DOCKETED

Docket Number:	09-AFC-07C
Project Title:	Palen Solar Power Project - Compliance
TN #:	200088
Document Title:	Vol.2 -U.S Department of the Interior Bureau of Land Management –Draft Supplemental Environmental Impact Statement (Part 2)
Description:	N/A
Filer:	Suzy Gutierrez
Organization:	United States Department of Interior Bureau of Land Management/ESA Energy/J.Scott
Submitter Role:	Public Agency
Submission Date:	7/30/2013 11:31:12 AM
Docketed Date:	7/30/2013

BLM

Bureau of Land Management

PLAN AMENDMENT/FINAL EIS FOR THE PALEN SOLAR POWER PROJECT

Volume 2 of 2

May 2011

APPENDICES

A. Maps and Figures

B. Conditions of Certification

C. Applicable Laws, Regulations, Policies, Executive Orders

D. Results of Scoping

E. Analysis of the Red Bluff Substation Project, Incorporated by Reference from the Desert Sunlight Solar Farm Project EIS

F. Cultural Resources

G. Appendix G

H. Programmatic Agreement

I. Biological Resources

J. VRM Contrast Rating Summary

K. Agency and Public Comments on SA/DEIS

APPENDIX A
Maps and Figures

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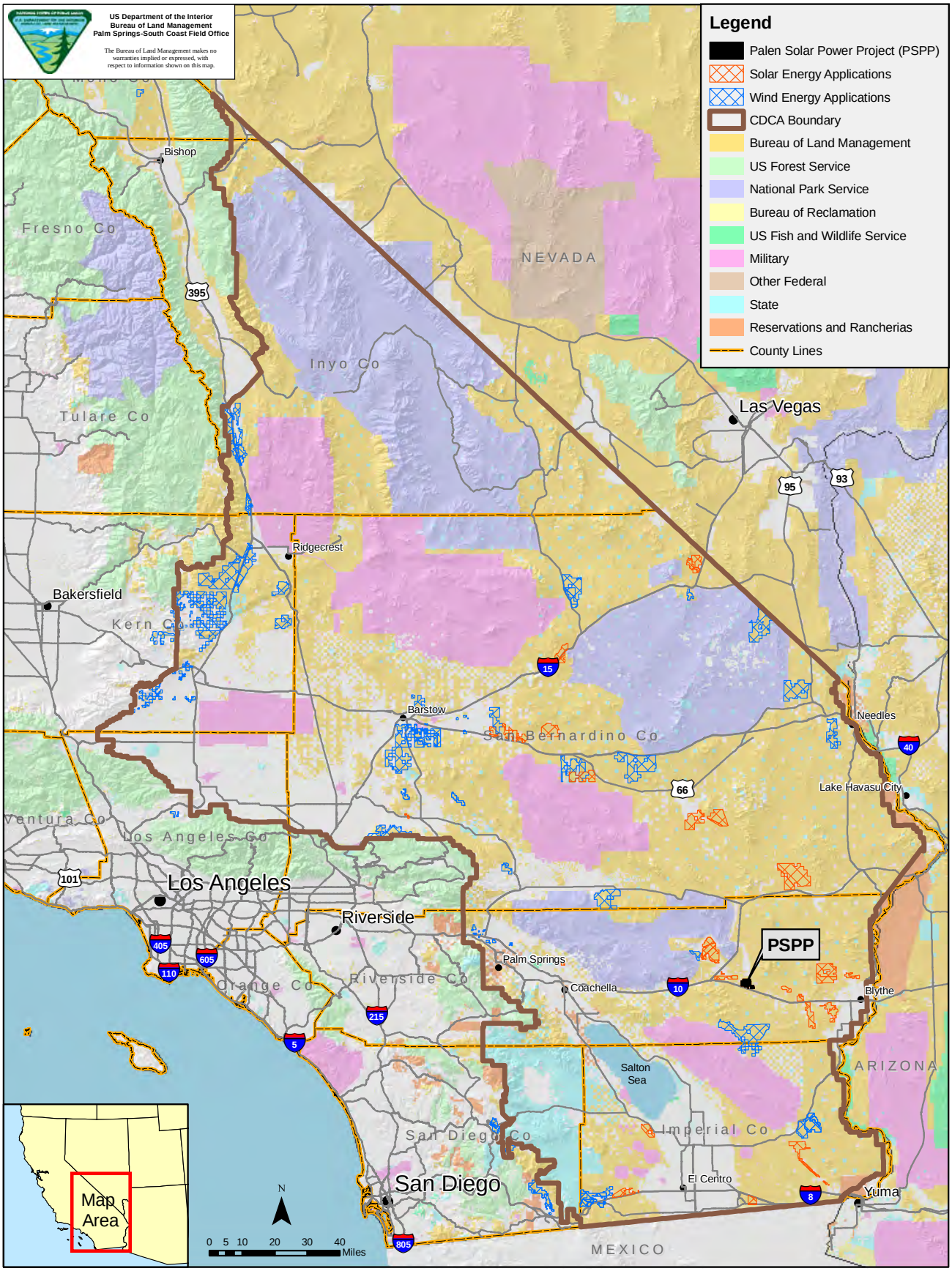

SOURCE: U.S. Department of the Interior

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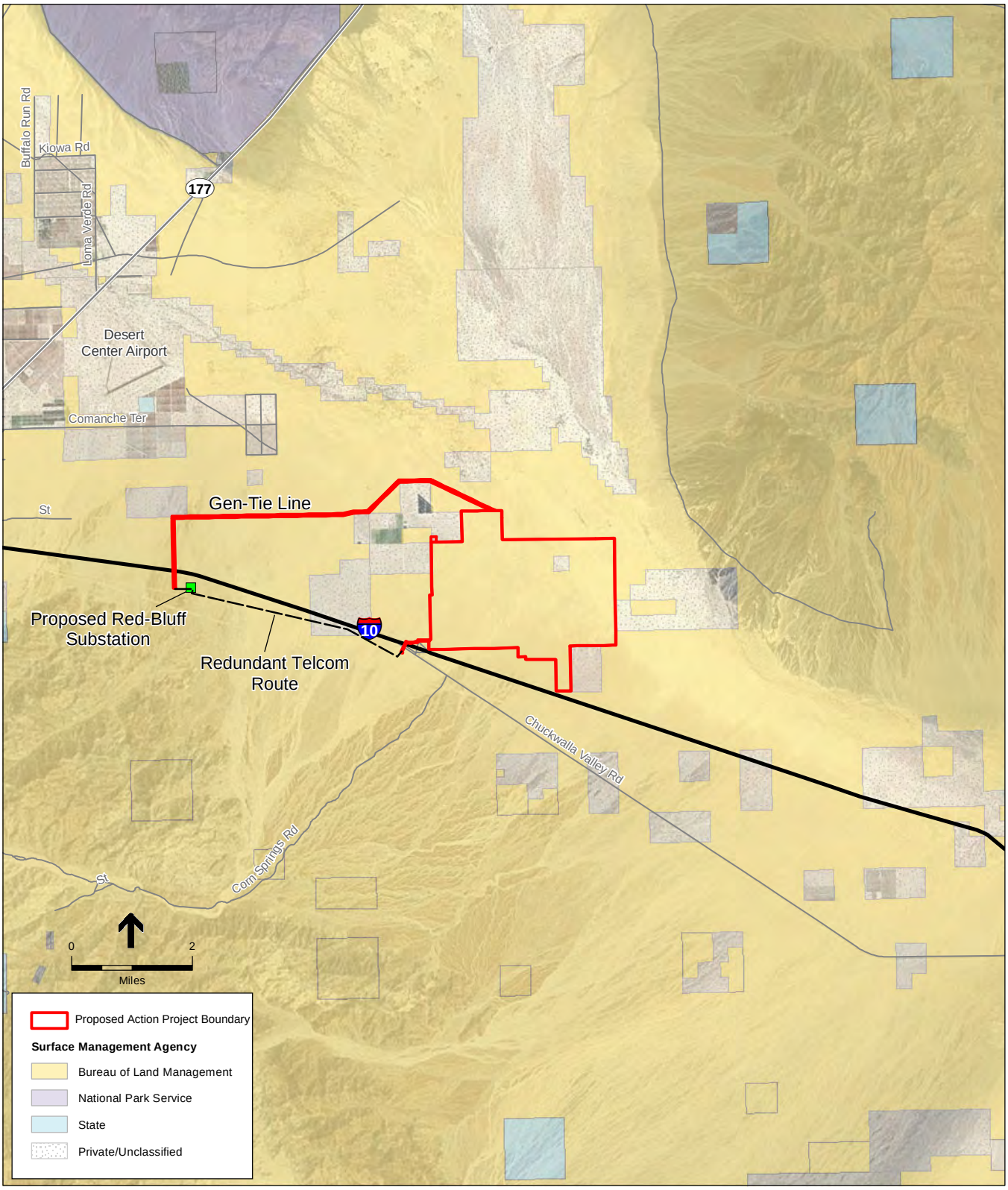
Figure 1-1

Regional Context



SOURCE: BLM, 2010; ESA, 2010

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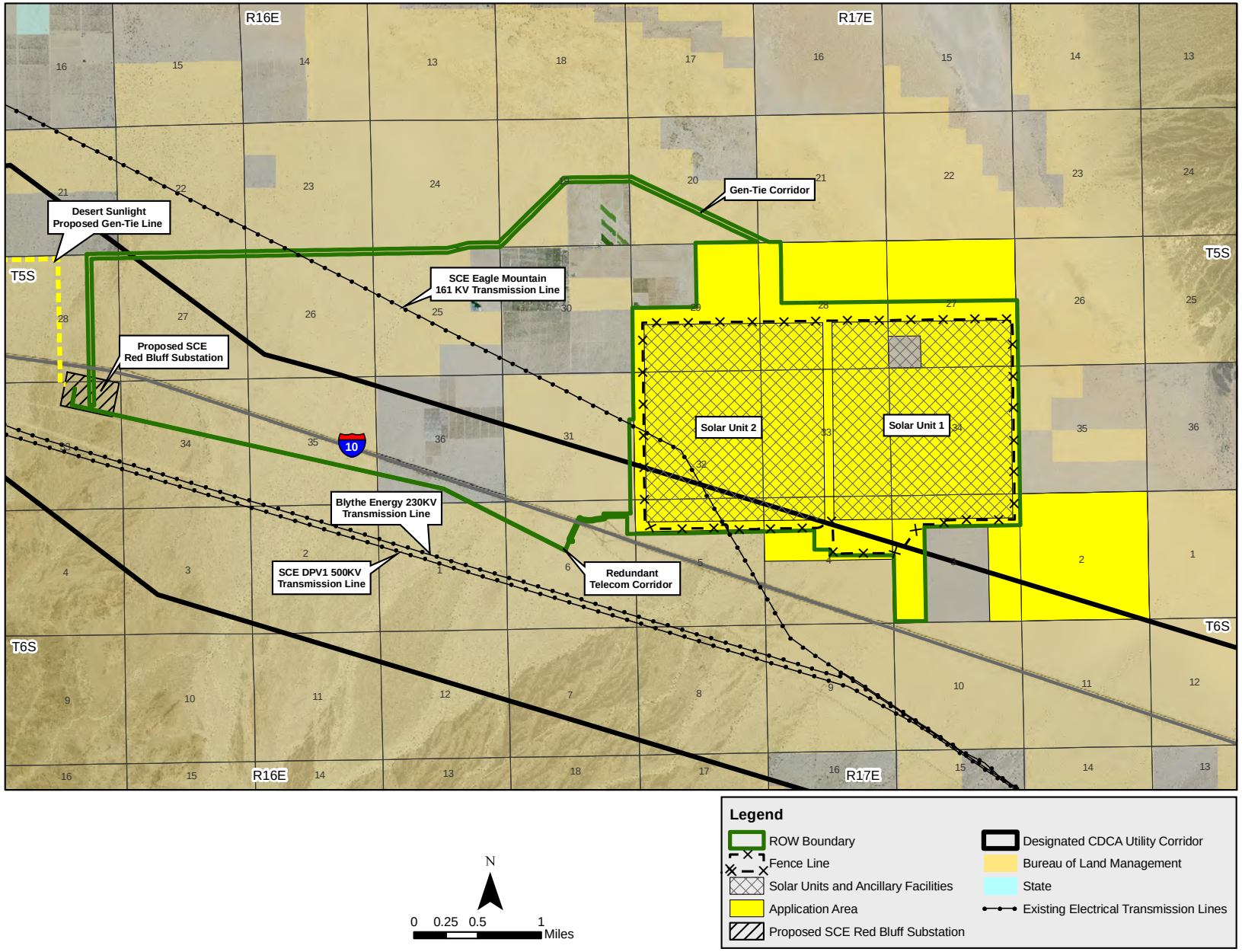
Figure 2-1

Project Location



SOURCE: BLM, 2011

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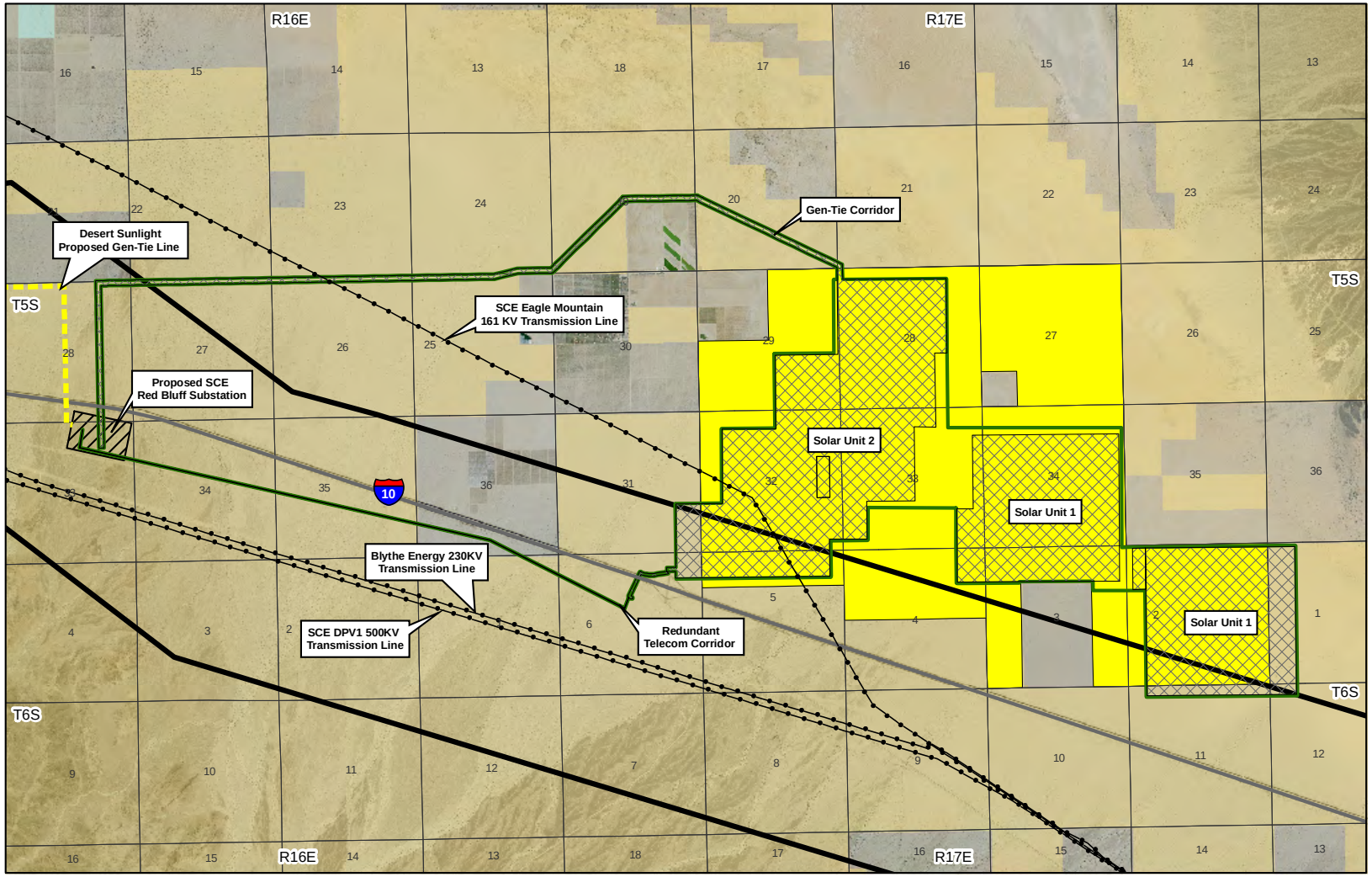
Figure 2-2
Proposed Action



