

Record of Decision (ROD)
Final Supplemental Environmental Impact Statement
for the
Arrow Canyon Solar Project

U.S. Department of the Interior
Bureau of Indian Affairs
Western Regional Office
Phoenix, Arizona

January 2021

DEPARTMENT OF THE INTERIOR

Record of Decision (ROD) for the addition of approximately 1,350 acres to a previously approved long-term lease for the development of a 200 megawatt (MW) photovoltaic (PV) solar generation facility on the Moapa River Indian Reservation (Reservation) in Clark County, Nevada.

AGENCY: Bureau of Indian Affairs

ACTION: Record of Decision

SUMMARY: This document constitutes the United States Department of the Interior (DOI), Bureau of Indian Affairs (BIA) ROD for the Arrow Canyon Solar Project (Project). This ROD represents BIA's approval for the expansion of the Moapa Band of Paiute Indians (Band) solar energy ground lease previously approved for the Moapa Solar Energy Center (MSEC) Project by up to 1,350 acres. With this addition, Arrow Canyon Solar, LLC (Applicant) would lease up to 2,200 acres for up to 50 years on the Reservation for the purposes of constructing, operating and maintaining, and decommissioning a 200 MW PV solar generation facility and associated infrastructure. The Project is analyzed in the Final Supplemental Environmental Impact Statement (FSEIS) (BIA 2020). The Environmental Protection Agency (EPA) published a Notice of Availability (NOA) for the FSEIS in the *Federal Register* on December 11, 2020. The BIA also published an NOA for the FSEIS in the *Federal Register* on December 11, 2020. Cooperating agencies for development of the FSEIS included the Bureau of Land Management (BLM), Band, EPA, and U.S. Fish and Wildlife Service (USFWS).

ADDITIONAL COPIES: Copies of the FSEIS and ROD are available at the Project web site www.arrowcanyonsolareis.com/. Additionally, copies will be available in the following locations: BIA Western Regional Office, 2600 North Central Avenue, 12th Floor, Suite 210, Phoenix, Arizona 85004; BIA Southern Paiute Agency, 180 North 200 East, Suite 111, St. George, Utah 84770; and Moapa River Indian Reservation Tribal Hall, One Lincoln Street, Moapa, NV 89025-0340. A Federal Register notice regarding the availability of the FSEIS was issued on December 11, 2020. Notices were also published in the Moapa Review and Las Vegas Review Journal newspapers.

FOR FURTHER INFORMATION CONTACT: Mr. Chip Lewis, BIA Western Regional Office, Branch of Environmental Quality Services, 2600 North Central Avenue, 4th Floor Mailroom, Phoenix, Arizona 85004-3008, telephone (602) 379-6750; or Mr. Garry Cantley at (602) 379-6750.

Table of Contents

1.	INTRODUCTION	1
1.1	Background	1
1.2	Decisions Being Made	3
	1.2.1 BIA	3
2.	ALTERNATIVES	4
2.1	Considered and Carried Forward for Detailed Analysis	4
	2.1.1 Proposed Project (BIA's Proposed Action/Selected Alternative)	4
	2.1.2 No Action Alternative	4
2.2	Alternatives Considered but Eliminated from Detailed Analysis	4
	2.2.1 Alternative Reservation Locations	5
	2.2.2 Alternative Off-Reservation Locations	5
	2.2.3 Alternative Interconnection Options	5
	2.2.4 Alternative Solar Technologies	5
	2.2.5 Modified Alternative with Larger Drainage Buffers	6
3.	PERMITS AND APPROVALS	6
4.	CORRECTIONS TO THE FINAL SEIS	6
5.	MITIGATION MEASURES	7
5.1	Mitigations Measures Not Adopted	7
5.2	Mitigation Compliance Monitoring and Reporting	7
6.	PUBLIC INVOLVEMENT	8
6.1	Public Scoping Period	8
6.2	DSEIS Preparation and Distribution	9
6.3	FSEIS Preparation and Distribution	10
7.	DECISION RATIONAL	10
7.1	BIA Directive	11
8.	FINAL AGENCY ACTION	13
8.1	Bureau of Indian Affairs	13

Table of Contents

8.1.1 Protest and Appeal Opportunities	13
POTENTIAL APPROVALS FOR THE PROPOSED PROJECT	16

Attachments

- A. Anticipated Permits for the Arrow Canyon Solar Project
- B. Required Mitigation for the Arrow Canyon Solar Project

Record of Decision

Arrow Canyon Solar Project

1. INTRODUCTION

This document constitutes the United States Department of the Interior (DOI), Bureau of Indian Affairs (BIA) Record of Decision (ROD) for the Arrow Canyon Solar Project (ACSP or Project). This ROD represents BIA's approval of the expansion by up to 1,350 acres of the Moapa Band of Paiute Indians (Band) solar energy ground lease that was previously approved for the Moapa Solar Energy Center (MSEC) Project. With this addition, the Applicant would lease a total of up to 2,200 acres for up to 50 years on the Moapa River Indian Reservation (Reservation) for the purposes of constructing, operating and maintaining, and decommissioning a 200 megawatt (MW) photovoltaic (PV) solar generation facility and associated infrastructure.

This ROD provides background on the solar project, summarizes the decisions being made, summarizes the alternatives evaluated, discusses the mitigation measures to be implemented (Attachment B), and summarizes the public participation process, all of which were used in the rationale to reach a decision.

1.1 Background

The proposed ACSP solar generating facility would be constructed entirely within the Reservation on up to 2,200 acres located within a lease study area of approximately 2,683 acres of tribal trust land. These lands are all located within the Reservation in an area set aside by the Band exclusively for the ACSP.

Impacts from the original MSEC Project were analyzed in accordance with the National Environmental Policy Act (NEPA) in a Final Environmental Impact Statement (FEIS) published in February 2014 by the BIA as the lead federal agency. The Bureau of Land Management (BLM), the Band, and others served as cooperating agencies. The BIA signed a ROD in May 2014 and approved the solar ground lease one month later in June 2014. The BLM also signed the ROD in May of 2014 and issued the necessary right-of-way (ROW) for the project's linear features in August 2015 (ROW N-88870). The issued ROW consisted of the following: 1) the Project's main access road from North Las Vegas Boulevard, crossing approximately 2.5 miles of federal lands to the Project boundary on the Reservation; 2) a 230-kilovolts (kV) generation-interconnection (gen-tie) line crossing approximately 7.1 miles of federal land from the Project site to the NV Energy-owned Harry Allen Substation; and 3) a water pipeline between an existing water well located on the Reservation and the Project Site, but within a designated utility

Record of Decision

Arrow Canyon Solar Project

corridor managed by the BLM. Currently, the approved MSEC Project and associated facilities have not yet been constructed.

In March 2017, EDF Renewables (EDFR) purchased the MSEC Project and renamed it the ACSP. EDFR subsequently transferred the project to Arrow Canyon Solar, LLC (Applicant), a fully owned subsidiary of EDFR. In May 2018, the Applicant reached an agreement with the Band to expand the ACSP site on the Reservation from the previously approved 850 acres to up to 2,200 acres to accommodate the currently planned project that includes the PV solar field and a battery energy storage system (BESS).

