridge University Press, Cambridge.

Nussear, K.E., T.C. Esque, R.D. Inman, L. Gass, K.A. Thomas, C.S.A. Wallace, J.B. Blainey, D.M. Miller, and R.H.Webb. 2009. Modeling habitat of the desert tortoise (Gopherus agassizii) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona. U.S. Geological Survey Open-File Report 2009-1102.

Oftedal, O.T., S. Hillard, and D.J. Morafka. 2002. Selective spring foraging by juvenile desert tortoises (Gopherus agassizii) in the Mojave Desert: evidence ofan adaptive nutritional strategy. Chelonian Conservation and Biology 4(2):341-352.

Ricketts, T. H. 2000. The matrix matters. The American Naturalist 158:87-99.

Schlesinger, W.H., J. Belnap, and G. Marion. 2009. On carbon sequestration in desert ecosystems. Global Change Biology 15(6):1488-1490.

Segelbacher, G., S. A. Cushman, B. K. Epperson, M. Fortin, O. Francois, O. J. Hardy, R. Holderegger, P. Taberlet, L.P. Waits, and S. Manel. 2010. Applications of landscape genetics in conservation biology: concepts and challenges. Conservation Genetics 11:375-385.

Tracy, C.R., R. Averill-Murray, W.I. Boarman, D. Delehanty, J. Heaton, E. McCoy, D. Morafka, K. Nussear, B. Hagerty, and P. Medica. 2004. Desert tortoise recovery plan assessment. Prepared for the U.S. Fish and Wildlife Service. Reno, Nevada.

Turner, F.B., K.H. Berry, D.C. Randall, and G.C. White. 1987. Population ecology of the desert tortoise at Goffs, California, 1983-1986. Prepared for the Southern California Edison Company. Rosemead, California.

U.S. Environmental Protection Agency. 2009. A framework for categorizing the relative vulnerability of Threatened and Endangered species to climate change. EPA/600/R-09/011. National Center for Environmental Assessment, Washington, D.C. 121 pp.

U.S. Fish and Wildlife Service. 1994. Desert tortoise (Mojave population) recovery plan. Portland, Oregon.

U.S. Fish and Wildlife Service. 1997. Programmatic biological opinion for implementation of multiple use activities within the Las Vegas Field Office (1-5-97-F-251). Dated November 27. Memorandum to District Manager, Bureau of Land Management, Las Vegas, Nevada. From Field Supervisor, Nevada Fish and Wildlife Office. Reno, Nevada.

U.S. Fish and Wildlife Service. 1998. Biological opinion for implementation of proposed actions in the Las Vegas District's proposed resource management plan/final environmental impact statement (1-5-98-F-053). Dated June 18. Memorandum to District Manager, Bureau of Land Management, Las Vegas, Nevada. From Field Supervisor, Nevada Fish and Wildlife Office. Reno, Nevada.

U.S. Fish and Wildlife Service. 2007. Tiered biological opinion for construction of a water pipeline on the Moapa River Indian Reservation to the Moapa Valley of Fire Travel Plaza, Clark County, Nevada. Dated August 6. Letter to Director, U.S Department of Housing and Urban Development, Phoenix, Arizona . From Field Supervisor, Nevada Fish and Wildlife Office. Reno, Nevada.

U.S. Fish and Wildlife Service. 2009. Desert tortoise field manual. http://www.fws.gov/carlsbad/PalmSprings/DesertTortoise.html

U.S. Fish and Wildlife Service. 2010. Mojave population of the desert tortoise (Gopherus agassizii) 5 year review: summary and evaluation. Desert Tortoise Recovery Office. Reno, Nevada.

U.S. Fish and Wildlife Service. 2011. Revised recovery plan for the Mojave population of the desert tortoise (Gopherus agassizii). Sacramento, California.

U.S. Fish and Wildlife Service. 2012a. Biological opinion on the proposed addition of maneuver training lands at Fort Irwin, California (8-8-11-F-38R). Dated April 27. Letter to Chief of Staff, Headquarters, National Training Center and Fort Irwin, Fort Irwin, California. From Field Supervisor, Ventura Fish and Wildlife Office. Ventura, California.

U.S. Fish and Wildlife Service. 2012b. Biological opinion on the land acquisition and airspace establishment to support large-scale Marine Air Ground Task Force live-fire and maneuver training, Twentynine Palms, California (8-8-11-F-65). Dated July 17. Letter to Commanding General, Marine Corps Air Ground Combat Center, Twentynine Palms, California. From Field Supervisor, Ventura Fish and Wildlife Office. Ventura, California.