SOURCE: BLM, 2011

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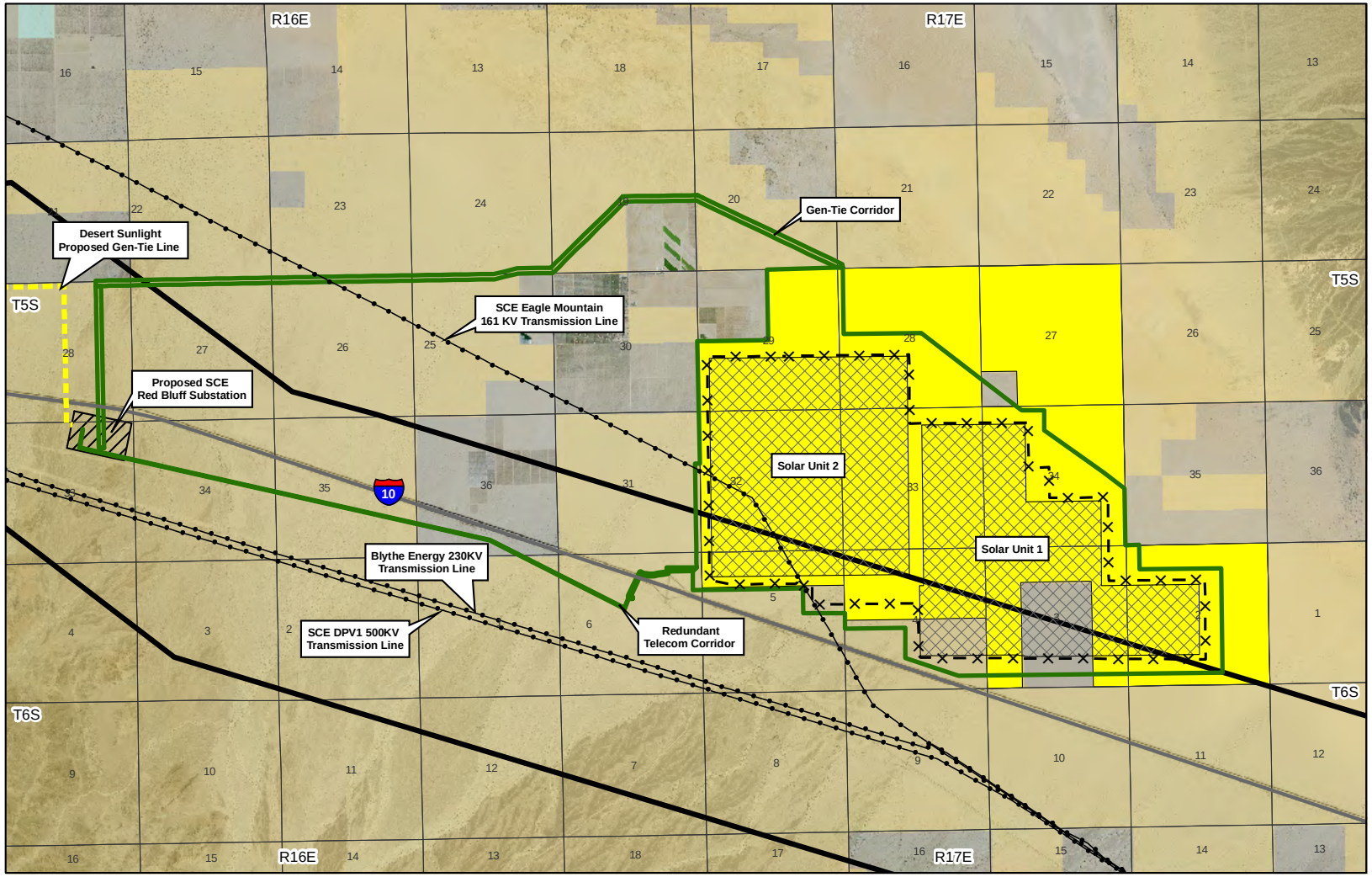
Figure 2-3

Reconfigured Alternative 1



SOURCE: BLM, 2010

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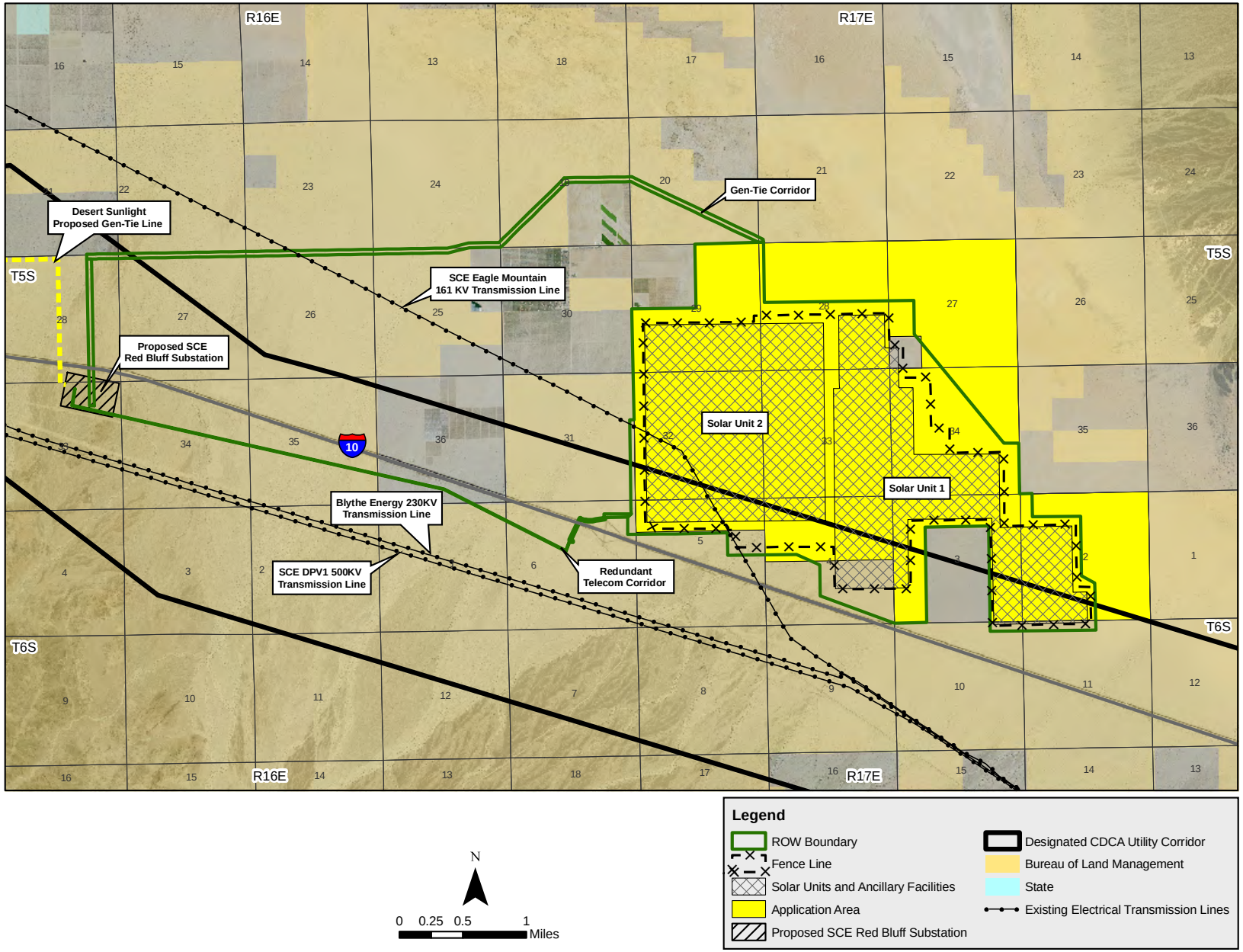
Figure 2-4

Reconfigured Alternative 2 Option 1



SOURCE: BLM, 2011

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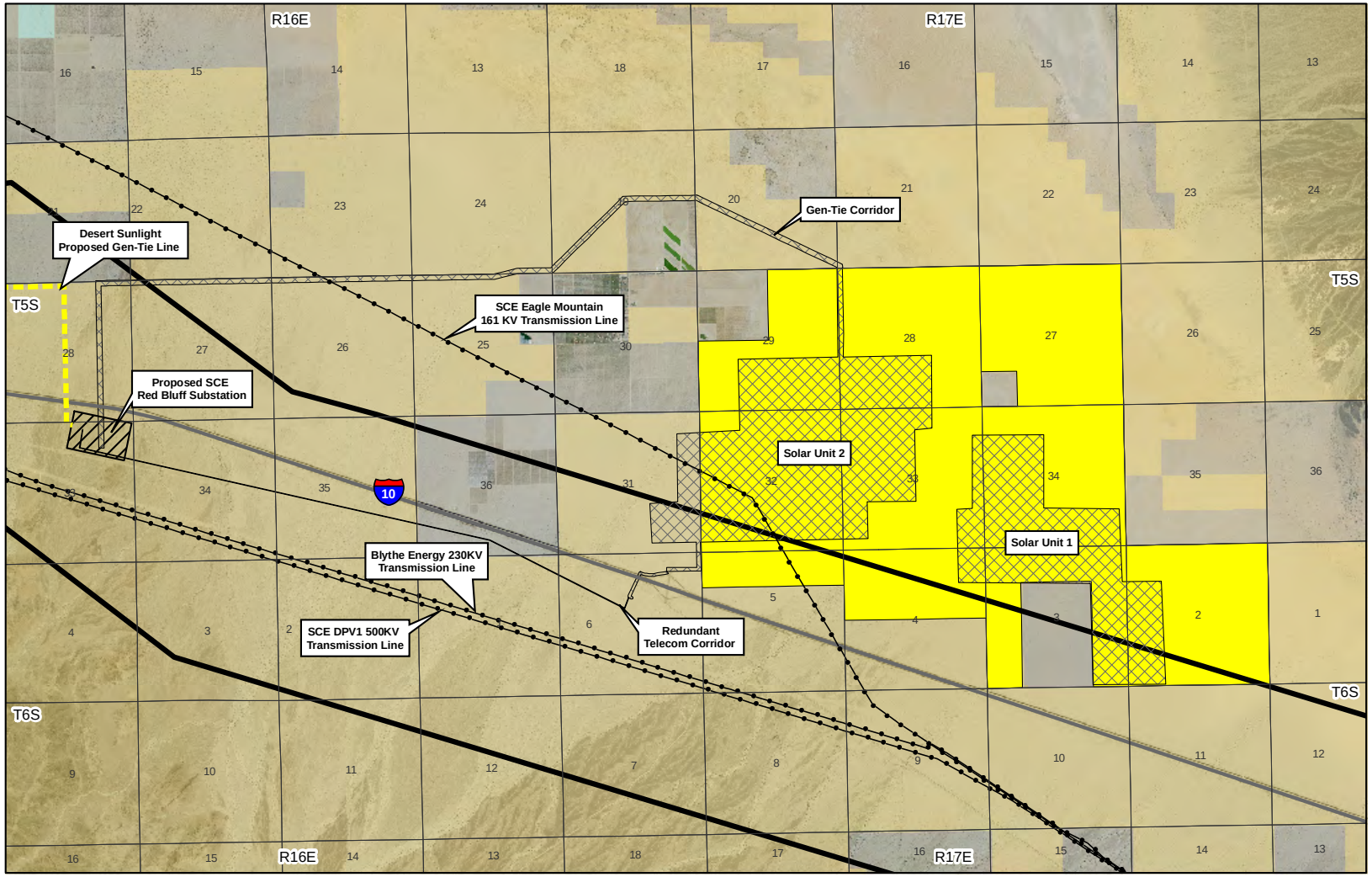
Figure 2-5

Reconfigured Alternative 2 Option 2



SOURCE: BLM, 2011

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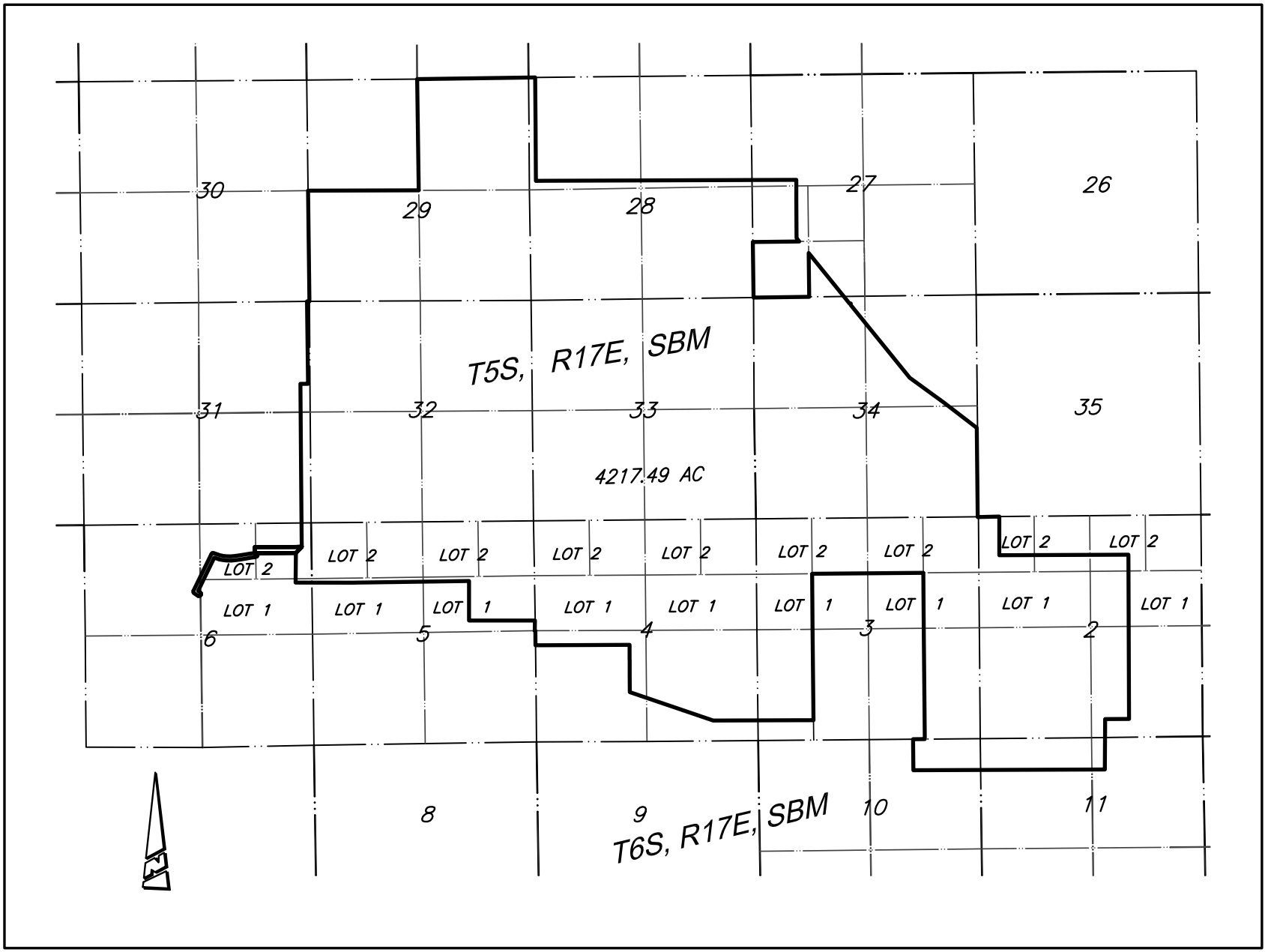
Figure 2-6

Reduced Acreage Alternative



SOURCE: POD, 2009 as revised, 6/19/09

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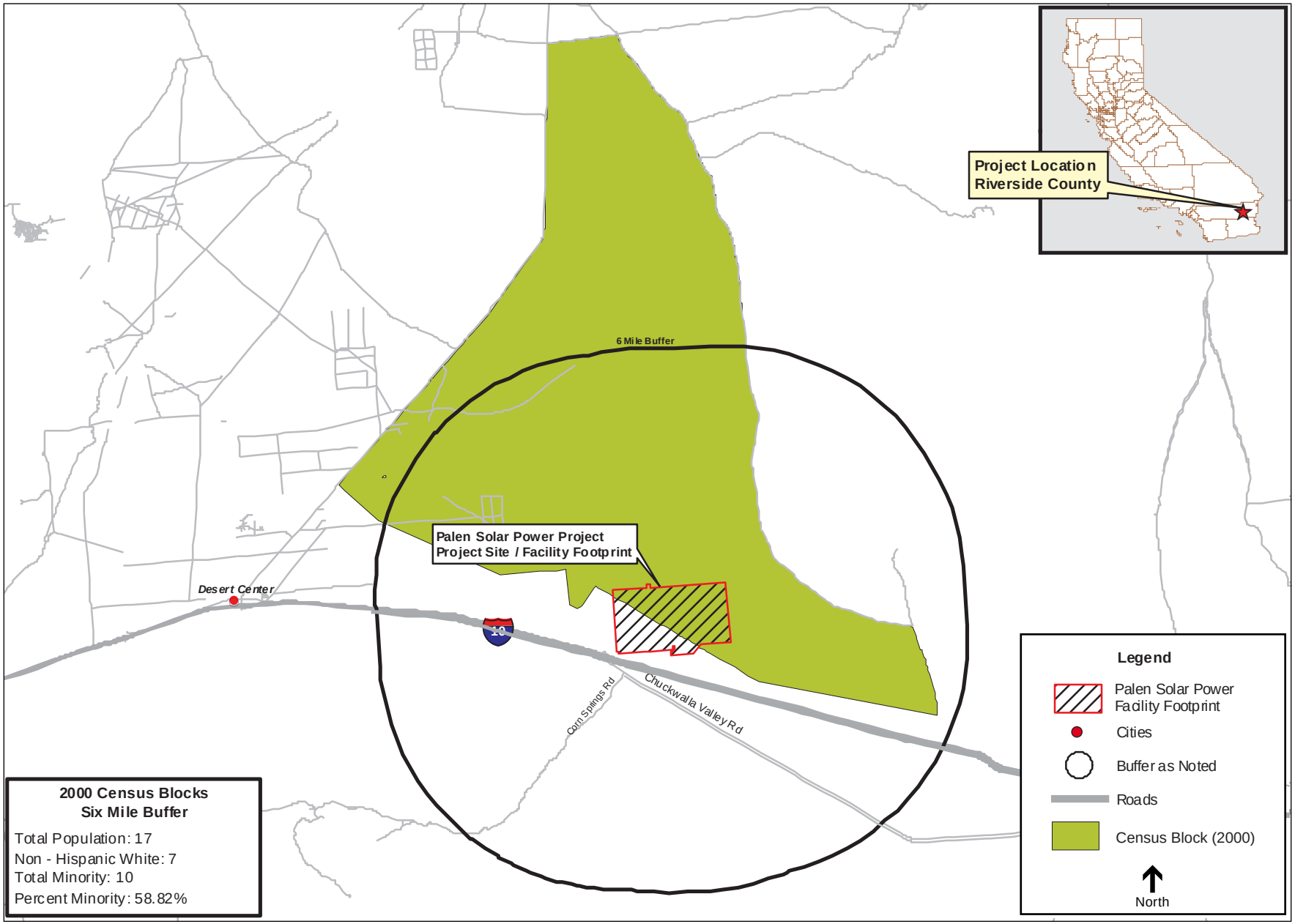
Figure 2-7