The previously approved linear ancillary facilities, (i.e., main access road, 230kV gen-tie line, and water pipeline) would remain a part of the ACSP proposed action. They would be unchanged and would be developed as analyzed in the previous EIS and as described in the ROD and ROW issued by the BLM.

The locations of the Project on the Reservation are described below:

- Solar Lease Area (originally approved plus expansion area) - Township 16 South, Range 64 East, Sections 28, 29, 30, 31, 32, and 33; and part of section 7 in Township 17 South, Range 64 East, Mount Diablo Baseline and Meridian, Nevada.

The BIA's mission is to "enhance the quality of life, to promote economic opportunity, and to carry out the responsibility to protect and improve the trust assets of American Indians, Indian Tribes, and Alaska Natives". The Project would create an economic development opportunity for the Band by providing a long-term, economically viable revenue source (lease income) by creating new jobs and employment opportunities for Band members; and by developing clean renewable electricity generation from the Band's solar resources that can be efficiently connected to the regional grid to assist the Federal Government, the State of Nevada, and neighboring states and companies to meet their renewable energy goals. The proposed Project would also help meet the goals of the Federal Government to eliminate or reduce greenhouse gas (GHG) emissions and promote the deployment of renewable energy technologies.

The Band identified the proposed Project as a viable opportunity to meet its economic development goals because the lease would provide much needed revenue to the Band while occupying a small portion of the Reservation. Construction and operation of the Project would

Record of Decision

Arrow Canyon Solar Project

also afford employment opportunity to Band members. The proposed Project would also be consistent with the Band's tradition of respect for the land and would fulfill the purposes for which the 70,000 acres were restored to the Band by the Federal Government in 1980 (Moapa Paiutes, n.d.).

The Project would also assist in addressing the management objectives in the Energy Policy Act of 2005 (Title II, Section 211) and Secretarial Order 3285A1 (March 11, 2009) that established the development of environmentally responsible renewable energy as a priority for the DOI.

Because the proposed expansion of the solar site could result in the potential for additional environmental effects outside of the range of effects analyzed in the MSEC FEIS and constitutes “substantial changes to the proposed action that are relevant to environmental concerns” under 40 CFR 1502.9(c)(1)(i), a Supplemental EIS (SEIS) was developed to evaluate the expanded ACSP site. The Project is analyzed in the Final Supplemental Environmental Impact Statement (FSEIS) (BIA 2020). The Environmental Protection Agency (EPA) published a Notice of Availability (NOA) for the FSEIS in the *Federal Register* on December 11, 2020. The BIA also published an NOA for the FSEIS in the *Federal Register* on December 11, 2020. Cooperating agencies for development of the FSEIS included the BLM, EPA, U.S. Fish and Wildlife Service (USFWS), and the Band.

1.2 Decisions Being Made

1.2.1 BIA

The BIA has a trust responsibility to protect and preserve the Band’s land, assets, and resources while promoting tribal self-governance. The BIA, pursuant to 25 United States Code (U.S.C.) § 415, has decided to approve the solar energy ground lease expansion between the Band and Applicant for the solar energy generation facility on the Reservation.

2. ALTERNATIVES

2.1 Considered and Carried Forward for Detailed Analysis

2.1.1 Proposed Project (BIA's Proposed Action/Selected Alternative)

Under the Selected Alternative (40 CFR 1505.2[b]), the Applicant will lease up to 1,350 additional acres for a total of up to 2,200 acres for up to 50 years (plus additional time as needed for construction and decommissioning) for the purposes of constructing, operating and maintaining, and decommissioning a 200 MW PV solar energy facility on the Reservation located in Clark County, Nevada. Major facilities include the solar field (blocks of PV panels mounted on fixed-tilt or tracking systems, and associated equipment), a BESS, a Project substation, and operation and maintenance (O&M) facilities. The associated off-site facilities (i.e., access road, gen-tie line, and temporary water pipeline) were evaluated and approved by the FEIS and ROD for the original MSEC Project and the corresponding ROW was issued by BLM.

A more detailed description of the Selected Alternative can be found in Chapter 2 of the FSEIS.

2.1.2 No Action Alternative

Under NEPA, the BIA and cooperating agencies must consider an alternative that assesses the impacts that would occur if the expansion of the solar ground lease was not approved. The No Action Alternative assumes that the expansion of the lease area would be denied and the Project would only use the originally approved 850-acre lease area. Under the No Action Alternative, the purpose and need of the Project would not be fully met - the Applicant would not be able to deliver the full amount of power specified in their power purchase agreement (PPA) and the Band would not benefit economically from the expansion of the lease.

2.2 Alternatives Considered but Eliminated from Detailed Analysis

The National Environmental Policy Act (NEPA) requires federal officials to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR § 1502.14). Specific alternatives that were eliminated from detailed analysis are discussed below, along with the rationale for their elimination.

Record of Decision

Arrow Canyon Solar Project

2.2.1 Alternative Reservation Locations

The Applicant and Band considered other areas on the Reservation for expansion of the previously approved 850-acre solar site. The proposed lease expansion study area for the ACSP was identified as the best location for the Project for a number of reasons: these lands were identified by the Band as viable for solar development; these lands are contiguous to the originally approved 850-acre solar site; and this location allows the ACSP to utilize the access road, gen-tie, and temporary water pipeline ROWs approved for the original project without modification. Given these factors, the Band and Applicant were not able to identify alternative locations on the Reservation to expand the solar field where impacts would have been significantly less substantial compared to the proposed expansion area.

2.2.2 Alternative Off-Reservation Locations

The Applicant considered lands off the Reservation for expansion of the solar Project. Adjacent federal lands managed by the BLM were evaluated for their potential use to expand the solar field. Use of these federal lands would not meet the purpose of providing revenues and employment opportunities to the Band. This purpose by definition limited the expansion to locations on the Reservation and held in trust by the BIA for the Band. Accordingly, BIA did not consider off-reservation alternatives to be viable.

2.2.3 Alternative Interconnection Options

While approved as options in the issued BLM ROD and ROW, alternatives that would interconnect the Project into the nearby Crystal Substation or other delivery points were not considered for the ACSP. The existing PPA and the large generator interconnection agreement (LGIA) with NV Energy specify delivery of the power generated by the Project to the Harry Allen Substation. There is no flexibility for a different point of interconnection.

2.2.4 Alternative Solar Technologies

While considered for the original MSEC Project, solar technologies other than PV were not considered for ACSP. The original MSEC EIS and ROD selected PV as the preferred technology. The current lease also specifies PV technology. In addition, PV technology is specified in the existing PPA and LGIA for the Project. Therefore, alternative technologies were not carried forward for detailed analysis.

2.2.5 Modified Alternative with Larger Drainage Buffers

It was suggested to incorporate a buffer of 500 feet on either side of the drainages that flow through the ACSP site to preserve the xeroriparian vegetation and better maintain the natural hydrology on site.

There is a limited amount of land available to the Band. The entire Reservation land base is 71,954 acres, all of which was set aside for the “benefit and use of the Moapa Band...”. This limited land base likewise limits the economic opportunities available to the Band.