U.S. Fish and Wildlife Service. 2012c. Connectivity of Mojave desert tortoise populations. Unpublished report. March . 16 pages plus appendix.

U.S. Fish and Wildlife Service. 2012d. Biological opinion for the K Road Moapa Solar Project, Moapa River Indian Reservation, Clark County, Nevada. Dated March 7. Memorandum to

Superintendent, Southern Paiute Agency, Bureau of Indian Affairs. St. George, Utah. From State Supervisor, Nevada Fish and Wildlife Office. Reno, Nevada.

U.S. Fish and Wildlife Service. 2013a. Formal programmatic consultation under Section 7 of the Endangered Species Act for effects to threatened and endangered species and their critical habitat that may occur as a result of actions proposed by the Southern Nevada District Office. File number 84320-2010-F-0365. January 2.

U.S. Fish and Wildlife Service. 2013b. Health assessment procedures for the Mojave desert tortoise (Gopherus agassizii): A handbook pertinent to translocation. Desert Tortoise Recovery Office. Reno, Nevada.

U.S. Fish and Wildlife Service. 2014a. Update on Mojave desert tortoise population trends. Dated March 10. Desert Tortoise Recovery Office. Reno, Nevada.

U.S. Fish and Wildlife Service. 2014b. Biological Opinion for the Res Americas Moapa Solar Energy Center, Moapa River Indian Reservation, Clark County, Nevada. Dated January 21. Memorandum to Superintendent, Southern Paiute Agency, Bureau of Indian Affairs. St. George, Utah. From State Supervisor, Nevada Fish and Wildlife Office. Reno, Nevada.

Vasek, F. C., H. B. Johnson, and D. H. Eslinger. 1975. Effects of pipeline construction on creosote bush scrub vegetation of the Mojave Desert. Madroño 23:1-13.

Webb, R. H. 2002. Recovery of severely compacted soils in the Mojave Desert, California, USA. Arid Land Research and Management 16: 291-305.

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.

LITERATURE CITED- Appendix C

Burroughs, M. 2012. Electronic mail. Information on solar projects in desert tortoise habitat in Nevada for which the Service has issued biological opinions. Dated April 26. Fish and wildlife biologist, Southern Nevada Field Office, U.S. Fish and Wildlife Service. Las Vegas, Nevada.

Burroughs, M. 2013. Electronic mail. Comments on the draft biological opinion for the Stateline and Silver State Solar South projects, San Bernardino County, California, and Clark County, Nevada (Stateline: 2800(P), CACA-048669, CAD090.01; Silver State

South: 6840 (NV-052)) (Stateline: 8-8-13-F-43; Silver State South: 84320-2010-F-0208-R003). Dated September 23. Fish and wildlife biologist, Southern Nevada Field Office, U.S. Fish and Wildlife Service. Las Vegas, Nevada.

Burroughs, M. 2015. Electronic mail. Status of solar projects in Nevada. Dated October 26. Fish and wildlife biologist. Southern Nevada Field Office, U.S. Fish and Wildlife Service. Las Vegas, Nevada.

Burroughs, M. 2014. Electronic mails. Status of solar projects in Nevada. Dated January 27. Fish and wildlife biologist, Southern Nevada Field Office, U.S. Fish and Wildlife Service. Las Vegas, Nevada.

Cota, M. 2013. Electronic mail. Comments on the draft biological opinion for the Stateline and Silver State Solar South projects, San Bernardino County, California, and Clark County, Nevada (Stateline: 2800(P), CACA-048669, CAD090.01; Silver State South: 6840 (NV-052)) (Stateline: 8-8-13-F-43; Silver State South: 84320-2010-F-0208-R003). Dated September 18. Wildlife biologist, Pahrump Field Office, Bureau of Land Management. Las Vegas, Nevada.

Cota, M. 2014. Electronic mail. Number of desert tortoises found on the Silver State South Project site. Dated November 25. Wildlife biologist, Pahrump Field Office, Bureau of Land Management. Las Vegas, Nevada.

Davis, D. 2014. Electronic mail. ISEGS master tortoise list, October 2014. Dated November 3. Environmental specialist III, Ivanpah Solar Thermal, Nipton, California.