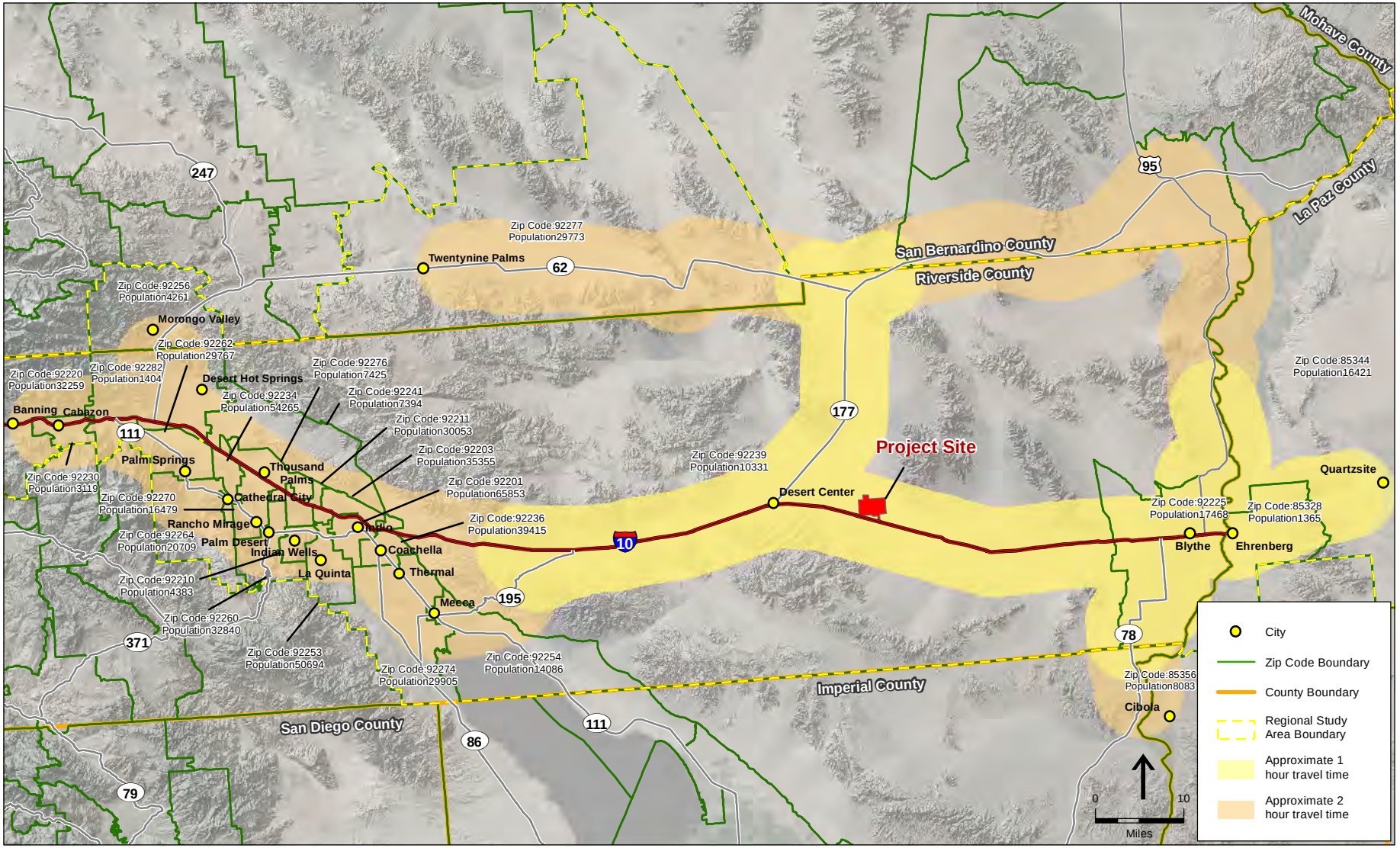
BLM Master Title Plat Map of Right-of-Way CACA – 48810



SOURCE: CEC RSA Part I, 2010

Figure 3.5-1

Census Block Groups within 6 Miles of Project Site



SOURCE:ESRI, 2010; Tele Atlas North America Inc., 2010; Census, 2000; Google Maps, 2010

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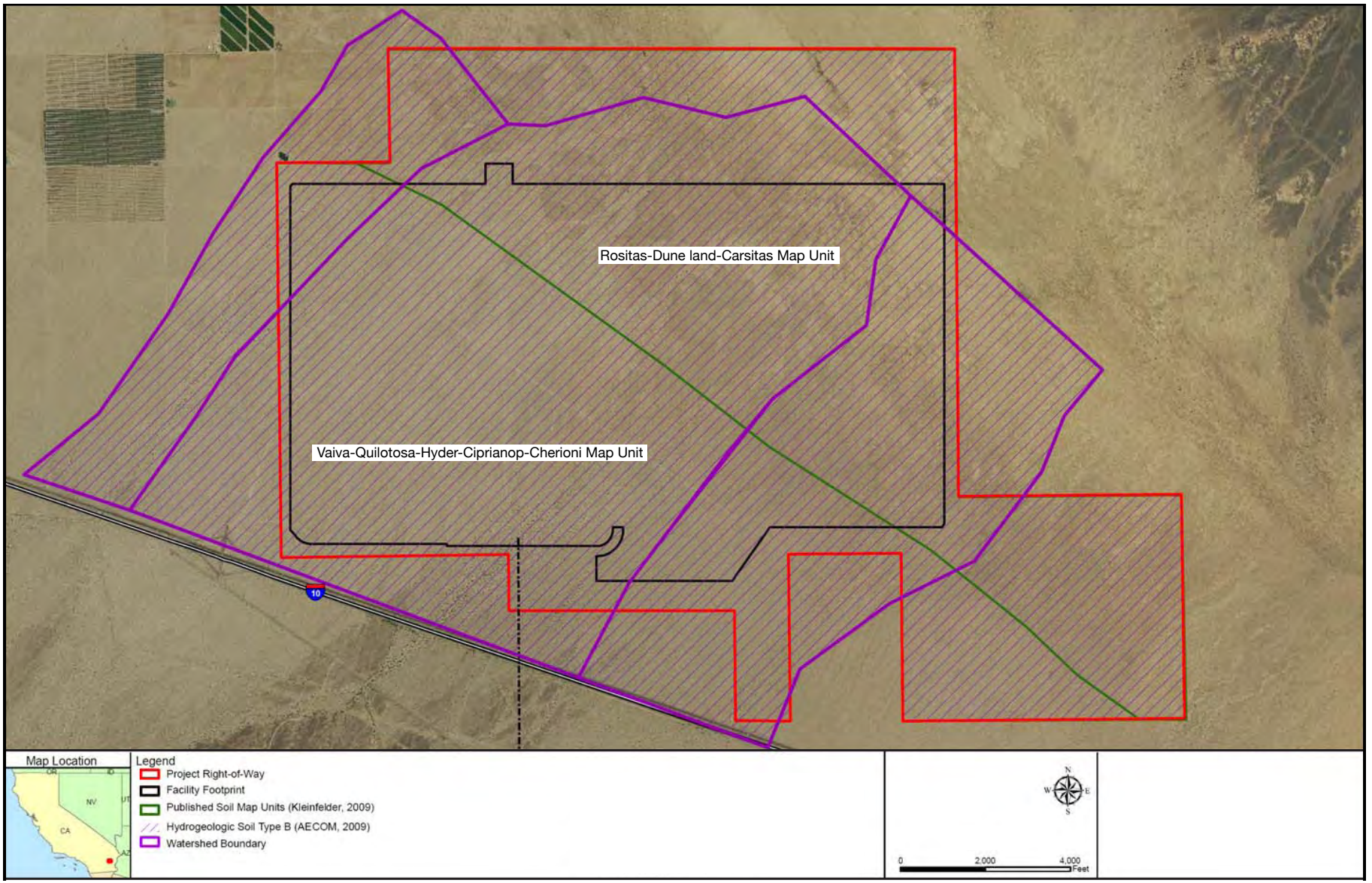
Figure 3.14-1

Regional Study Area
by Zip Code and Travel Distance



SOURCE: CEC RSA Part II, 2010

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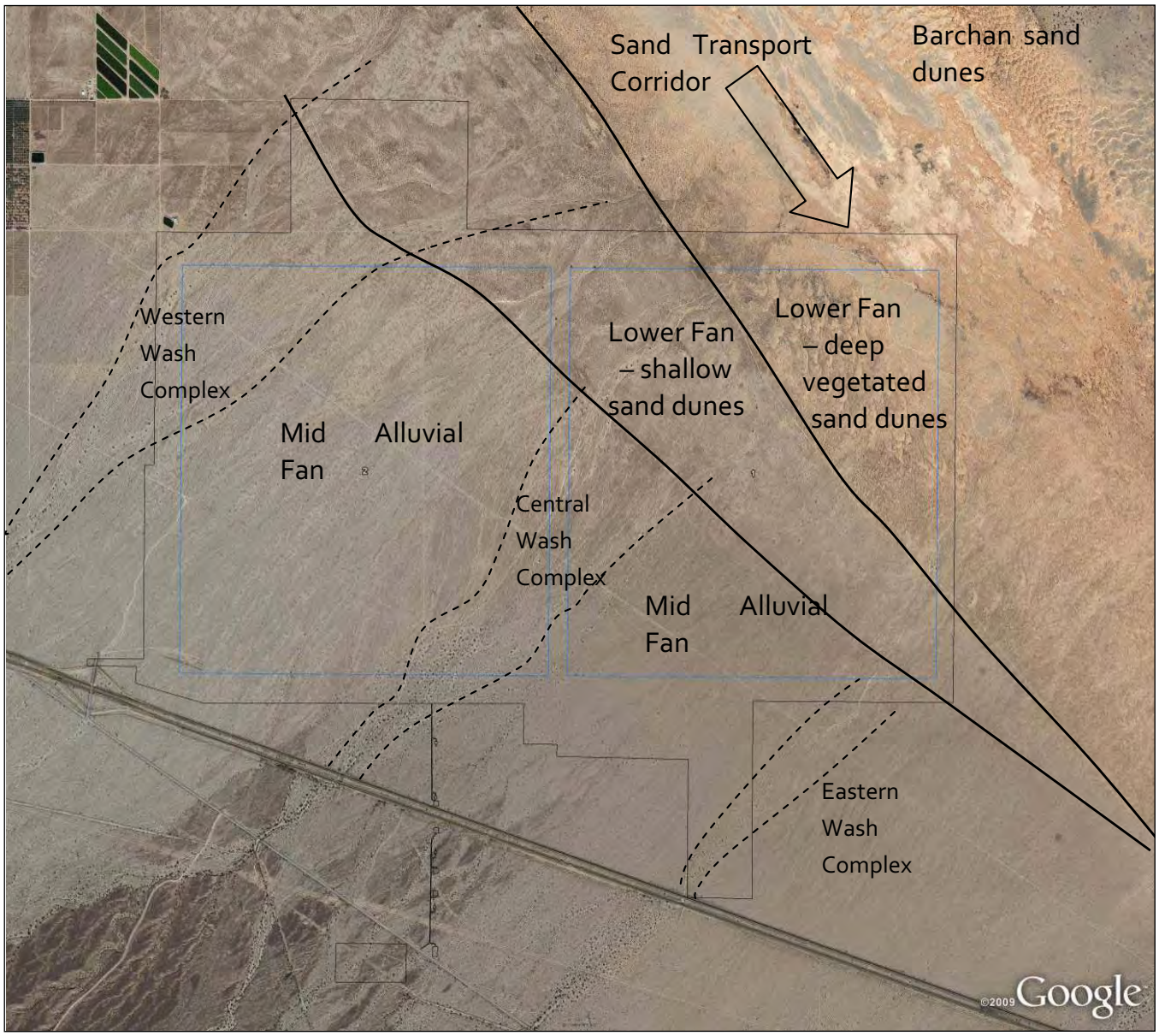
Figure 3.15-1
Regional Soils Map



SOURCE: CEC RSA Part II, 2010

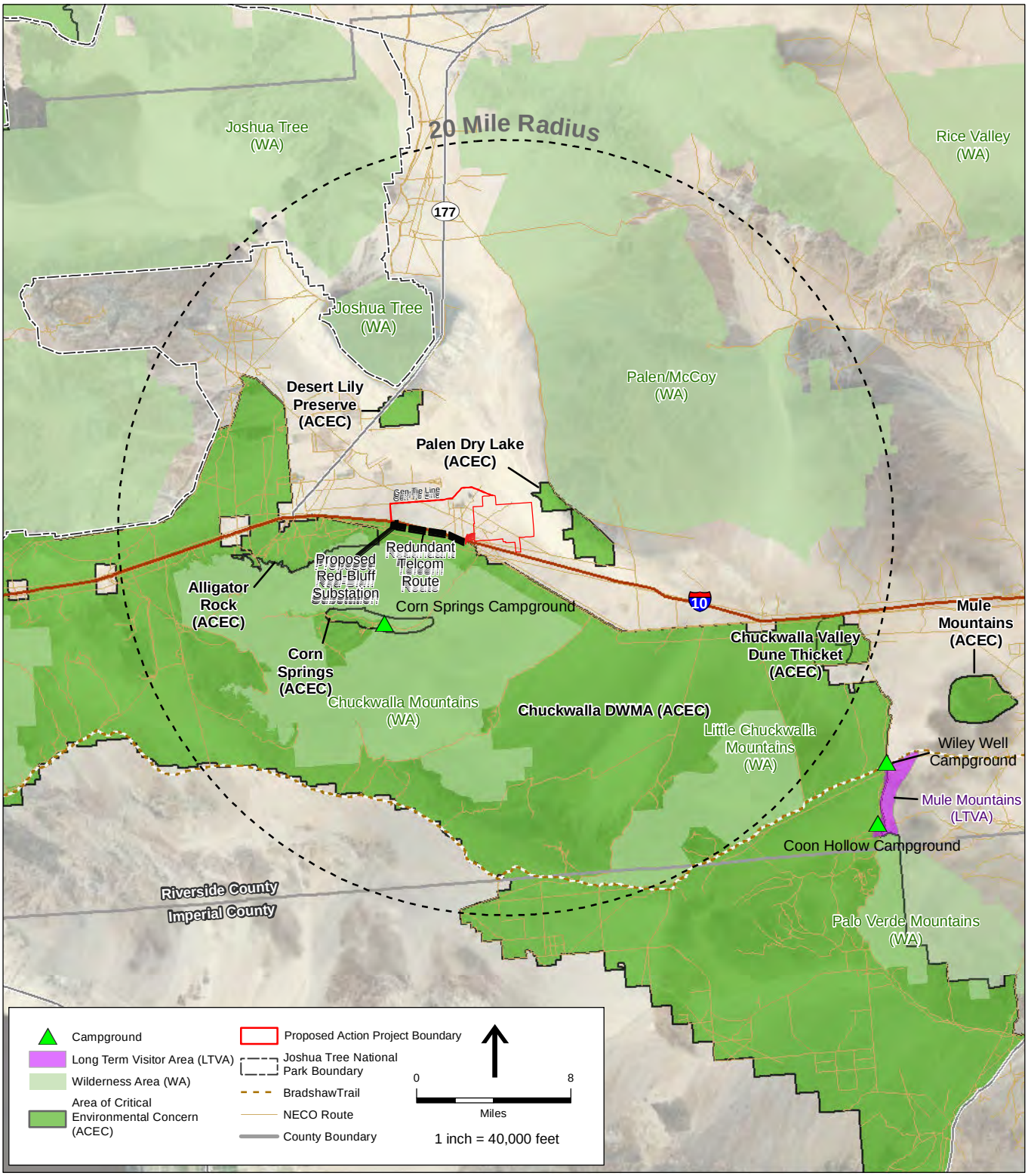
Palen Solar Power Project FEIS . 210291.01

Figure 3.15-2
Land Units

SOURCE: PWA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure 3.15-3
Sand Transport Zones Characterizing
Varying Rates of Sand Transport