Based on the conceptual site plan for the ACSP exhibited in Figure 2-2 of the FSEIS, the addition of 500-foot buffers around the three primary drainages being avoided would amount to approximately 564 acres of land that would not be used to economically benefit the Band (278 acres for the west drainage, 156 acres for the central drainage, and 130 acres for the east drainage). This represents approximately 0.8 percent of the total tribal land base and approximately 25.6 percent of the 2,200 acres that the Band has made available for the ACSP lease. Adding the drainage buffers to this Project would require that an additional 564 acres be developed for solar within the Reservation over that currently proposed to create the same amount of energy and economic benefit to the Band.

Therefore, BIA did not consider an alternative that would add wider buffers around the existing drainages to be viable because it would make development of much of the land within the lease study area infeasible and hinder the Band’s ability to obtain the economic benefits of its sovereign lands.

3. PERMITS AND APPROVALS

See Attachment A. This attachment provides a synopsis of the permits and approvals that the Applicant has obtained or will need to obtain prior to beginning construction activities.

4. CORRECTIONS TO THE FSEIS

Comments on the FSEIS were received from EPA Region 9 and four state agencies (Nevada Division of Water Resources, Nevada Division of Forestry, Nevada State Historic Preservation Office, and Nevada Department of Transportation) through the Nevada State Clearinghouse. None of the comments identified significant new circumstances or information relevant to

Record of Decision

Arrow Canyon Solar Project

environmental concerns that would require a change in the FSEIS. No errors in fact were pointed out and no corrections were provided. Therefore, none of the comments require a response and no revisions or clarifications are being made to the FSEIS.

5. MITIGATION MEASURES

As required by the Council on Environmental Quality (CEQ) NEPA regulations, 40 CFR § 1505.2(c), BIA has identified and adopted all practicable mitigation measures to avoid or minimize environmental harm from the Selected Alternative (Proposed Action Alternative) according to federal laws, regulations, and policies. The construction of the Project will also incorporate adaptive management principals to mitigate unforeseen impacts. Adaptive management is a structured, iterative process of optimal decision making in the face of uncertainty with an aim of reducing uncertainty over time via system monitoring.

The mitigation measures in **Attachment B** to this ROD, as analyzed in the FSEIS and required by this decision, represent best management practices (BMPs) and technologies, and the most current regulatory guidance to reduce adverse impacts to environmental resources such that the overall Project will pose minimal significant impact. The complete language of the mitigation measures, as well as design modifications and terms and conditions, are provided in the FSEIS.

5.1 Mitigations Measures Not Adopted

All mitigation measures analyzed in the FSEIS and recommended by state and federal agencies and the cooperating agencies were adopted for this Project.

5.2 Mitigation Compliance Monitoring and Reporting

All mitigation measures and plans discussed in the FSEIS will be implemented by the Applicant. The Applicant will report to the proper agencies as outlined in the plans, specifically, or directly to the BIA as determined by the lease agreements. Reporting procedures will be determined prior to onset of construction activities.

6. PUBLIC INVOLVEMENT

6.1 Public Scoping Period

The BIA published a Notice of Intent (NOI) to prepare an SEIS for the proposed Project in the Federal Register on January 30, 2020. In addition, over 70 scoping letters were sent by the BIA to other various non-governmental organizations and other interested stakeholders. Legal notice/public notice announcing the public scoping meetings was published in two local newspapers and the BIA hosted two public information and scoping meetings - one on the Reservation on February 25, 2020 and the other located in Las Vegas, Nevada on February 26, 2020.

During the scoping period, the BIA identified issues to be addressed in the SEIS. The scoping report, found in Appendix B of the ACSP FSEIS, summarizes the scoping process and comments received. The table below provides a summary of key issues identified in the comments provided during scoping for the Project.

KEY ISSUES IDENTIFIED DURING SCOPING	
ISSUE TOPIC	ISSUE/COMMENT
Water Resources	Need to comply with relevant floodplain and stormwater requirements to minimize erosion and sediment production
	Avoid development within major washes
	Describe the amount and source of the water to be used during construction and operation
Soils	Should include measures to minimize soil disturbance and associated erosion to the extent possible
Vegetation	Should include measures to minimize vegetation clearing to the extent possible
	Should include measures to control weeds to the extent possible
Cultural Resources	Determine whether the lease expansion could have potentials effects to significant cultural sites in the lease study area that would need to be mitigated or avoided.
	Determine whether the project could impact the Old Spanish National Historic Trail

Record of Decision

Arrow Canyon Solar Project

KEY ISSUES IDENTIFIED DURING SCOPING	
ISSUE TOPIC	ISSUE/COMMENT
Socioeconomics	Describe the economic development opportunity for the Band
	Describe the jobs for tribal members and others in the region that would be created
	Confirm whether water pipeline is temporary vs permanent. If permanent, Band would prefer it be located on tribal land instead of within the federal utility corridor
	Discuss maintenance on roads used for project access
Wildlife	Describe the potential impacts to threatened and endangered species (including the desert tortoise) and other sensitive wildlife species
	Consider measures that minimize impacts to desert tortoise habitat and connectivity
	Describe the potential impacts to avian species from construction and operation of the project
Visual Resources	Evaluate the impact the expanded solar field could have on views from the Old Spanish National Historic Trail
Air Quality/Public Health	Measures should be implemented to control and minimize fugitive dust and to prevent worker exposure to <i>Coccidioides</i> spores, if present
Cumulative Impacts	Identify impacts from other solar projects and other developments in the area
	Discuss trends of and cumulative impacts to key resources including desert tortoise

6.2 DSEIS Preparation and Distribution

The BIA published an NOA announcing the publication of the Draft Supplemental Environmental Impact Statement (DSEIS) for the Proposed Project in the *Federal Register* on August 7, 2020. In addition, notices were placed in local newspapers and two virtual public meetings were held to receive comments on the DSEIS - one on September 1, 2020 and the other on September 2, 2020.

The DSEIS was available on the project website (www.arrowcanyonsolareis.com/) and hard copies were available for review at the BIA Western Regional Office Branch of Environmental

Record of Decision

Arrow Canyon Solar Project

Quality Services, 2600 North Central Avenue, 4th Floor Mail Room, Phoenix, AZ 85004–3008 and BIA Southern Paiute Agency, 180 North 200 East, Suite 111, St. George, Utah 84770. In addition, a notice was sent, at their request, to any party who wished to provide comments to the DSEIS and/or requested that they be added to the mailing list.

6.3 FSEIS Preparation and Distribution

On December 11, 2020 the BIA published the NOA for the Arrow Canyon Solar Project FSEIS in the *Federal Register*, Vol. 85 No.239. The EPA NOA was published in the *Federal Register* (Vol. 85 No.239) on December 11, 2020. The EPA NOA announced the public availability of the FSEIS, which initiated the 30-day notice.