Fraser, J. 2014a. Electronic mail. Number of desert tortoises found on the Genesis and Desert Sunlight solar sites. Dated January 28. Fish and wildlife biologist, Palm Springs Fish and Wildlife Office, U.S. Fish and Wildlife Service. Palm Springs, California.

Fraser, J. 2014b. Electronic mail. Number of desert tortoises found on the Blythe and McCoy solar sites. Dated November 5. Fish and wildlife biologist, Palm Springs Fish and Wildlife Office, U.S. Fish and Wildlife Service. Palm Springs, California.

LaPre, L. 2014. Electronic mail. Number of desert tortoises moved from the Stateline Solar Project. November 17. Biological scientist, California Desert District, Bureau of Land Management. Moreno Valley, California.

U.S. Fish and Wildlife Service. 2010a. Formal consultation for the Silver State Solar Project (NextLight Renewable Power, LLC), Clark County, Nevada. File No. 84320-2010-F-0208. Dated September 16. Memorandum to Field Manager, Pahrump Field Office, Bureau of Land Management, Las Vegas, Nevada. From State Supervisor, Nevada Fish and Wildlife Office. Reno, Nevada.

U.S. Fish and Wildlife Service. 2010b. Revised biological opinion for the Lucerne Valley Chevron Solar Project, San Bernardino County, California (3031 (P) CA-680.33) (8-8-10-F-61R). Memorandum to Field Manager, Barstow Field Office, Bureau of Land Management, Barstow, California. Dated September 29. From Field Supervisor, Ventura Fish and Wildlife Office. Ventura, California.

U.S. Fish and Wildlife Service. 2010c. Biological opinion on the Genesis Solar Energy Project, Riverside County, California. Memorandum to Field Manager, Palm Springs South Coast Field Office, Bureau of Land Management, Palm Springs, California. Dated November 2. From Field Supervisor, Carlsbad Fish and Wildlife Office. Carlsbad, California.

U.S. Fish and Wildlife Service. 2010d. Biological opinion on the Blythe Solar Power Plant, Riverside County, California. Memorandum to Field Manager, Palm Springs South Coast Field Office, Bureau of Land Management, Palm Springs, California. Dated October 8. From Field Supervisor, Carlsbad Fish and Wildlife Office. Carlsbad, California.

U.S. Fish and Wildlife Service. 2010e. Formal and informal consultation under section 7 of the Endangered Species Act for the Amargosa Farm Road Solar Energy Project, Nye County, Nevada. File nos. 84320-2010-F-0315 and 84320-2010-1-0316. Memorandum to Field Manager, Pahrump Field Office, Bureau of Land Management, Las Vegas, Nevada. Dated November 1. From State Supervisor, Nevada Fish and Wildlife Office. Reno, Nevada.

U.S. Fish and Wildlife Service. 2011a. Biological opinion on BrightSource Energy's Ivanpah Solar Electric Generating System Project, San Bernardino County, California [CACA-48668, 49502, 49503, 49504] (8-8-10-F-24R). Dated June 10. Memorandum to District Manager, California Desert District, Bureau of Land Management, Moreno Valley, California. From Field Supervisor, Ventura Fish and Wildlife Office. Ventura, California.

U.S. Fish and Wildlife Service. 2011b. Biological opinion on the Mojave Solar, LLC's Mojave Solar Project, San Bernardino County, California (8-8-11-F-3). Letter sent to Director of Environmental Compliance, Loan Guarantee Program, Department of Energy, Washington, D.C. and Field Manager, Barstow Field Office, Bureau of Land Management, Barstow, California. Dated March 17. From Field Supervisor, Ventura Fish and Wildlife Office. Ventura, California.

U.S. Fish and Wildlife Service. 2011c. Biological opinion on the Desert Sunlight Solar Farm Project, Riverside County, California. Memorandum to Field Manager, Palm Springs South Coast Field Office, Bureau of Land Management, Palm Springs, California. Dated July 6. From Field Supervisor, Carlsbad Fish and Wildlife Office. Carlsbad, California.

U.S. Fish and Wildlife Service. 2011d. Biological opinion on the Rice Solar Energy Project, Riverside County, California. Dated July 27. Letter to John, Holt, Environmental Manager, Desert Southwest Customer Service Region, Western Area Power Administration, Phoenix, Arizona. From Jim A. Bartel, Field Supervisor, Carlsbad Fish and Wildlife Office. Carlsbad, California.

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