SOURCE:BLM, 2010; ESA, 2010

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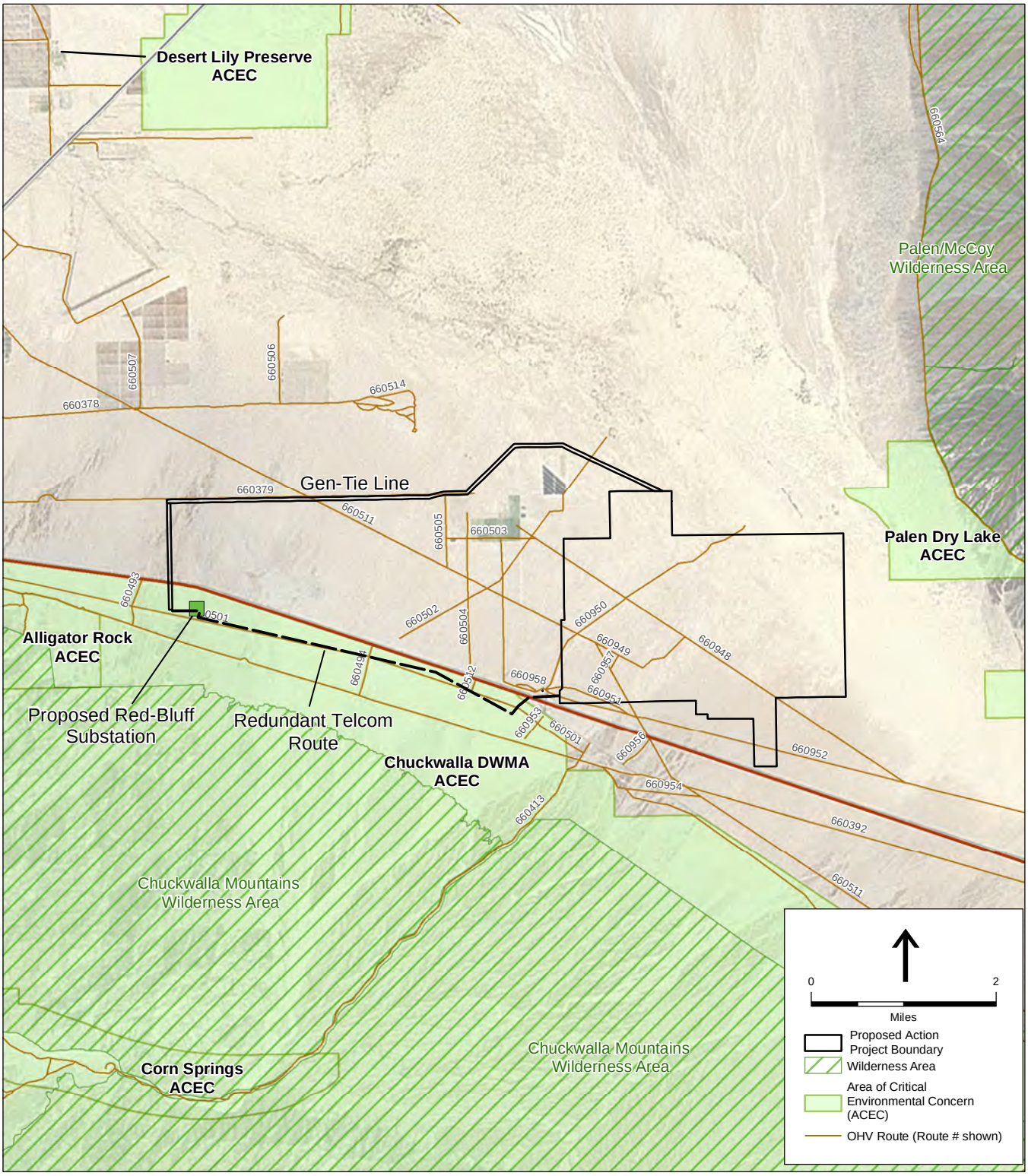
Figure 3.16-1
Special Designations within 20 Miles of Project Site



SOURCE:BLM, 2010; ESA, 2010

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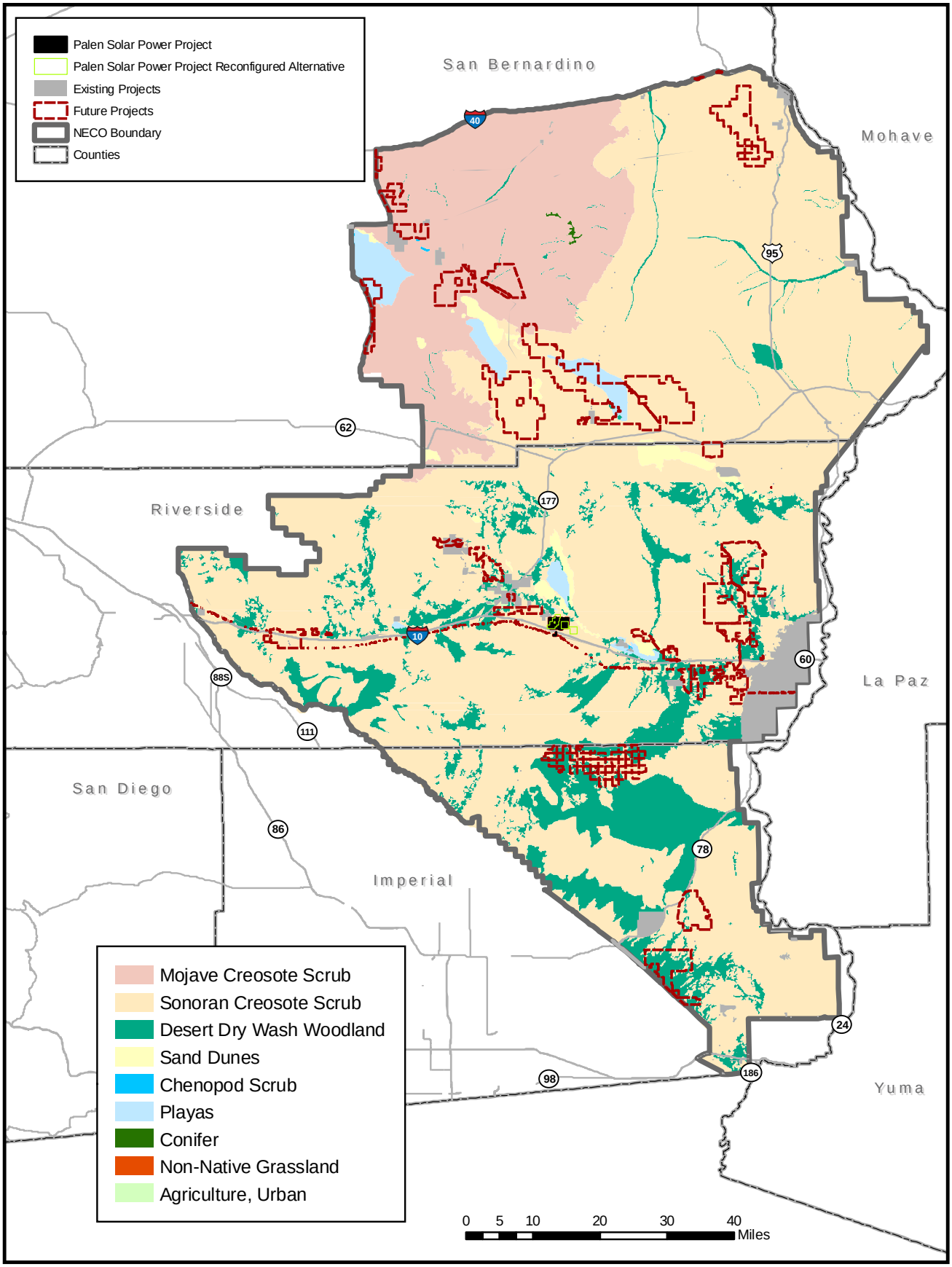
Figure 3.17-1

OHV Routes in the Project Vicinity



SOURCE: CEC RSA, 2010

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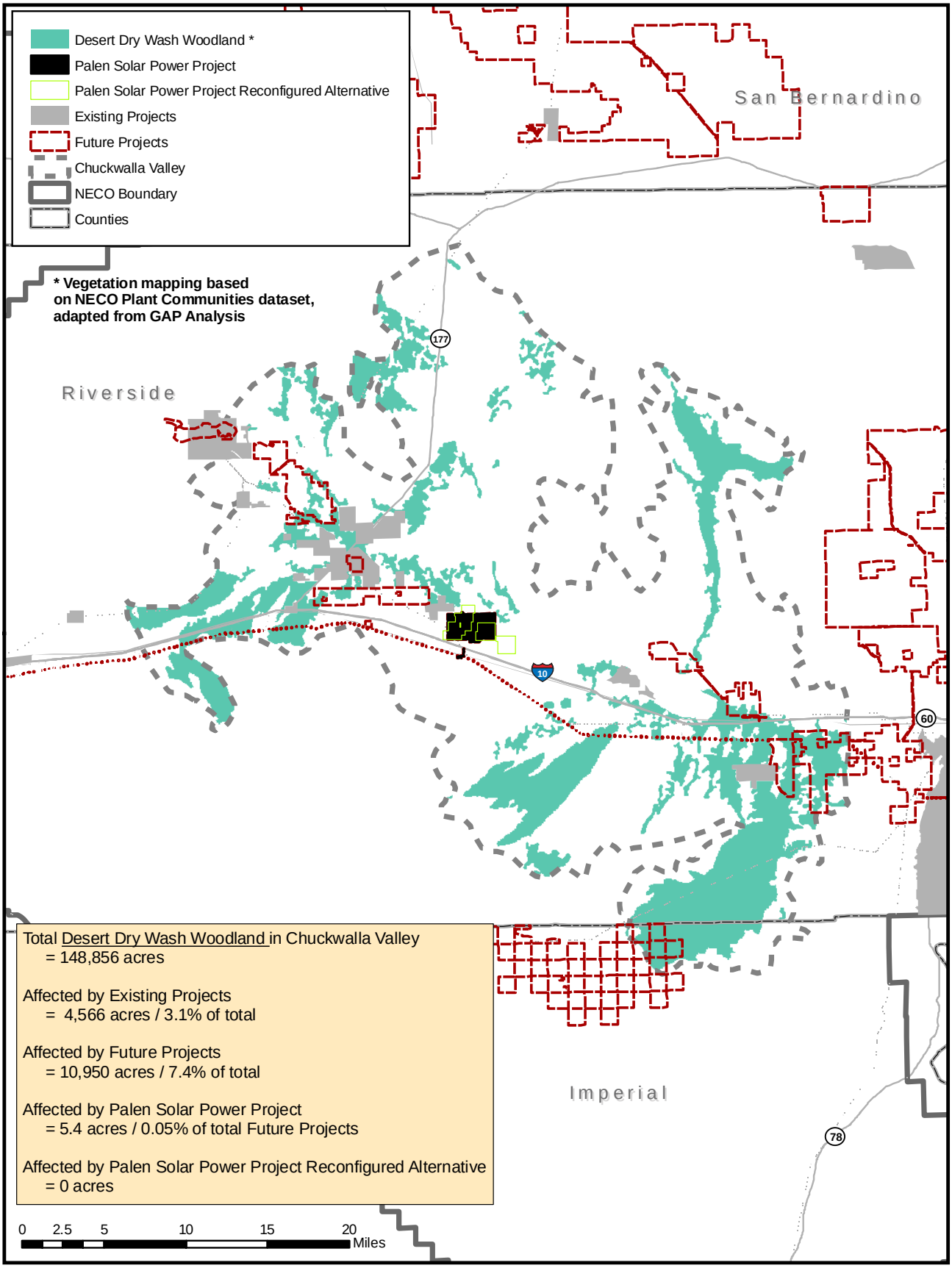
Figure 3.18-1
Plant Communities



SOURCE: CEC RSA, 2010

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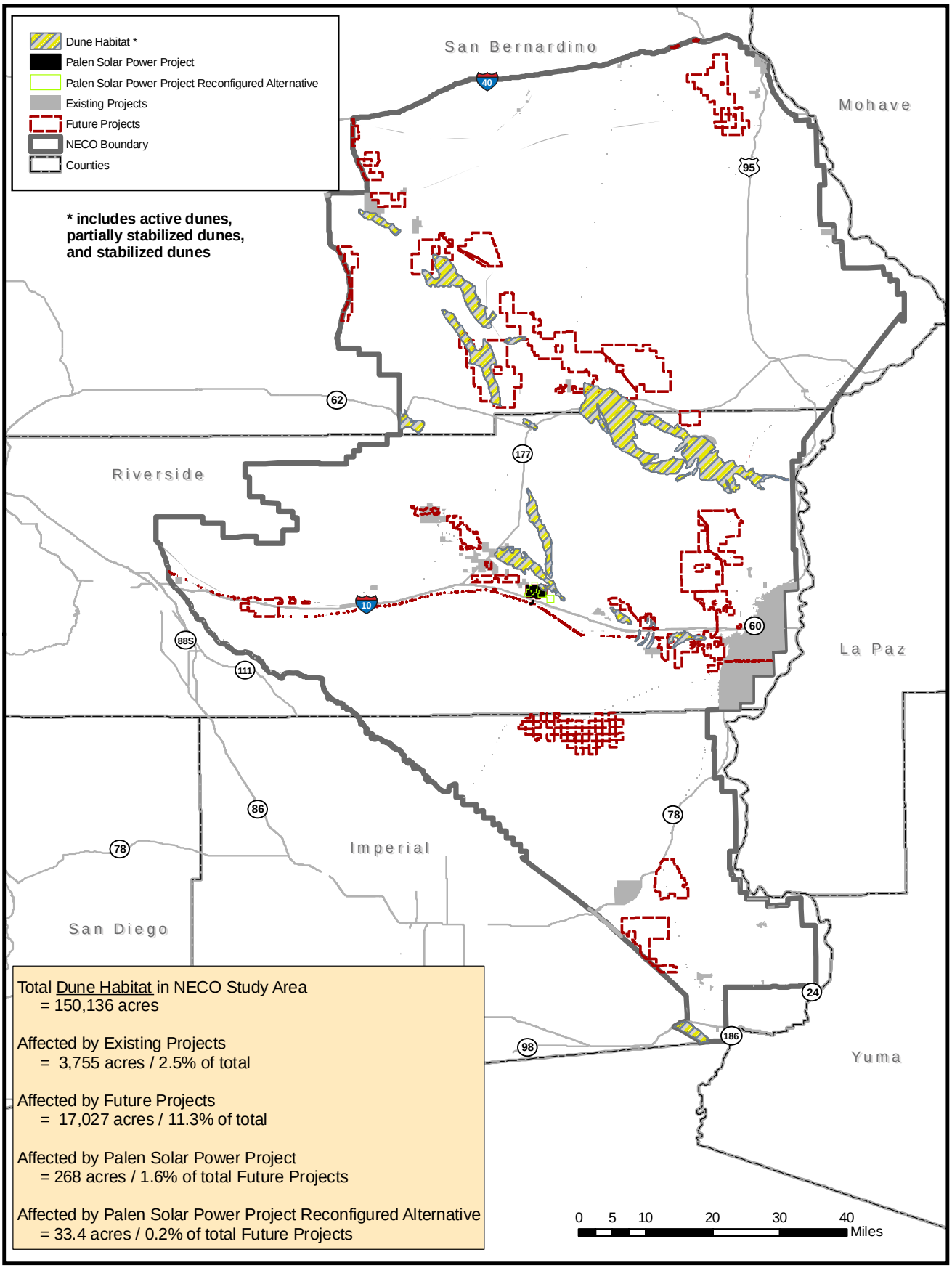
Figure 3.18-2

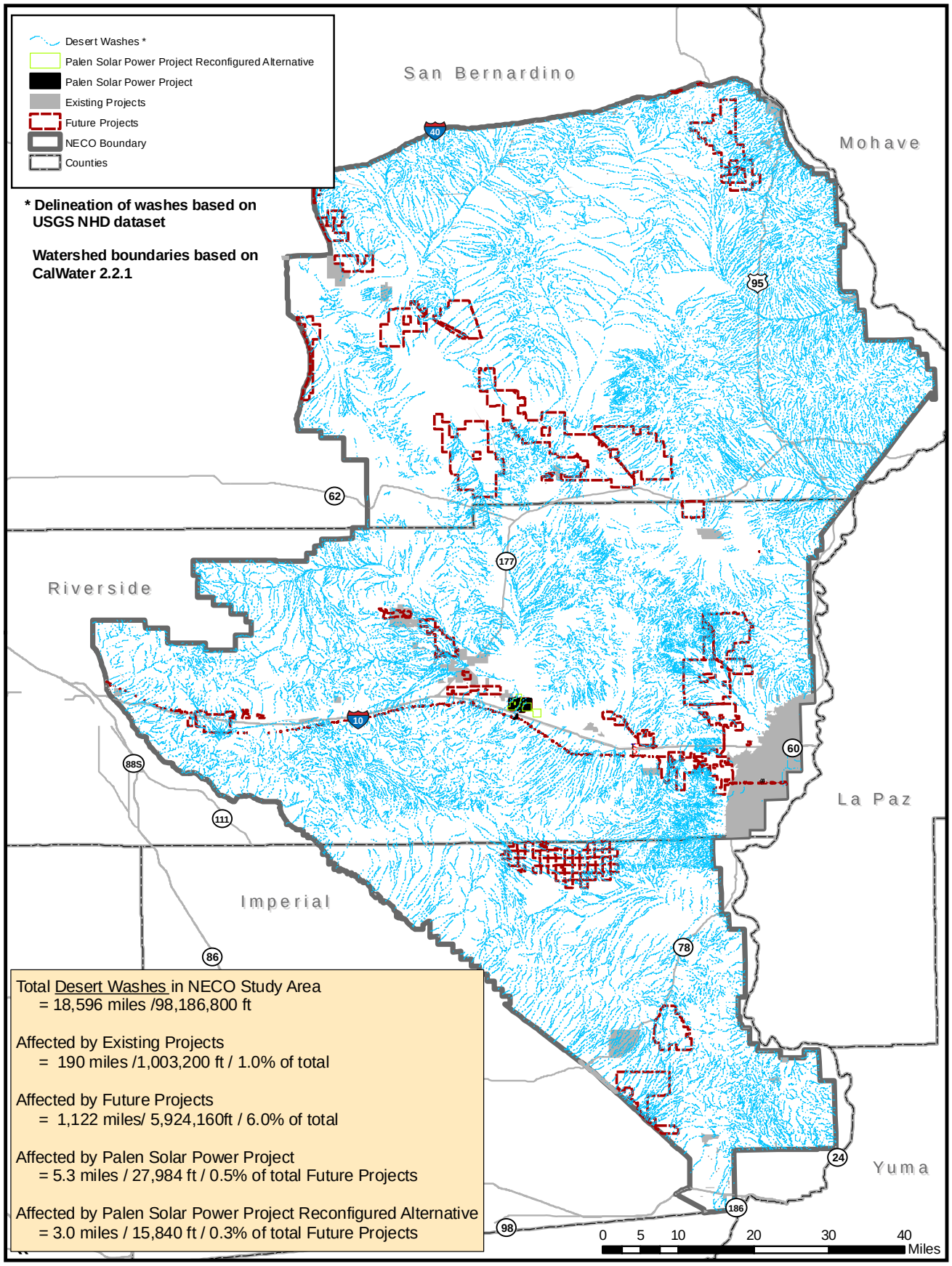
Desert Dry Wash Woodland-Chuckwalla Valley