The FSEIS was made available on the Project website (www.arrowcanyonsolareis.com/) and hard copies at the BIA Western Regional Office Branch of Environmental Quality Services, 2600 North Central Avenue, 4th Floor Mail Room, Phoenix, AZ 85004–3008 and BIA Southern Paiute Agency, 180 North 200 East, Suite 111, St. George, Utah 84770. In addition, a notice was sent, at their request, to any party who provided comments on the DSEIS and/or requested that they be added to the mailing list. Also, BIA acknowledged that the FSEIS was publicly available in the Federal Register and within local papers. The FSEIS took into account and addressed all public and agency comments received on the DSEIS.

7. DECISION RATIONALE

The BIA has identified the proposed Project as the Selected Alternative. Overall, the Selected Alternative will accomplish the purpose and need for the federal action and help in fulfilling BIA statutory mission and responsibilities, given consideration to economic, environmental, and technical factors. The Project location and the use of PV technology will minimize adverse environmental impacts. The chosen PV panels would have minimal visibility from a distance and would minimize the use of water resources – up to 300 acre-feet (AF) during an approximate 20-month construction period and only up to 30 AF/year during operations. The PV technology does not create noticeable noise and is considered a “proven technology”.

The Project also will assist in addressing the management objectives in the Energy Policy Act of 2005 (Title II, Section 211) and Secretarial Order 3285A1 (March 11, 2009) that established the development of environmentally responsible renewable energy as a priority for the DOI.

Record of Decision

Arrow Canyon Solar Project

7.1 BIA Directive

The BIA has determined that the lease expansion and associated agreements are in the best interest of the Band. The Project will create an economic development opportunity for the Band, provide lease income as a revenue source for the Band, create new jobs and employment opportunities for Band members, develop sustainable renewable resources, and provide other benefits by using the Band's solar resources.

The Project will also assist large power users in meeting their renewable energy goals and mandates by providing clean renewable electricity generated from the solar resources that may be efficiently connected to existing transmission lines in a manner that minimizes adverse site impacts.

The Project will assist the Federal Government, the State of Nevada, and neighboring states meet their renewable energy goals. The Project would also help meet the goals of the Federal Government to eliminate or reduce GHG emissions and promote the deployment of renewable energy technologies. The Project's scale, technology, and location have been selected to provide substantial amounts of renewable energy to regional utility customers that reside in areas that are not suitable for solar development. The Project is designed to provide solar power at a price that is competitive with other renewable sources of power.

The Project location allows efficient connection of the energy generated from solar resources to existing transmission infrastructure via the previously approved gen-tie line. The selected site is well positioned to minimize impacts associated with interconnection into the existing transmission infrastructure with access to the regional transmission system and available capacity to carry the Project's output to market.

The solar facility is not within the FEMA 100- or 500-year flood zones and would not have impacts to jurisdictional waters of the United States. Existing roads and the previously approved access road provide access to Interstate 15. The Project area has been documented as having limited cultural resource issues and moderate wildlife issues.

The Project does not interfere with day-to-day tribal life and does not interfere with the Band's plans for other economic development initiatives. The economic benefits would accrue to the Band once the Project is completed.

7.2.1 Analysis of Required Factors

The BIA has chosen the Selected Alternative (Proposed Action Alternative) due to minimal short- and long-term adverse impacts, beneficial long-term impacts for the Band, and the fact that no significant unmitigated impacts would occur. Adequate consideration has been given to the five approval criteria under 25 U.S.C. § 415(a), as follows:

1. The relationship between the use of the leased premises and the use of the neighboring lands. The BIA and the Band chose the Selected Alternative (Proposed Action Alternative) after considering alternative sites on the Reservation as well as alternative technologies. Alternative sites and technologies were eliminated from further consideration based on human and natural resource factors as discussed in the FSEIS.
2. The height, quality, and safety of any structures or other facilities to be constructed on the leased premises. The chosen PV technology will have a low overall height and will have a low fire risk due to the lack of flammable materials. A fire protection system will be provided for the solar facility.
3. The availability of police and fire protection, utilities, and other essential community services. The FSEIS shows that there will be no significant impact on utilities and other community services. In addition to on-site fire protection systems, Clark County is responsible for providing firefighting capability on the Reservation and law enforcement will be managed by the Moapa Tribal Police Department.
4. The availability of judicial forums for all criminal and civil matter arising on the leased premises. The lease specifically provides for arbitration or adjudication in the appropriate federal court. The lease provides that any claims/actions under the lease will be adjudicated in district court in Nevada.
5. The effect on the environment of the proposed land use. All relevant environmental impacts have been fully addressed in the FSEIS.

Record of Decision

Arrow Canyon Solar Project

8. FINAL AGENCY ACTION

8.1 Bureau of Indian Affairs

I hereby approve the decision to execute the Band’s expanded Solar Energy Ground Lease with Arrow Canyon Solar, LLC for an additional 1,350 acres (for a total of up to 2,200 acres) to facilitate the development of up to a 200 MW PV solar facility on the Reservation as described in the DSEIS and FSEIS. The term of the lease would be for up to 50 years (plus additional time as needed for construction and decommissioning). This decision is subject to associated mitigation measures adopted by this ROD (Attachment B) and as may be contained in Volume II of the FSEIS.

This decision does not authorize construction to begin and does not apply to any BLM, State, or private lands, which may be involved in the Project and does not create any right or easement, nor establish eminent domain, across such lands.

8.1.1 Protest and Appeal Opportunities

Any person who may be adversely affected by this decision may appeal the decision to the Interior Board of Indian Appeals (IBIA) at 801 North Quincy Street, #300, Arlington, Virginia, 22203, in accordance with the regulations set forth at 25 CFR Part 2. The notice of appeal must be signed and postmarked within 30 days of the date of this decision. The notice will clearly identify the decision being appealed, and a copy of the decision will be attached to the notice of appeal. Copies of the notice must be sent to the Assistant Secretary for Indian Affairs, MS 4140-MIB, U.S. Department of the Interior, 1849 C Street, N.W., Washington, D.C., 20240, as well as to my office and to all other interested parties known to the person appealing the decision. The notice of appeal to the IBIA must also certify that the appealing party sent copies to each of these parties. The IBIA will notify an appealing party of further appeal procedures. If no appeal is timely filed, this decision will become final for the Department of the Interior.

Approved By:

Bryan Bowker
Director
Bureau of Indian Affairs-Western Region

Date

Record of Decision

Arrow Canyon Solar Project

Record of Decision

Arrow Canyon Solar Project

ATTACHMENT A

**POTENTIAL APPROVALS
ARROW CANYON SOLAR PROJECT**

Record of Decision

Arrow Canyon Solar Project

ANTICIPATED PERMITS/APPROVALS FOR THE PROJECT	
Land Jurisdiction	Solar Field
Moapa River Indian Reservation / BIA	Approval of lease to expand the solar energy facility (BIA)
	Section 7 Consultation (USFWS)
	Section 106 Consultation (State Historic Preservation Office - SHPO)
	Compliance with Tribal Environmental Policy Ordinance
	Spill Prevention, Control, and Countermeasure (SPCC) Plan (EPA)
	Construction Stormwater Permit (EPA)

Record of Decision

Arrow Canyon Solar Project

ATTACHMENT B

**MITIGATION MEASURES
ARROW CANYON SOLAR PROJECT**

APPLICANT-PROPOSED MITIGATION MEASURES

Soils

The Project could result in adverse impacts to soils as a result of increased erosion rates and reduction of soil productivity from removal of vegetation and grading activities. The Applicant would implement the following mitigation measures to reduce overall impacts to soil resources:

