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.