Palen Solar Power Project FEIS . 210291.01

SOURCE: CEC RSA, 2010

Figure 3.18-3
Dune Habitat



SOURCE: CEC RSA, 2010

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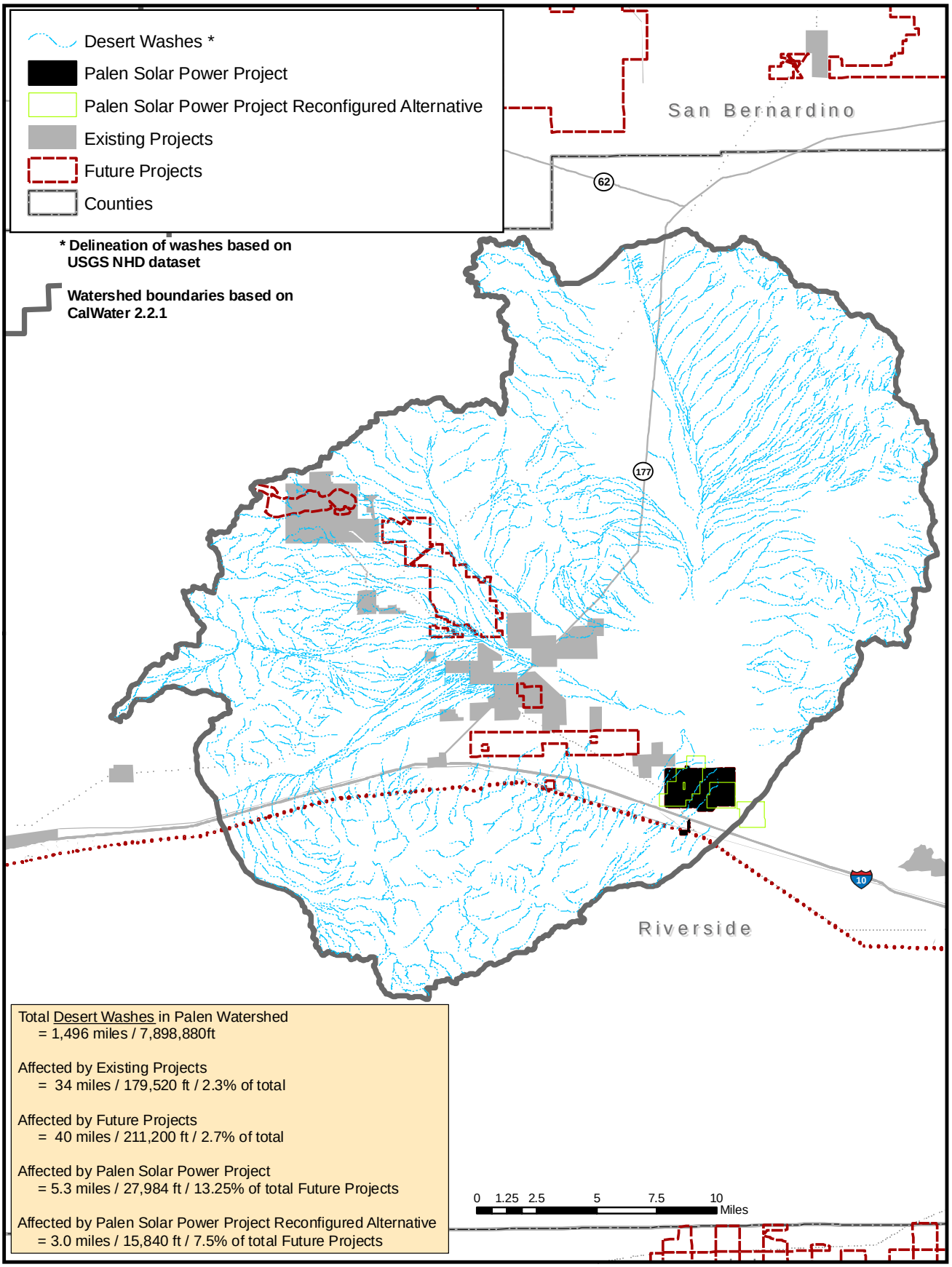
Figure 3.18-4
Desert Washes



SOURCE: CEC RSA, 2010

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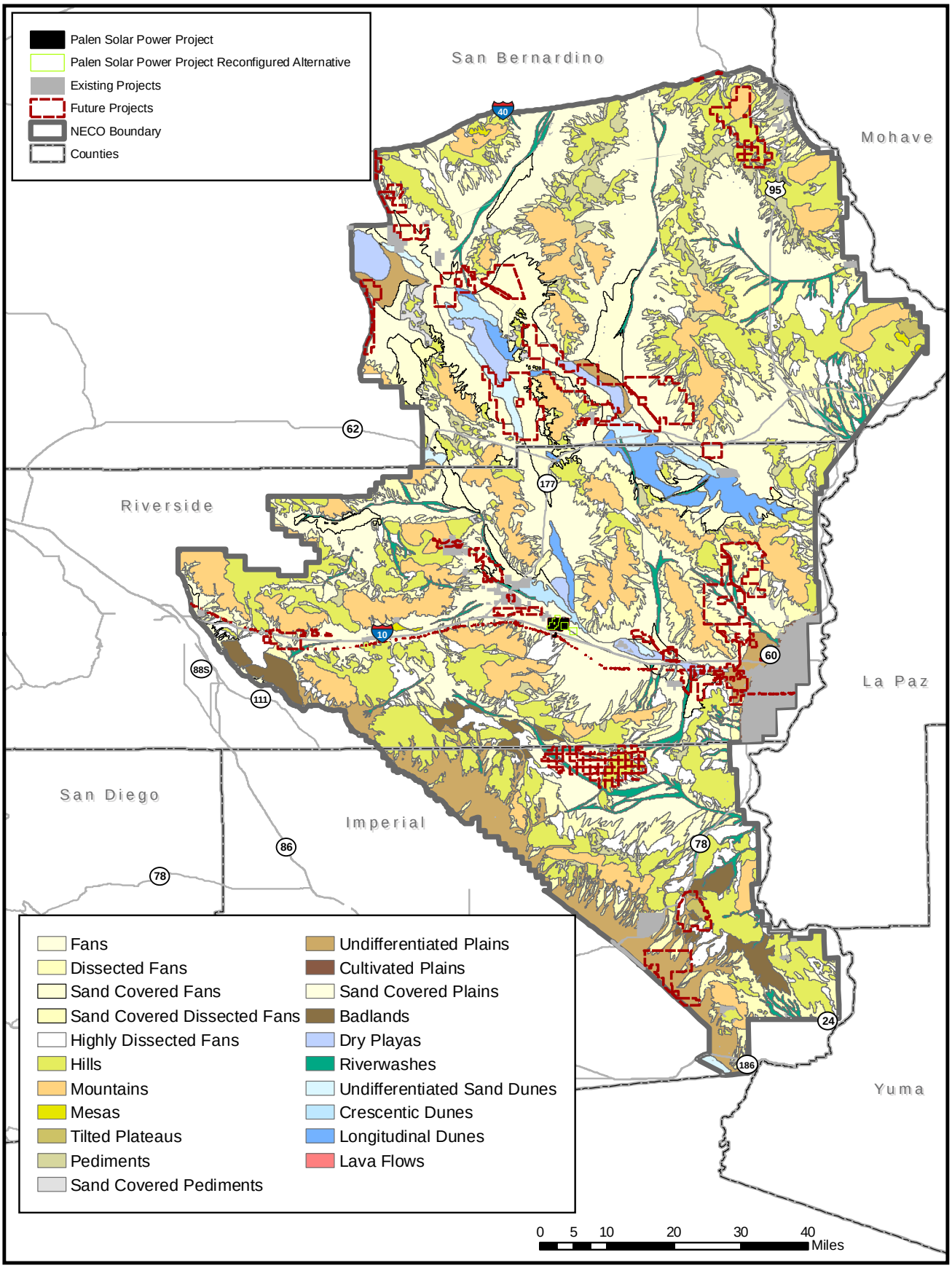
Figure 3.18-5

Desert Washes - Palen Watershed



SOURCE: CEC RSA, 2010

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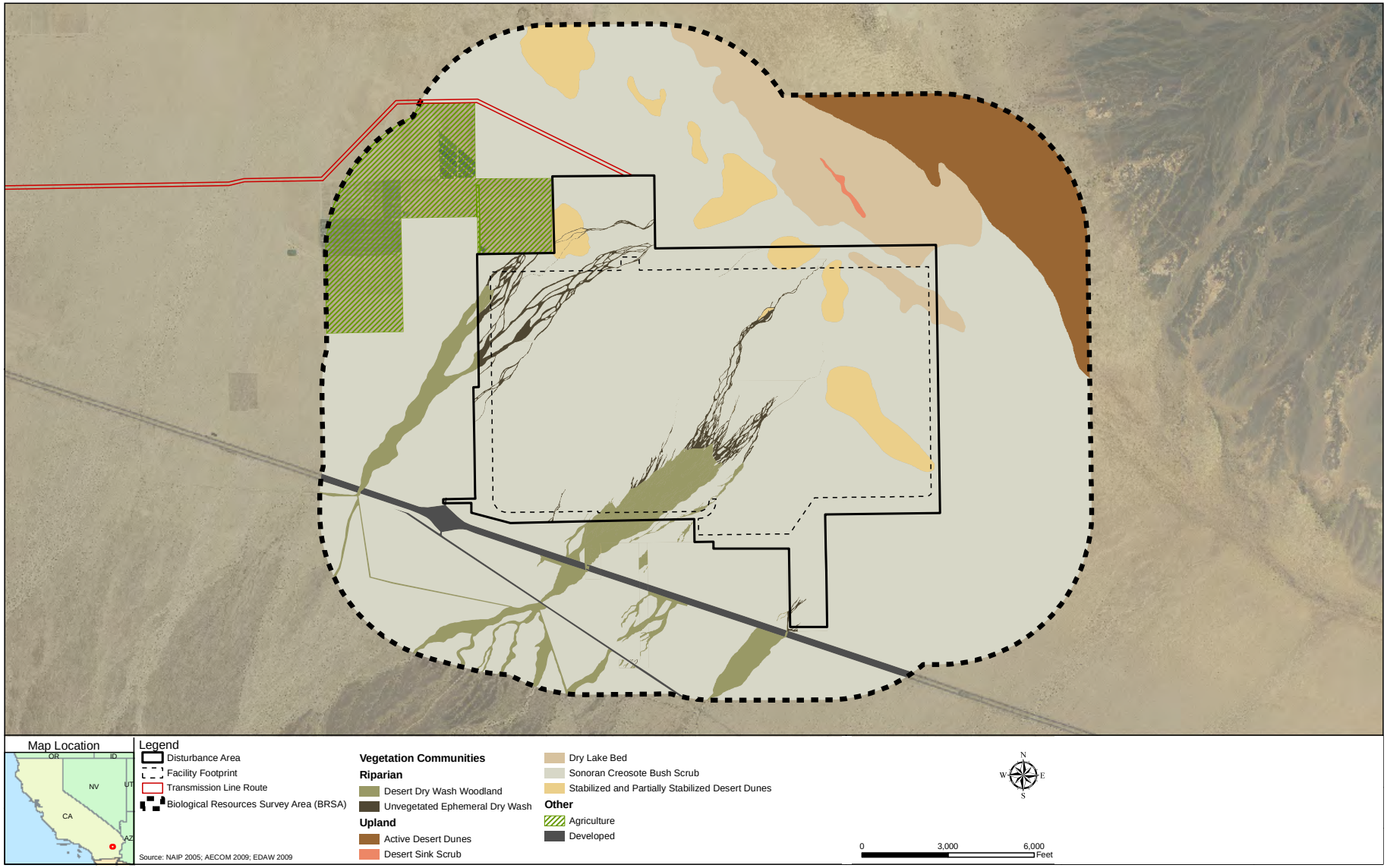
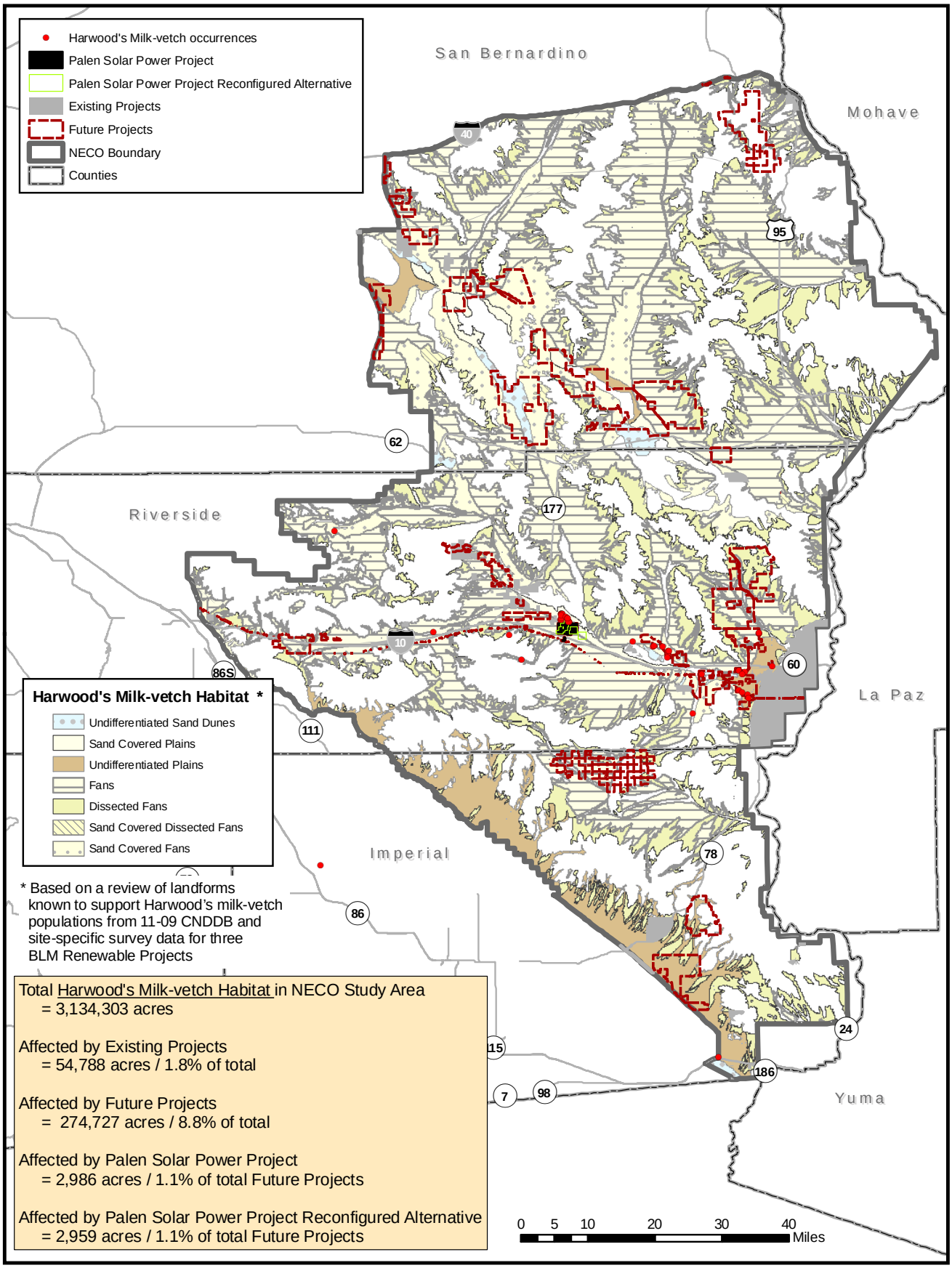
Figure 3.18-6
Landforms



SOURCE: AFC, 2009

Figure 3.18-7
Vegetation Communities



SOURCE: CEC RSA, 2010

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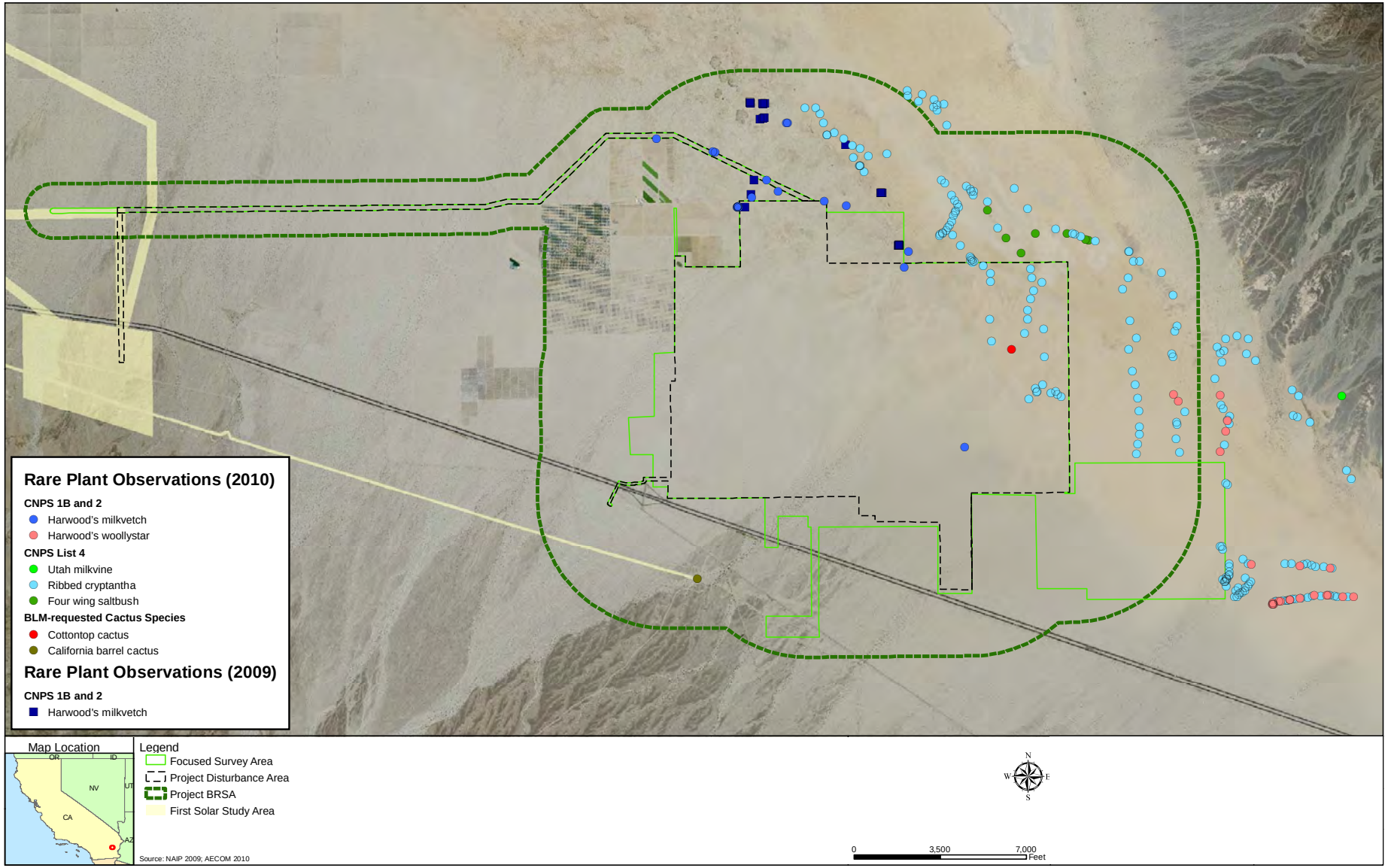
Figure 3.18-8