- Grading on the solar site would be minimized to only those areas where necessary to meet the construction and operational requirements of the Project. Where no grading occurs, existing vegetation would be mowed to a height of approximately 18 inches and driven over / crushed during construction activities where feasible and where it does not pose a safety risk. Following construction, on-site vegetation will be allowed to return to those areas and will only be mowed to avoid conflicts with solar facility operation and as necessary for safety and fire prevention.
- Construction and operational activities will be conducted in compliance with a surface water protection plan (SWPP) that would include BMPs and other erosion-control measures designed to minimize soil erosion and limit sheet flow and downstream sedimentation. The SWPP would also incorporate adaptive management of actions if erosion and sedimentation control measures are found to be insufficient to control surface water at the site.
- To minimize wind erosion, all construction activities shall comply with the Fugitive Dust Control Plan that would be developed and implemented for the Project. Measures such as watering, application of dust palliatives, and ‘stop work’ periods during high winds would be incorporated into the plan.
- A Site Restoration and Revegetation Plan would be implemented to limit impacts to native, on-site vegetation as much as practicable. The Plan would define construction limits and BMP measures for soil restoration and re-planting and establish monitoring and success criteria as applicable.

Water Quality / Quantity

Potential adverse impacts to water are related to soil erosion and downstream sedimentation as well as water transport of hazardous material through soil erosion. As mentioned above, soil erosion would be managed via the SWPP and erosion controls within ephemeral washes to reduce velocity

Record of Decision

Arrow Canyon Solar Project

of flood flow and limit downstream sedimentation. The measures below would be implemented to reduce overall impacts to water quality:

- Grading on the solar site would be minimized to only those areas where necessary to meet the construction and operational requirements of the Project – such as where leveling is necessary, the driveways among the rows of panels, etc. The major existing drainage channels that traverse the site will be retained by the site design and scour protection along these drainages would be installed as needed. Ephemeral drainage of the site would sheet flow into the existing drainage channels.
- Final grading and drainage plans will be completed and submitted for approval prior to construction. The final drainage and grading plans would demonstrate that downstream flows would not be adversely impacted due to any proposed changes to natural washes resulting from proposed grading, drainage management measures or the addition of retention ponds.
- The paths for all stormwater flows would be identified and modeled as part of the final grading and drainage plan.
- The number of drainage crossings would be minimized to the extent possible and each would be designed to accommodate adequate flow.
- Adaptive management techniques will be implemented via the SWPP to maintain BMPs utilized to decrease sediment erosion and downstream transport of such during large rain events.
- Weekly and post-storm monitoring of erosion and sedimentation would be conducted during construction. If localized gullies were to develop or result in increased rates of erosion and sedimentation, repairs would be made and erosion and sedimentation control measures would be updated.
- Existing vegetative buffers would be maintained as much as practical along perimeter edges of major drainages.
- Placing Project solar facilities in major washes would be avoided by all alternatives to minimize direct and indirect impacts to the washes from erosion, migration of channels and local scour. All larger Project components will be located outside of drainages. Some roads and collector lines could be placed within ungraded drainages where technically feasible.
- Where fencing would be built across drainages, breakaway fencing would be installed and would be designed to avoid interference with flows through those drainages. Breakaway fencing would be inspected and repaired as needed within 48 hours of large flood events.
- A Spill Prevention Counter-measure and Control (SPCC) Plan would be developed and implemented during construction and the operations phase of the Project. Adequately-sized secondary spill containment would be incorporated with all chemical storage

Record of Decision

Arrow Canyon Solar Project

vessels to ensure proper capture and control measures for potential spills. The Plan would also provide for hazardous material spill prevention and clean-up measures, were a spill to occur.

Air Quality

The primary impact upon air would occur during the construction and decommissioning periods from increased vehicle emissions and fugitive dust. The following mitigation measures would be incorporated into construction contracts by the Proponent and would be implemented to reduce overall air impacts that would result from the Proposed Project:

- Grading on the solar site would be minimized to only those areas where necessary to meet the construction and operational requirements of the Project. Where no grading occurs, existing vegetation would be mowed to 18 inches and driven over / crushed during construction where feasible and where it does not pose a safety risk. Following construction, on-site vegetation will be allowed to return to those areas not directly disturbed by project components and will only be mowed to avoid conflicts with plant operation and as necessary for safety and fire prevention.
- Vehicular speeds on non-paved roads would be limited 25 miles per hour.
- When hauling material and operating non-earthmoving equipment, spillage would be prevented and speeds would be limited to 15 miles per hour and speed of earth-moving equipment to 10 mph.
- Grading operations would be phased where appropriate to limit the amount of disturbance at any one time, and water trucks would be used for stabilization of surfaces under windy conditions. Soil stabilizers and dust palliatives would be used where practical.
- Water would be applied to disturbed areas to control dust and to maintain moisture level at optimum levels for compaction, as needed. Water will be applied using water trucks and application rates would be monitored to prevent runoff and ponding.
- Exposed stockpiled material areas would be covered or stabilized using water or other feasible methods during windy conditions (forecast or actual wind conditions of approximately 25 miles per hour or greater).
- Dust control measures such as watering and the application of palliatives approved by the USFWS would be applied to access roads and other Project roads to adequately control fugitive dust.
- Excavation and grading would be suspended during periods of high winds over 25 miles per hour.
- All trucks hauling soil and other loose material would be covered or at least 2 feet of freeboard would be maintained.

Record of Decision

Arrow Canyon Solar Project

- All paved roads would be kept clean of mud, dirt, or debris, as necessary. Gravel or other similar material would be used where non-paved access roads intersect paved roadways to prevent mud and dirt track-out.
- Air pollutant emissions from the emergency diesel generators and/or fire water pump engines would be minimized by an operating limitation of no more than 50 hours per year, per engine for routine testing and maintenance of these components. These engines would be compliant with current EPA tier emission performance criteria.
- In construction contracts, recommend that all contractors maintain and tune engines per manufacturer's specifications to perform to EPA certification levels, where applicable.
- Any tampering with engines would be prohibited and continuing adherence to manufacturer's recommendations would be required.
- In construction contracts, recommend that contractors lease new, clean diesel burning equipment. In general, the best available emissions control technology would be used - Tier 4 engines should be used for project construction equipment to the maximum extent feasible.
- Limit unnecessary idling and perform periodic and unscheduled inspections to ensure that construction equipment is properly maintained.
- In construction contracts, recommend that contractors use EPA-registered particulate traps and other appropriate controls where suitable to reduce emissions of diesel particulate matter and other pollutants at the construction site.
- A traffic and parking management plan would be developed for the construction period to minimize traffic interference and maintain traffic flow.

Biological Resources

The following measures will minimize, reduce, and mitigate impacts to biological resources from implementation of the Proposed Project:

General Biological Mitigation Measures

- Preconstruction surveys will be conducted by qualified biologists according to the most current USFWS or other applicable 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.
- Biological monitors will be assigned to the Proposed Project in areas of sensitive biological resources. Biological monitors would be in place along the access road during construction and/or temporary fencing utilized during the construction period to minimize

Record of Decision

Arrow Canyon Solar Project

any impacts from vehicles during construction. The biological 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, biological 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.

- The Applicant will monitor establishment and functionality of sediment control devices as outlined in the SWPP. Placement of these devices may need to be adjusted and placed further from roads to minimize risk to tortoises using them for shade. Ensure that sediment control devices are in place and working properly on a weekly basis.
- 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 randomly checked before entering the site for any invasive species debris or seed.
- Any trenches or excavations should be covered if left overnight or have escape ramps to allow wildlife to safely exit.
- 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 an egg being laid, and active monitoring of the site for presence of ravens.
 - 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.
- 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 site, existing roads, and designated areas.
- 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 *Reducing Avian Collisions with Power Lines* by the U.S. Fish and Wildlife Service and the APLIC (APLIC 2012) Vegetation clearing and ground-disturbing activities would be conducted outside the migratory bird nesting season when practical. If ground-disturbing activities cannot be

Record of Decision

Arrow Canyon Solar Project

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 300 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. 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 destroy 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.
- 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 would be surveyed (if landowner access allows), per USFWS 2007 Burrowing Owl guidance (USFWS 2007).
 - If an active nest is identified, there would 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 USFWS.
 - The occurrence and location of any Western Burrowing Owls would 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.
- Lighting will 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.
- A Worker Environmental Awareness Program (WEAP) will be prepared. All on-site personnel will be required to participate in WEAP training prior to starting work on the Proposed Project. The WEAP training will include a review of the special status species

Record of Decision

Arrow Canyon Solar Project

and other sensitive resources that could exist in the Proposed Project, the locations of sensitive biological resources and their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. A record of all trained personnel will be maintained.

Construction vehicles and equipment will be cleaned of soil and plant material prior to entering and leaving the work site to minimize the introduction and spread of weeds.

- The following measures are intended to mitigate potential impacts to Gila monsters:
 - Field workers and personnel will know how to: (1) identify Gila monsters and be able to distinguish it from other lizards such as chuckwallas and western banded geckos; (2) report any observations of Gila monsters to the NDOW; (3) be aware of the consequences of a Gila monster bite resulting from carelessness or unnecessary harassment; and (4) be aware of protective measures provided under state law and federal management policies.
 - Live Gila monsters found in harm's way on the ACSP site will be captured and then detained in a cool (<85°F), shaded environment (air-conditioned vehicle or trailer is okay) by the project biologist or equivalent personnel until a NDOW biologist can arrive for biological documentation prior to releasing. Although a Gila monster is venomous and can inflict a serious bite, its relatively slow gate allows for it to be easily coaxed or carefully lifted into an open bucket or box using a long-handled instrument like a snake hook, tongs or shovel (*Note: it is not the intent to request unreasonable action to facilitate captures; additional coordination with NDOW will clarify logistics*). For safe detainment, an unused or sterile 5- gallon plastic bucket with a secure, vented lid; an 18"x18"x4" plastic sweater box with a secure, vented lid; or, a tape-sealed cardboard box of similar dimension may be used for safe containment. Additionally, written information identifying the mapped capture location, GPS coordinates in Universal Transverse Mercator (UTM) using the North American Datum (NAD) 83 Zone 11. Date, time, and circumstances (e.g. biological survey or construction) and habitat description (vegetation, slope, aspect, substrate) will also be provided to NDOW.
 - Injuries to Gila monsters may occur during excavation, road grading, or other construction activities. In the event a Gila monster is injured, it should be transferred to a veterinarian proficient in reptile medicine for evaluation and appropriate treatment. Rehabilitation or euthanasia expenses will be covered by the Applicant. NDOW will be immediately notified of any injury to a Gila monster and which veterinarian is providing care for the animal. If an animal is killed or found dead, the carcass will be immediately frozen and transferred to NDOW with a complete written description of the discovery and circumstances,

Record of Decision

Arrow Canyon Solar Project

date, time, habitat, and mapped location (GPS coordinates in UTM using NAD 83 Zone 11).

- Should NDOW's assistance be delayed, biological or equivalent acting personnel on site should detain the Gila monster out of harm's way until NDOW personnel can respond. The Gila monster should be detained until NDOW biologists have responded. Should NDOW not be immediately available to respond for photo-documentation, a digital camera will be used to take good quality images of the Gila monster in situ at the location of live encounter or dead salvage. The pictures will be provided to NDOW with specific location information including GPS coordinates, date, time and habitat description. Pictures will show the following information: (1) Encounter location (landscape with Gila monster in clear view); (2) a clear overhead shot of the entire body with a ruler next to it for scale (Gila monster should fill camera's field of view and be in sharp focus); and (3) a clear, overhead close-up of the head (head should fill camera's field of view and in sharp focus).
- A Decommissioning Plan would be developed and provided to the Band and BLM addressing the Project facilities under their respective management. This plan would be submitted for approval at least six months prior to commencement of site closure activities.
- Potential closure activities could include re-grading and restoration of original site contours and re-vegetation of areas disturbed by closure activities in accordance with the Site Restoration Plan. Revegetation seed mixes will be composed of native plant species.
- Any and all additional measures identified in the Biological Opinion to mitigate impacts to sensitive species will be implemented as prescribed.

Cultural Resources

The following mitigation measure would be implemented as needed:

- Should any unrecorded and unanticipated cultural resources be discovered during construction, all activities within the immediate area of discovery shall cease. The Chairman of the Moapa Tribal Council and the BIA Regional Archeologist shall be notified immediately and, consulting with BLM and SHPO as appropriate, they will make arrangements to assess the nature of discovered cultural resources and mitigate any effects resulting from the unanticipated discovery.

Record of Decision

Arrow Canyon Solar Project

Transportation

The short-term impacts to traffic during construction would be reduced by implementing the following mitigation measures:

- A Traffic Management Plan for the construction period would be finalized that identifies BMPs to minimize construction-related traffic impacts.
- Deliveries of materials would be scheduled for off-peak hours, when practical, to reduce effects during periods of peak traffic. Delivery personnel would be provided with an abbreviated WEAP tailored to their limited access to the Project Site.
- Truck traffic would be phased throughout construction, as much as practical.
- Carpooling or mass transportation options for construction workers would be encouraged.
- If required, before construction, the Applicant and agency representatives will document the pre-construction condition of the approximately 3 miles of access route (North Las Vegas Boulevard), noting any existing damage, with the Applicant responsible for its fair-share of costs to perform the assessment. After construction, the Applicant shall pay its fair-share of estimated costs to restore the access route to its pre-construction condition, as determined by the agency representatives, and subject to adjustment after actual costs are incurred. “Fair-share” in this context means that portion of repair costs attributable to damage to the road caused by activities conducted by or on behalf of the Applicant, as opposed to damage caused by the activities of other users of the same road.