Harwood's Milk-Vetch Habitat



SOURCE: AECOM, 2010

Figure 3.18-9

Special Status Plant Species

SOURCE: CEC RSA Part II, 2010

Figure 3.19-1
Characteristic Landscape of the Project Site

Dry Lake Bed

Ironwood Tree

Creosote Scrub

Chuckwalla Valley Road, looking north

The Flats, Looking East

SOURCE: CEC Genesis RSA, June, 2010; OTAK, 2010

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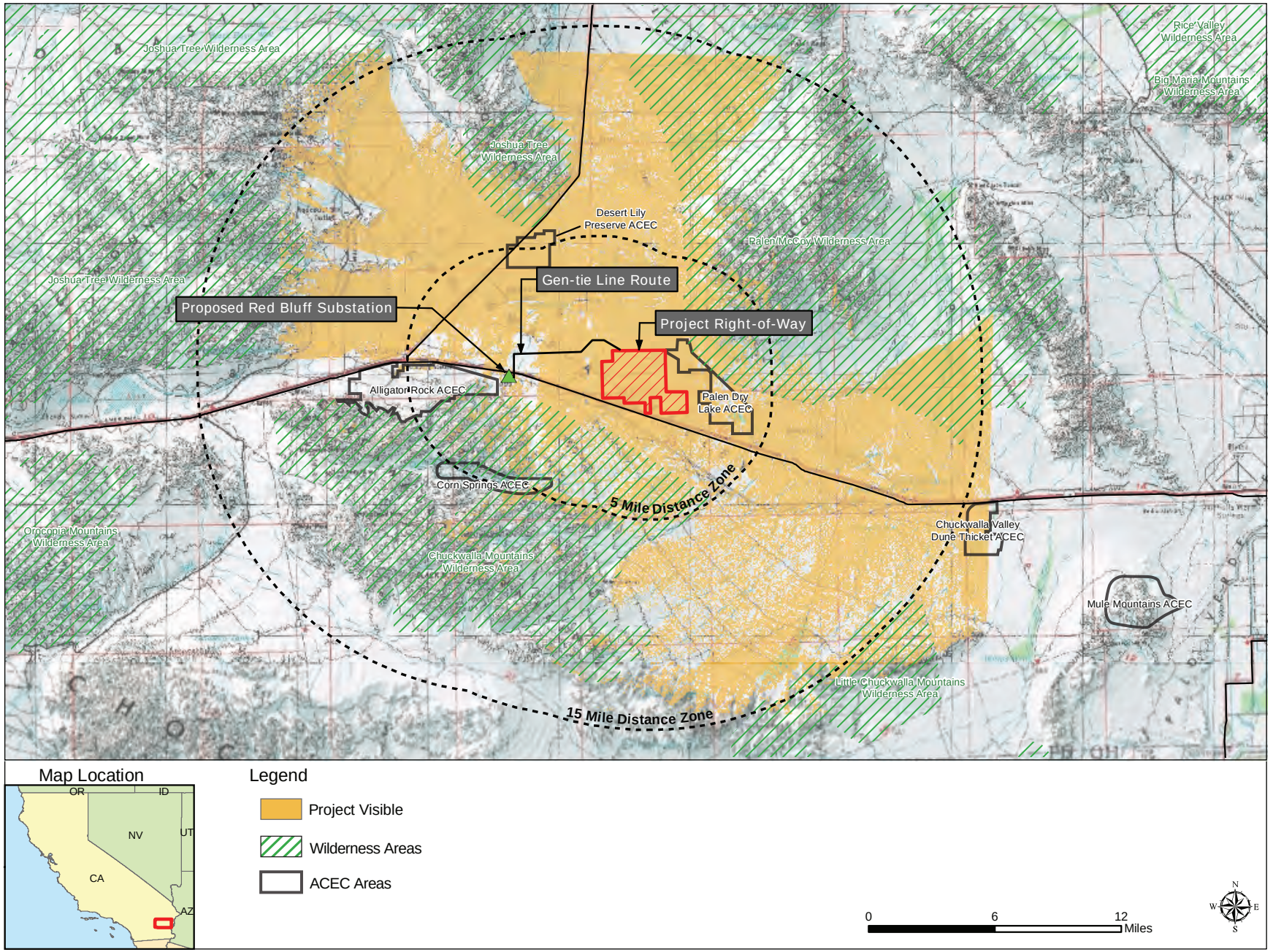
Figure 3.19-2

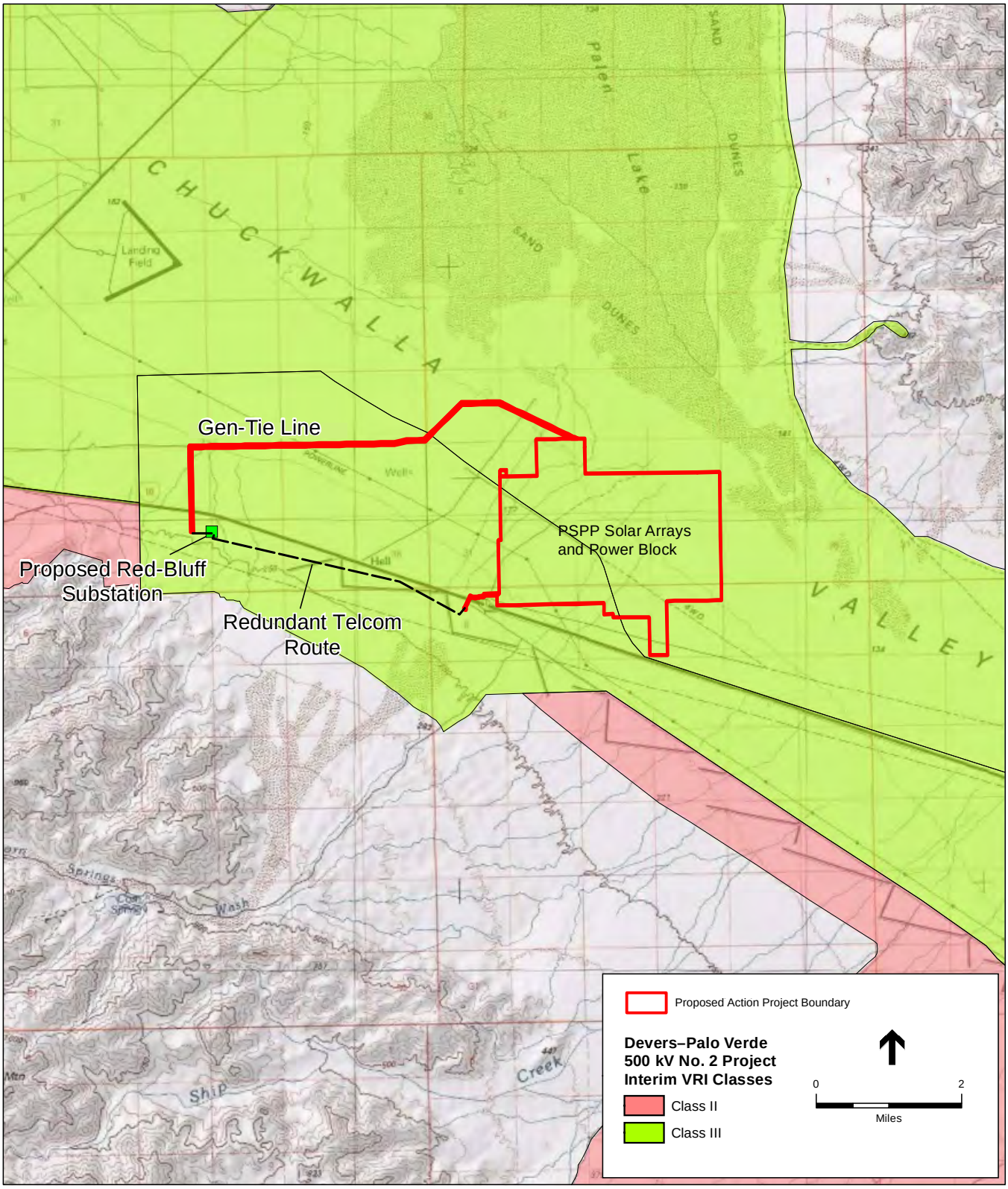
Landscape Context Photographs



SOURCE: AFC 2010; ESA, 2010

Figure 3.19-3

Project Study Area and Viewshed



SOURCE: CPUC, 2006

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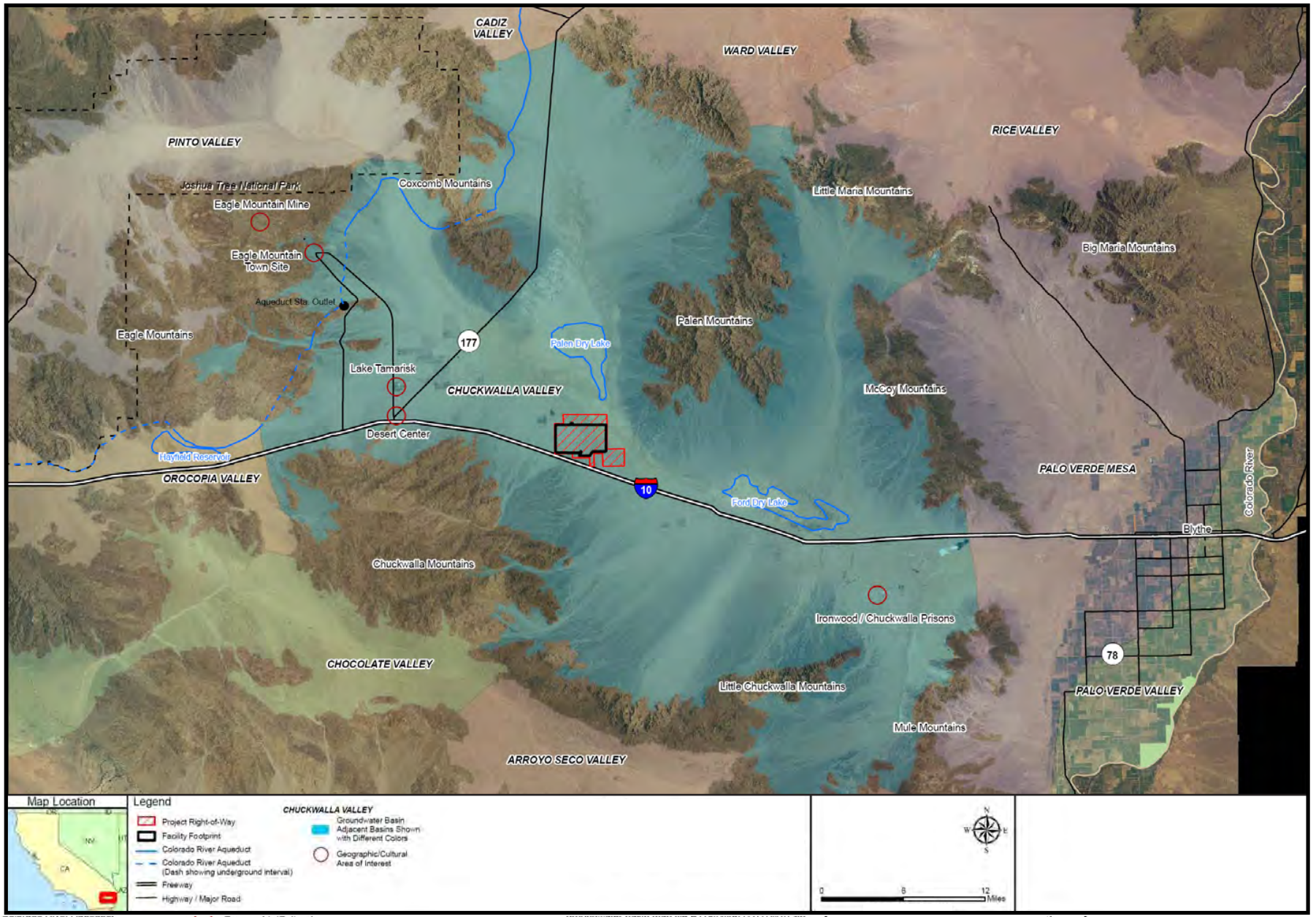
Figure 3.19-4
Interim VRM Classes of the Project Area



SOURCE: CEC/BLM, 2010

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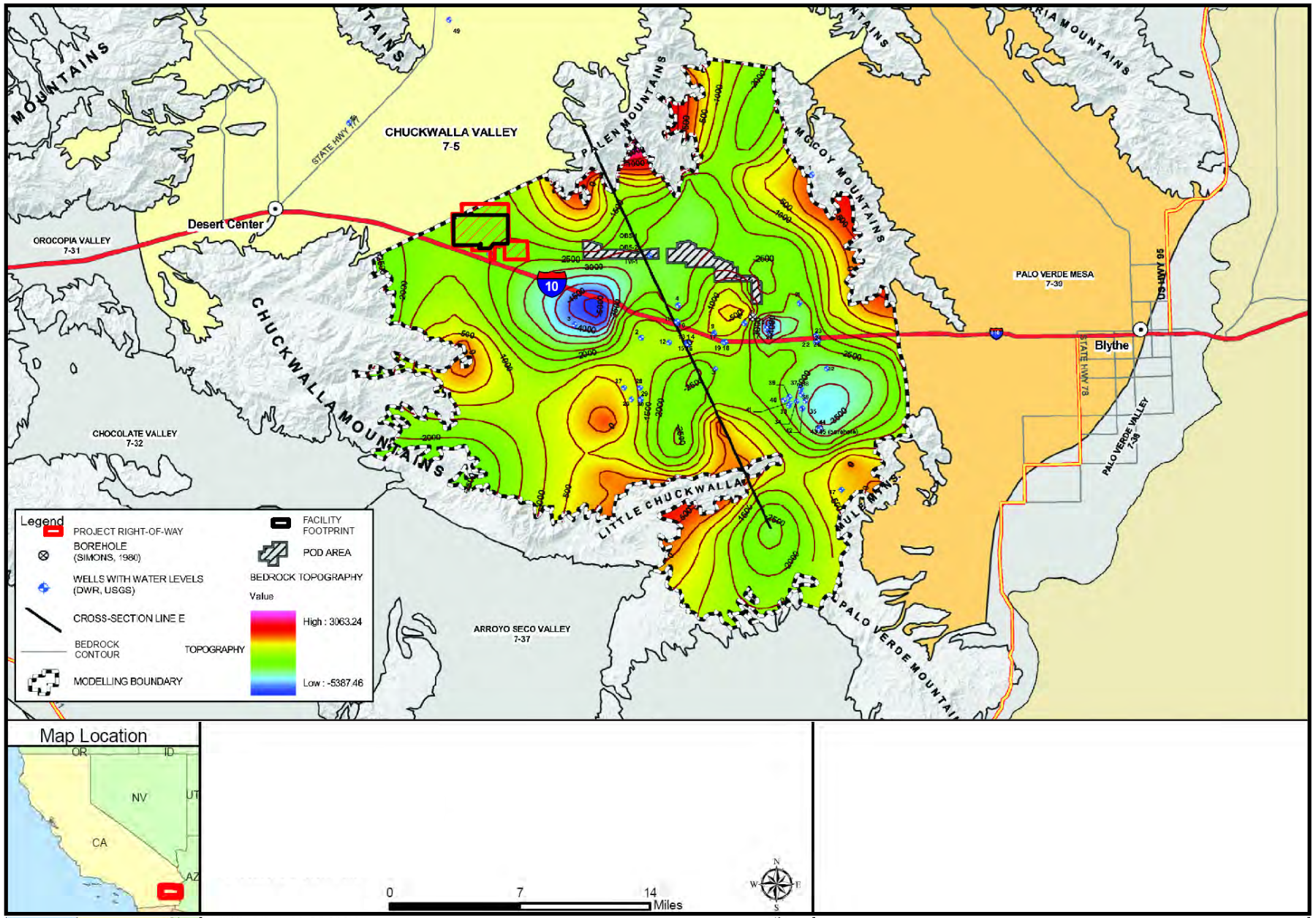
Figure 3.20-1