Public Health & Safety

The potential for exposure to hazards exists during transportation of materials, direct handling of substances, inadvertent release of hazardous material to the soil and groundwater, and general fire and electrical hazards. In addition to the previously discussed SPCC Plan, the Applicant would implement the following measures to reduce significant impact to public health and safety:

- General Design and Construction Standards - The Project would be designed in accordance with all applicable engineering and construction standards and guidelines.
- Health and Safety Program - All employees and contractors would be required to adhere to appropriate health and safety plans and emergency response plans. All contractors would be required to maintain and carry health and safety materials including the safety data sheets (SDSs) of hazardous materials used on site.

Record of Decision

Arrow Canyon Solar Project

- Emergency Response Plan - An Emergency Response Plan would be developed and implemented based on the results of a comprehensive facility hazard analysis.
- Waste Management Plan - A waste management plan would be developed that describes the storage, transportation, and handling of wastes and emphasize the recycling of construction wastes where possible.
- The Project would coordinate with the holders of all existing ROWs that would be crossed or paralleled by the Project ROWs (i.e., transmission lines, access roads, water pipeline) to minimize encroachment conflicts and possible effects to existing transmission lines and pipelines.

ADDITIONAL AGENCY-REQUIRED MITIGATION

The measures below to reduce effects on the desert tortoise during construction, operation, and maintenance have been included in the Biological Opinion (BO) for ACSP and would be required to be implemented:

Construction Minimization Measures

1. Construction area flagging. Work areas will be flagged prior to beginning construction activities and disturbance will be confined to the work areas. A biological monitor will escort all survey crews onsite 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. Temporary tortoise-proof fencing will be installed around the boundary of the solar facility. Biological monitors under supervision of an authorized biologist (approved by the Service) will be present during fence installation to move all tortoises in harm's way to outside the work area. Additional clearance surveys and activities will be conducted after completion of the tortoise fence to ensure that no tortoises remain inside the fenced construction boundaries.

Fence specifications will be consistent with those approved by the Service (Service 2009b). Tortoise guards will be placed at all road access points where 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. The temporary tortoise-proof fencing will be removed once the project is commissioned, allowing tortoises to re-occupy the site during operations.

During the tortoise active seasons, all new fences will be checked twice a day for the first two weeks after construction or the first two weeks after tortoises become active if fence construction occurs in the winter, including once each day immediately before temperatures reach lethal thresholds. After the first two weeks, all tortoise exclusion fencing will be inspected monthly during construction, quarterly for the life of the project, and immediately following all major rainfall events. Any damage to the fence will be repaired within two days of observing the damage.

3. Field Contact Representative. The BIA and Applicant will designate a Field Contact Representative (FCR) who will be responsible for overseeing compliance of the

Record of Decision

Arrow Canyon Solar Project

minimization measures of the biological opinion. The FCR will be onsite during all active construction activities that could result in “take” of a desert tortoise. The FCR will have the authority to halt activities that are in violation of the desert tortoise protective measures until the situation that could result in take is remedied.

4. Authorized desert tortoise biologist. All authorized desert tortoise biologists (and monitors) are agents of BIA and the Service and will report directly to BIA, the Service, BLM, and the 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 as described in the biological opinion. Prior to starting construction, authorized biologist(s) will submit documentation of authorization from the Service and approval from NDOW. Potential authorized desert tortoise biologists will submit their statement of qualifications to Service.

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

Potential authorized desert tortoise biologists must submit their statement of qualifications to the Service’s Southern Nevada Fish and Wildlife Office in Las Vegas for approval, allowing a minimum of 30 days for Service response. The statement form is available in Chapter 3 of the Desert Tortoise Field Manual on the internet at:

https://www.fws.gov/nevada/desert_tortoise/dt/dt_manuals_forms.html

Authorized desert tortoise biologist requests in southern Nevada should be e-mailed to: ADTB_request@fws.gov

5. Biological monitoring. Under supervision of an authorized biologist, biological monitors will be present at all active construction locations (not including inside 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 tortoises and tortoise sign observations in accordance with approved protocol, and report incidents of noncompliance in accordance with the biological opinion 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 aboveground during construction activities will be moved offsite by an authorized biologist following the protocols described in the Desert Tortoise Translocation Plan (Translocation Plan).

Record of Decision

Arrow Canyon Solar Project

6. Desert tortoise clearance surveys and translocation. After installation of tortoise fencing around the perimeter of the solar facility and prior to the commencement of activities described in the construction phases that follow fencing, as listed above, biological monitors and the authorized desert tortoise biologists who supervise them 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 (Service 2009b).

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 excavate 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, 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 obvious tortoise burrow will not be done as it has shown to be ineffective and inefficient in locating tortoises; instead, all obvious tortoise burrows will be scoped for presence and possible extraction. 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 Service-approved guidance (Service 2009b). 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 remain in place to allow for tortoise use during operations. 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 may be temporarily penned or will be translocated following Service approval, contingent upon weather conditions and health assessment results. 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

Record of Decision

Arrow Canyon Solar Project

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.

The Service will approve the Translocation Plan following the 2020 guidance (U.S. Fish and Wildlife Service 2020) prior to the start of construction. The plan identifies potentially suitable recipient locations, control site options, post-translocation densities, procedures for pre-disturbance clearance surveys and tortoise handling, as well as disease testing and post-translocation monitoring and reporting requirements. Tortoises found within 500 meters (m) of the project boundary (fenceline) will be translocated outside of the nearest fence to a location that contains suitable habitat; tortoises found within the interior of the project site (>500 m from a boundary fence) will be penned during construction and returned within the solar site after construction (or translocated to somewhere within the Study Area Recipient Site if needed).

BIA and the Applicant will have an authorized biologist translocate and return tortoises following the Service- approved protocol (Service 2009b) and according to the approved Translocation Plan. If the Service releases a revised protocol for handling desert tortoises before initiation of project activities, the revised protocol will be implemented.

Tortoises found within the project area will be translocated to an area of suitable habitat as directed by the Service. Translocation will follow installation of exclusionary tortoise fence, as determined in coordination with the agencies. Translocation events will occur to specific locations outlined in the approved project-specific translocation review package and Disposition Plan, based on construction and translocation timing considerations for each tortoise. The project will employ two strategies for moving tortoises, depending on the initial capture location of each animal:

- Short-distance translocation: Tortoises found within approximately 500 m of the solar site fenceline will be translocated to areas immediately outside of the project's temporary exclusion fencing. All translocated tortoises will have health assessments, have blood samples drawn, and be marked. Following the completion of construction, the exclusion fencing will be removed, the permanent site fencing will be permeable to desert tortoises, and the existing vegetation on the project site is expected to be crushed or trimmed to facilitate construction and operation of the project. Therefore, the translocation strategy is designed to allow tortoises to freely move through, and potentially re-occupy, the site following construction.
- Study area translocation: Tortoises found in the interior of the solar site fenceline (approximately >500 m from the exclusion fence) will be held in temporary holding pens for the duration of construction and returned to the solar site interior, or

Record of Decision

Arrow Canyon Solar Project

translocated to another suitable area determined on a case-by-case basis through consultation with the Service, following construction. The following actions will occur:

- An authorized biologist will perform health assessments and draw blood samples for each tortoise returned. Blood testing will determine whether any desert tortoise suffers from upper respiratory tract disease (URTD).
- Any samples collected during desert tortoise health assessments that are not used for tests would be archived with UCLA. Appropriate fees, assessed as \$3,000 as of the date of this biological opinion, would be paid to UCLA by the Applicant.
- Tortoises will be temporarily tagged with combination global positioning system (GPS)/radio-transmitter tags, 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 the Service.
- When determining a release location for an individual tortoise, release site preference will be to find a like-for-like shelter resource. Every attempt will be made to find similar cover sites and habitat to that at the location of each individual found within the solar site, otherwise all translocated tortoises shall be released at the most appropriate and available unoccupied shelter sites (e.g., soil burrows, caliche caves, rock caves, etc.) or under the shade of a shrub. Because of the impermanent nature of soil burrows and cave availability, prior to submitting the final Disposition Plan and determining exact areas of release, potential release sites will be re-investigated for existing burrows and caliche or rock caves that can be used for shelter sites. Known active and inactive tortoise burrows discovered during the surveys will be re-investigated for this purpose. If insufficient shelter sites exist in an area to be used for relocation, the Applicant shall coordinate with the agencies to determine the most appropriate course of action, such as reviewing an alternate release site, modifying/improving existing burrows and partial burrows, or artificially creating burrows per Service protocols prior to relocation. The number of artificial burrows per returned tortoise will be included in the translocation review package/Disposition Plan, as feasible, and may include more than one burrow per tortoise to increase relocation success (i.e. tortoises remaining within their release locations). The disposition of returned tortoises will be evaluated and follow the reporting requirements of the biological opinion.

Record of Decision

Arrow Canyon Solar Project

- 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 will 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.

7. Integrated Weed Management Plan. Prior to construction, an Integrated 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 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.

Record of Decision

Arrow Canyon Solar Project

9. Internal Site Access roads. Construction access will be limited to the project area and established access roads to the extent practicable, and vehicle traffic off established internal site access roads will be minimized as much as practicable.

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 based on surface conditions and safety considerations and remain with limits established by the Service in the biological opinion.

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 Service and BIA as stated in the Raven Management Plan. 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. 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.

When outside of the fenced areas of the project site, project personnel will not move construction pipes greater than 3 inches in diameter if they are stored less than 8 inches above the ground until they have inspected the pipes to determine the presence or absence

Record of Decision

Arrow Canyon Solar Project

of desert tortoises. As an alternative, the Applicant may cap all such structures before storing them outside of the fenced area.

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 minimum 200-foot buffered area around the blasting site will be surveyed. A larger area will be surveyed depending on the anticipated size of the explosion as determined by the authorized desert tortoise biologist. All desert tortoises above ground within the surveyed area will be moved 500 feet from the blasting site to a shaded location or placed in an unoccupied burrow. Desert tortoises that are moved will be monitored or penned to prevent returning to the buffered survey area. Tortoises located outside of the immediate blast zone and that are within burrows will be left in their burrows. All potential desert tortoise 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. Tortoises 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. Tortoises may be held in- or ex-situ (e.g., if temperatures do not allow for translocation or if tortoises do not pass the health assessment) for a maximum of 12 months. Previously constructed and approved enclosure pens are present adjacent to the project site and will be used if any quarantine is necessary. Quarantine is not the preferred option for tortoises to be translocated and will only be used as necessary in coordination with the Service. This penning is not the same as the temporary penning described in the blasting measure.

16. Surface Water Protection Plan. The applicant will oversee the establishment and functionality of sediment control devices as outlined in this plan.

17. Tortoise Encounters during Construction. If a tortoise is injured as a direct or indirect result of project construction activities, it shall be immediately transported to a veterinarian or wildlife rehabilitation facility and reported within 24 hours or the next workday to the Service. Any project construction-related activity that may endanger a desert tortoise shall cease in the immediate vicinity of a desert tortoise if encountered on the project site. Project construction activities may resume after an Authorized Biologist removes the desert tortoise from danger or after the desert tortoise has moved to a safe area.

Record of Decision

Arrow Canyon Solar Project

Operations and Maintenance Minimization Measures

The following minimization measures will be implemented during O&M of the proposed action to reduce effects on the desert tortoise and other species:

18. WEAP Training. WEAP training will be required for all O&M 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. All project personnel will check under vehicles or equipment before moving them. If project personnel encounter a desert tortoise, they will avoid the tortoise. The desert tortoise will be allowed to move a safe distance away prior to moving the vehicle.

19. Biological Monitoring. A biological monitor(s) will be present during ground-disturbing activities outside of the fenced solar facility to ensure that no tortoises are in harm's way. Tortoises found aboveground during O&M 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 will 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 O&M. Speed limits in the solar facility will be restricted to 15 mph during O&M.

21. Trash and Litter Control and other Predator Deterrents. 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. To reduce attractants for birds, open containers that may collect rainwater will be removed or stored in a secure or covered location.

Decommissioning Minimization Measures

The same minimization measures used for construction will be used for decommissioning.

Compensatory Mitigation

The applicant will pay the following required compensatory mitigation:

Record of Decision

Arrow Canyon Solar Project

22. Habitat Compensation. Prior to surface disturbance activities within desert tortoise habitat, the project proponent sets aside, at minimum, an amount equivalent to a one-time remuneration fee (per acre of proposed disturbance). The compensation for habitat loss under Section 7 of the Endangered Species Act (ESA) is an annually adjusted rate, currently \$923/acre (subject to change annually on March 1). Fees are based on the current \$923/acre fee for all permanently disturbed acres. For all project acres that will be temporarily disturbed and leave vegetation in place, fees are assessed at 50% of the current rate.

For this Project, in lieu of assessed fees, the Project proponent will fund a desert tortoise habitat use study, monitoring and other activities (during construction and continuing into operations) as required in this biological opinion and specifically outlined in the proposed action and in the approved Translocation Plan.

23. Habitat Use Study. The project proponent will work with the University of Nevada, Las Vegas (UNLV), U.S. Geological Survey (USGS), or other agency to design and implement a 2-3-year study to compare onsite and off-site desert vegetation and climate (e.g., annual and perennial plant growth and cover, ambient temperature) to address metrics of habitat change, including how desert tortoises use the vegetation onsite for forage and cover. Results from tortoise monitoring as approved in the project's desert tortoise Translocation Plan will also inform the tortoise use portion of this study.

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- During the construction period, as part of the installation of the tortoise exclusion fence, the Project will install shade structures at intervals along the outside of the exclusion fencing to minimize the potential for overheating of tortoises.
 - The Project needs to incorporate the following measures to reduce potential worker exposure to the *Coccidioides immitis* fungus that can cause Valley Fever:
 - Include training for workers and supervisors on the potential presence of Valley Fever spores, methods to minimize exposure, and how to recognize symptoms
 - Limit workers' exposure to outdoor dust in disease-endemic areas by (1) providing air-conditioned cabs for vehicles that generate dust and making sure workers keep windows and vents closed, (2) suspending work during heavy winds, and (3) directing them to remove dusty clothing after fieldwork and store in closed plastic bags until washed.
 - When exposure to dust is unavoidable, provide approved respiratory protection to filter particles.