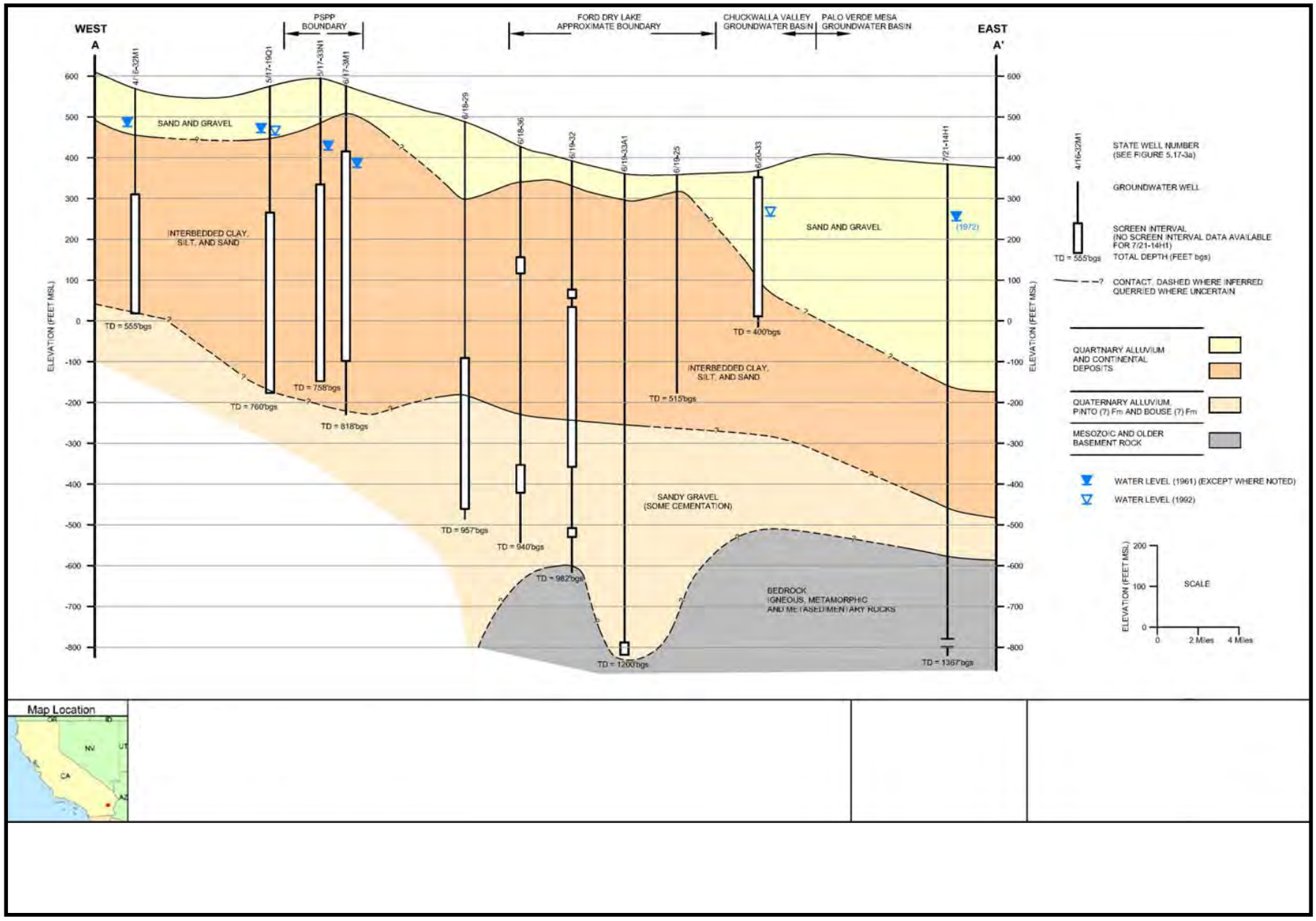
Chuckwalla Valley Regional Groundwater Basins



SOURCE: CEC/BLM, 2010

Figure 3.20-2

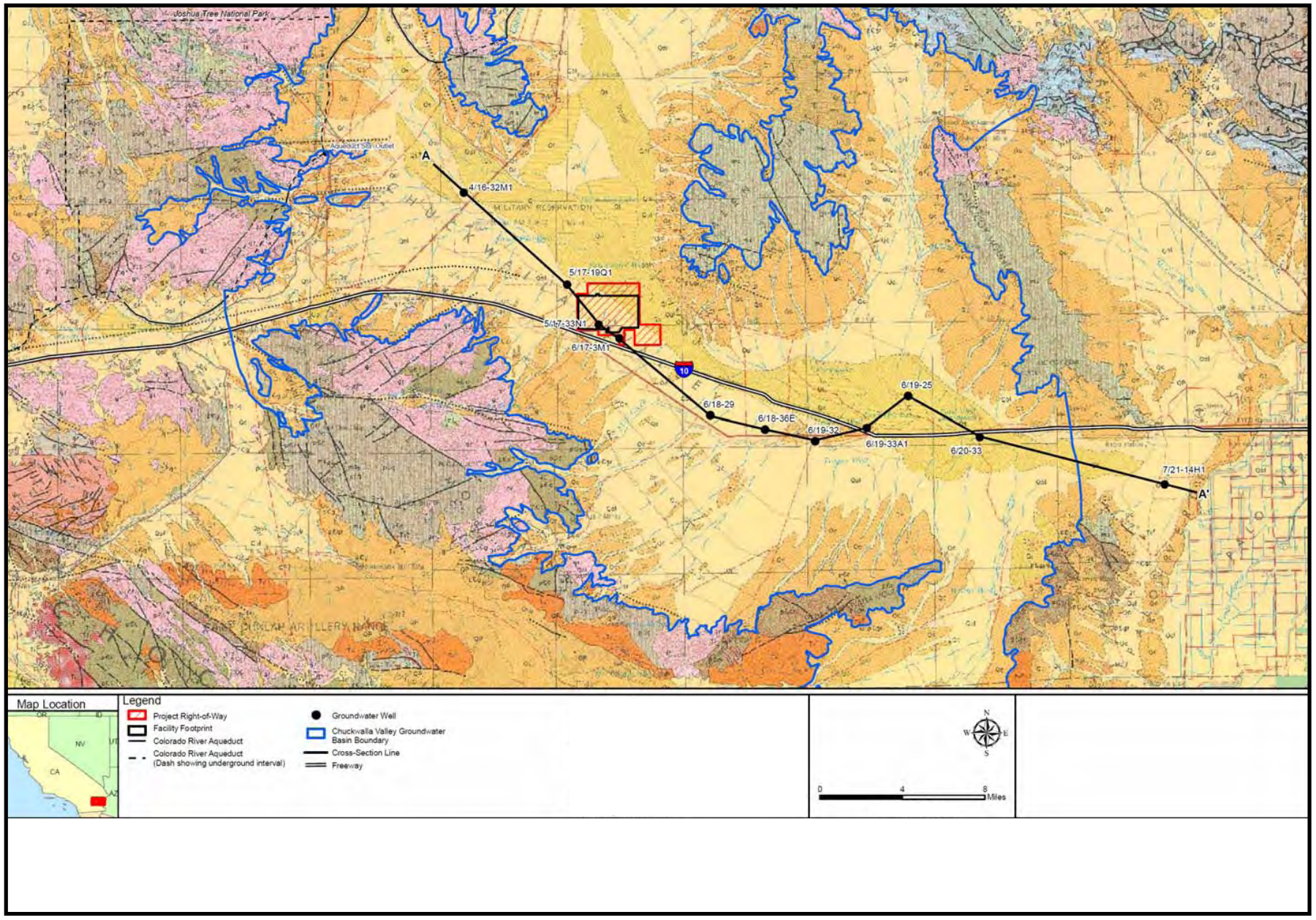
Chuckwalla Valley Groundwater Basin Bedrock Topography



SOURCE: CEC/BLM, 2010

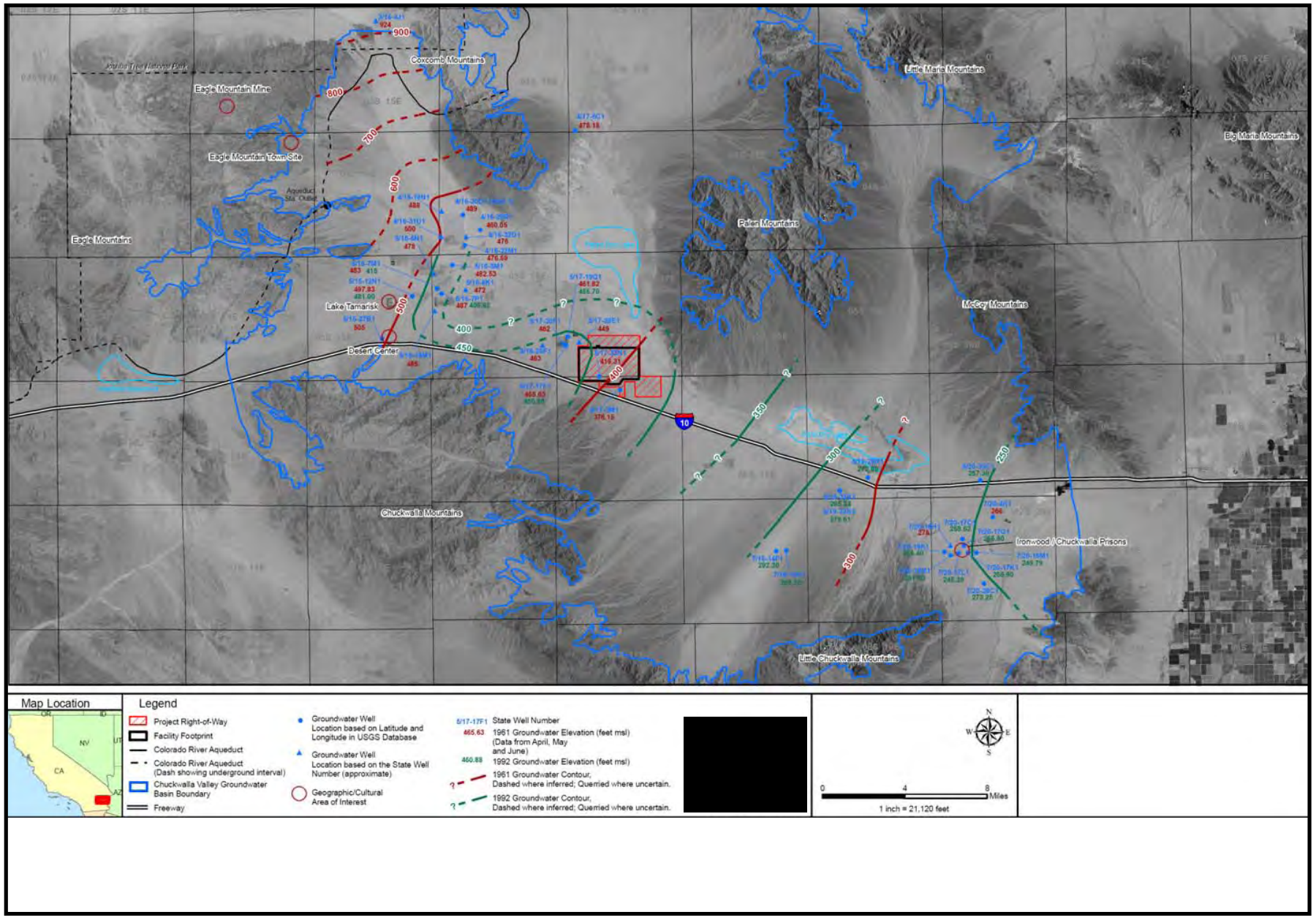
Figure 3.20-3

Chuckwalla Valley Groundwater Basin Cross Section A-A'



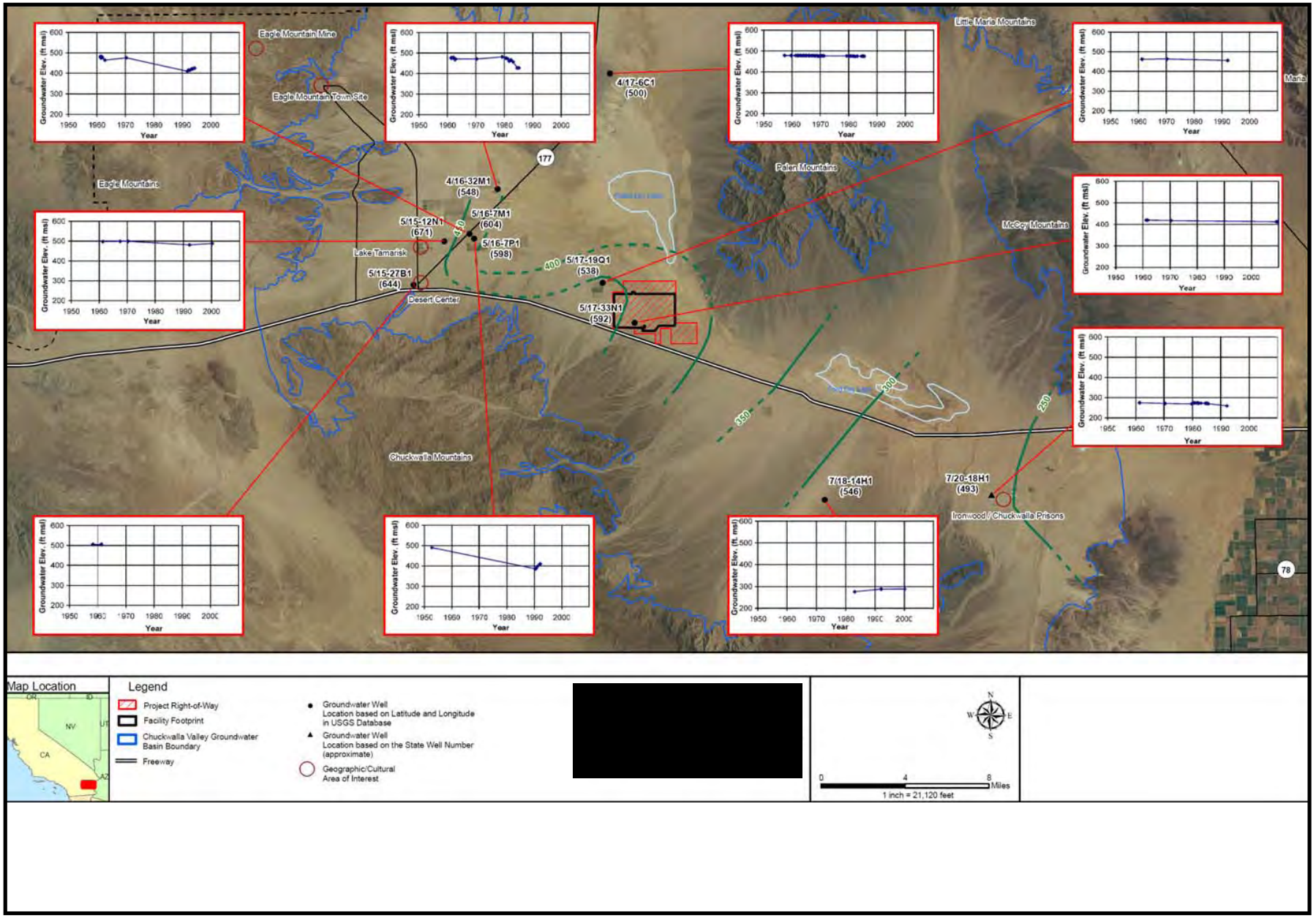
SOURCE: CEC/BLM, 2010

Figure 3.20-4
Regional Geology Map



SOURCE: CEC/BLM, 2010

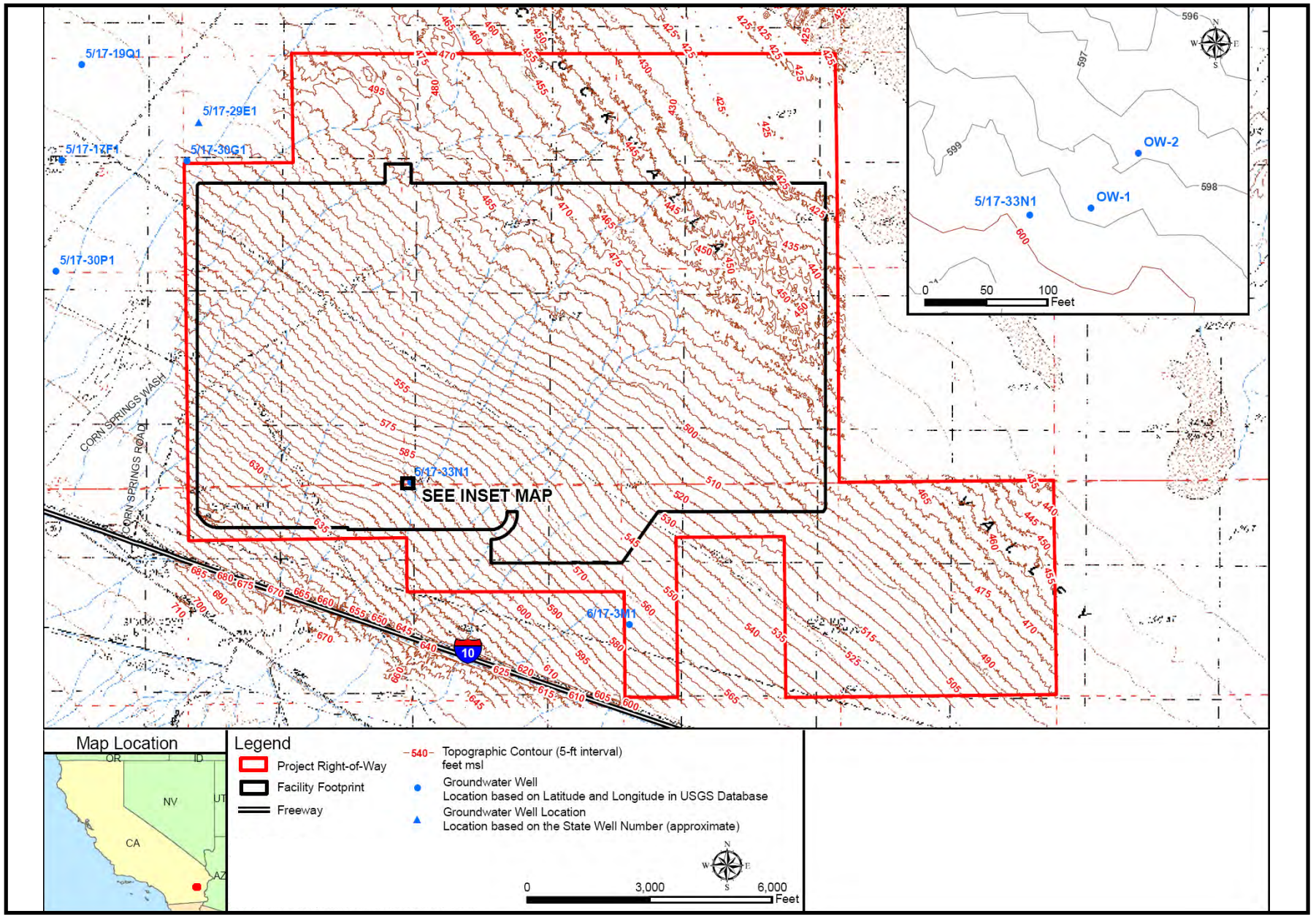
Figure 3.20-5
Chuckwalla Valley Groundwater Basin
Pre Project Conditions



SOURCE: CEC/BLM, 2010

Figure 3.20-6

Basin Wide Groundwater Hydrographs



SOURCE: CEC/BLM, 2010

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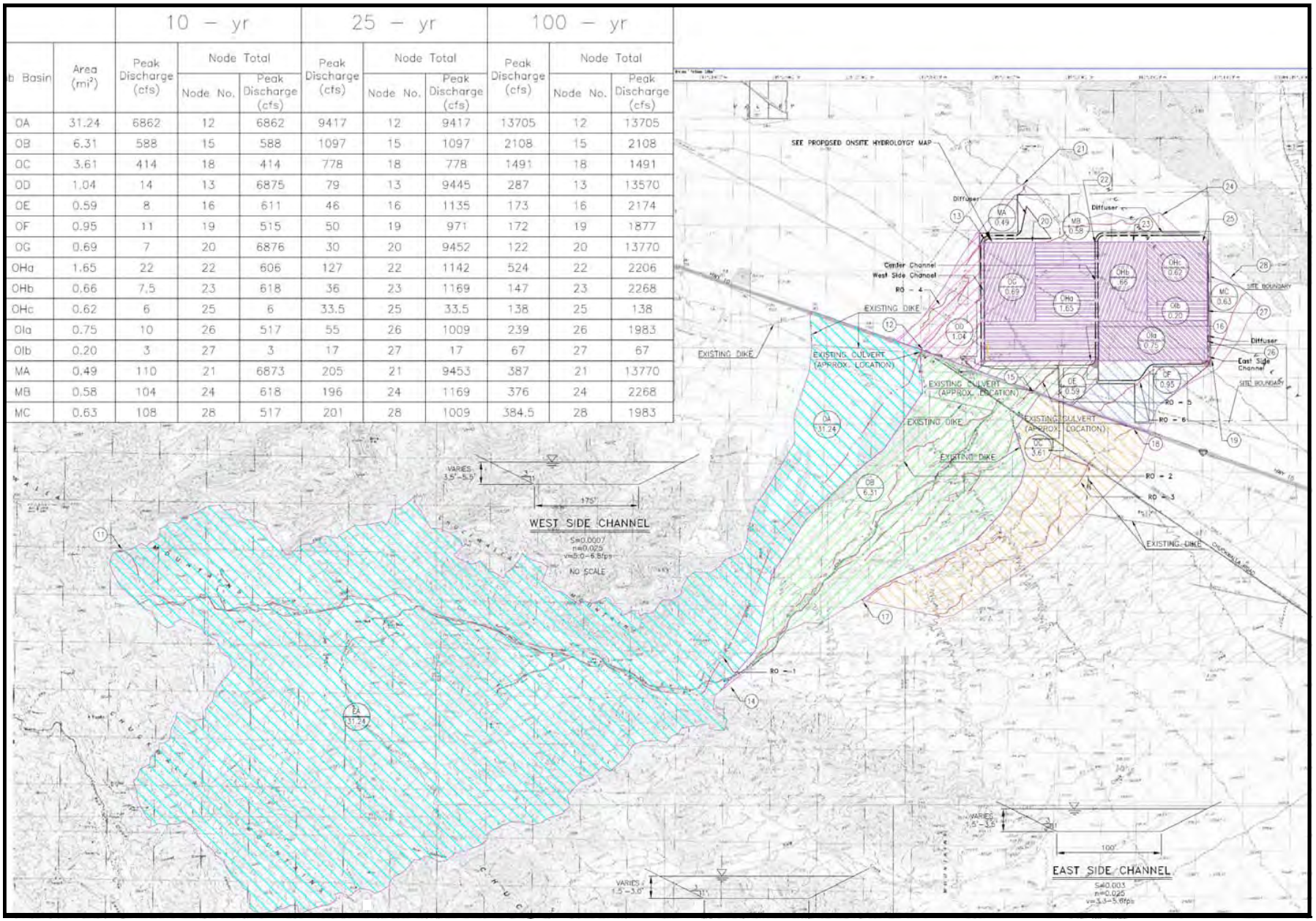
Figure 3.20-7

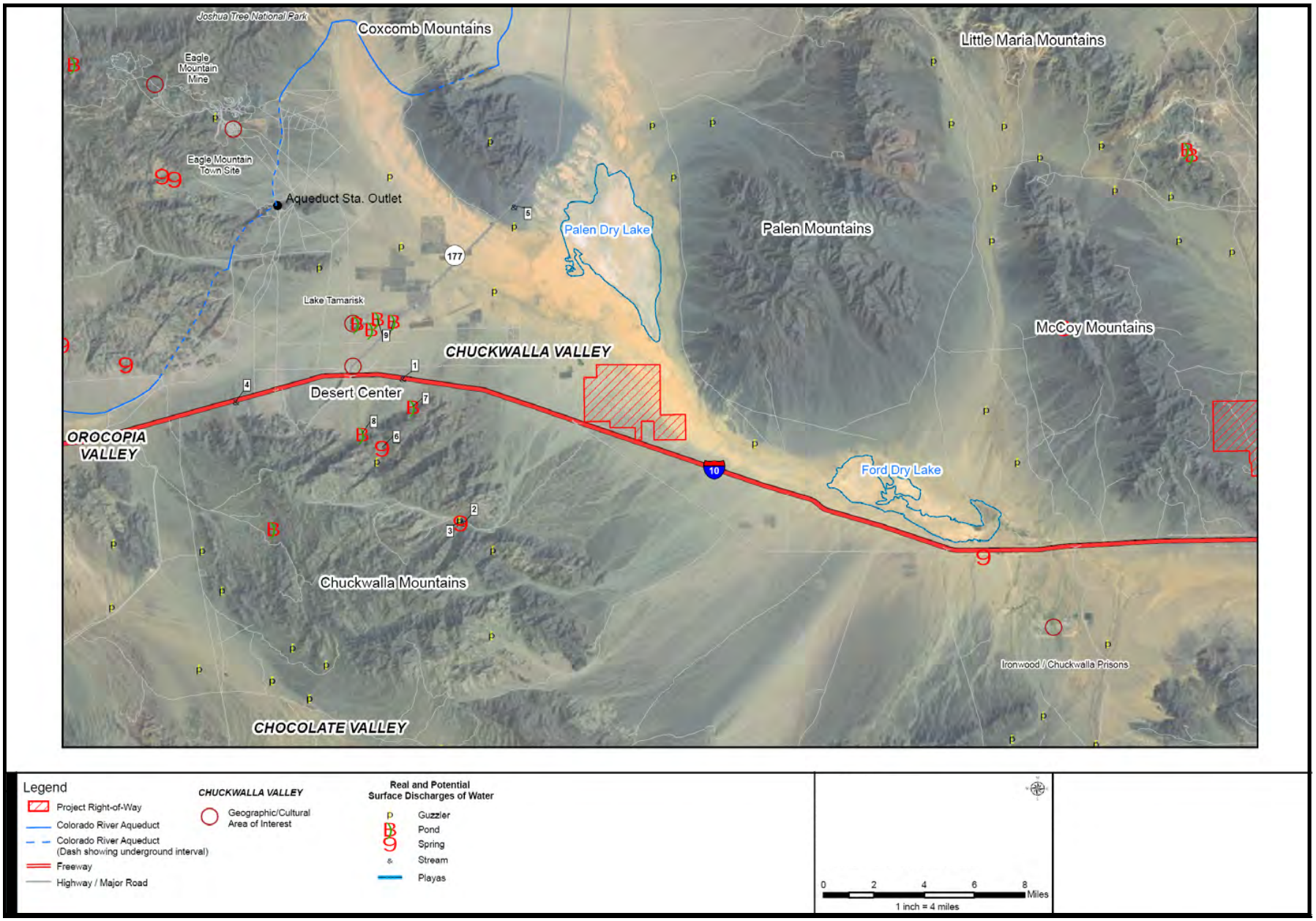
Chuckwalla Valley Groundwater Basin Well Locations

b Basin	Area (mi²)	10 – yr			25 – yr			100 – yr		
		Peak Discharge (cfs)	Node Total		Peak Discharge (cfs)	Node Total		Peak Discharge (cfs)	Node Total	
			Node No.	Peak Discharge (cfs)		Node No.	Peak Discharge (cfs)		Node No.	Peak Discharge (cfs)
OA	31.24	6862	12	6862	9417	12	9417	13705	12	13705
OB	6.31	588	15	588	1097	15	1097	2108	15	2108
OC	3.61	414	18	414	778	18	778	1491	18	1491
OD	1.04	14	13	6875	79	13	9445	287	13	13570
OE	0.59	8	16	611	46	16	1135	173	16	2174
OF	0.95	11	19	515	50	19	971	172	19	1877
OG	0.69	7	20	6876	30	20	9452	122	20	13770
OHa	1.65	22	22	606	127	22	1142	524	22	2206
OHb	0.66	7.5	23	618	36	23	1169	147	23	2268
OHc	0.62	6	25	6	33.5	25	33.5	138	25	138
Ola	0.75	10	26	517	55	26	1009	239	26	1983
Olb	0.20	3	27	3	17	27	17	67	27	67
MA	0.49	110	21	6873	205	21	9453	387	21	13770
MB	0.58	104	24	618	196	24	1169	376	24	2268
MC	0.63	108	28	517	201	28	1009	384.5	28	1983



SOURCE: CEC/BLM, 2010

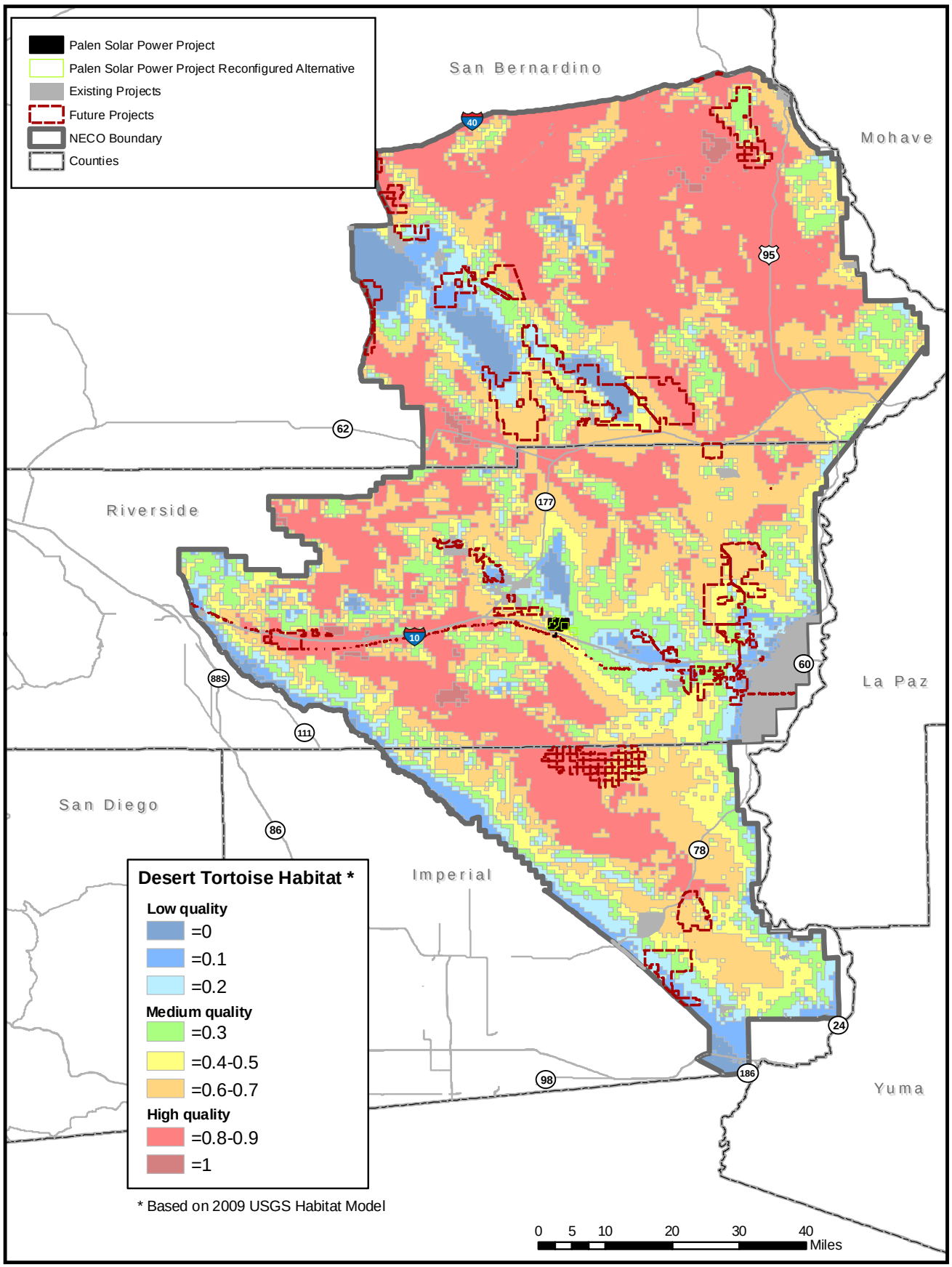
Figure 3.20-8
Developed Project Hydrology



SOURCE: CEC/BLM, 2010

Figure 3.20-9

Chuckwalla Valley Springs and Seep



SOURCE: CEC RSA, 2010

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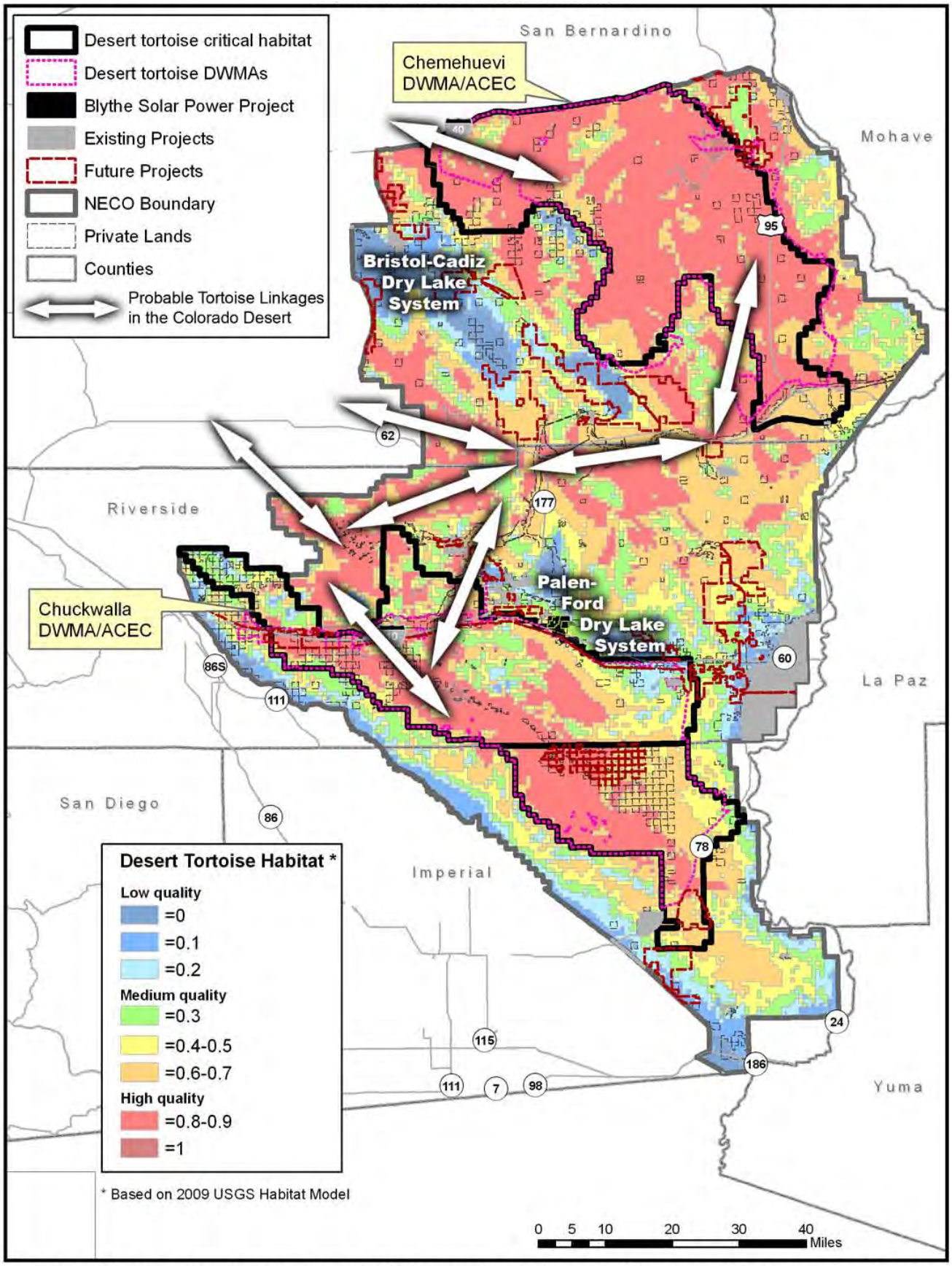
Figure 3.23-1

Desert Tortoise Habitat

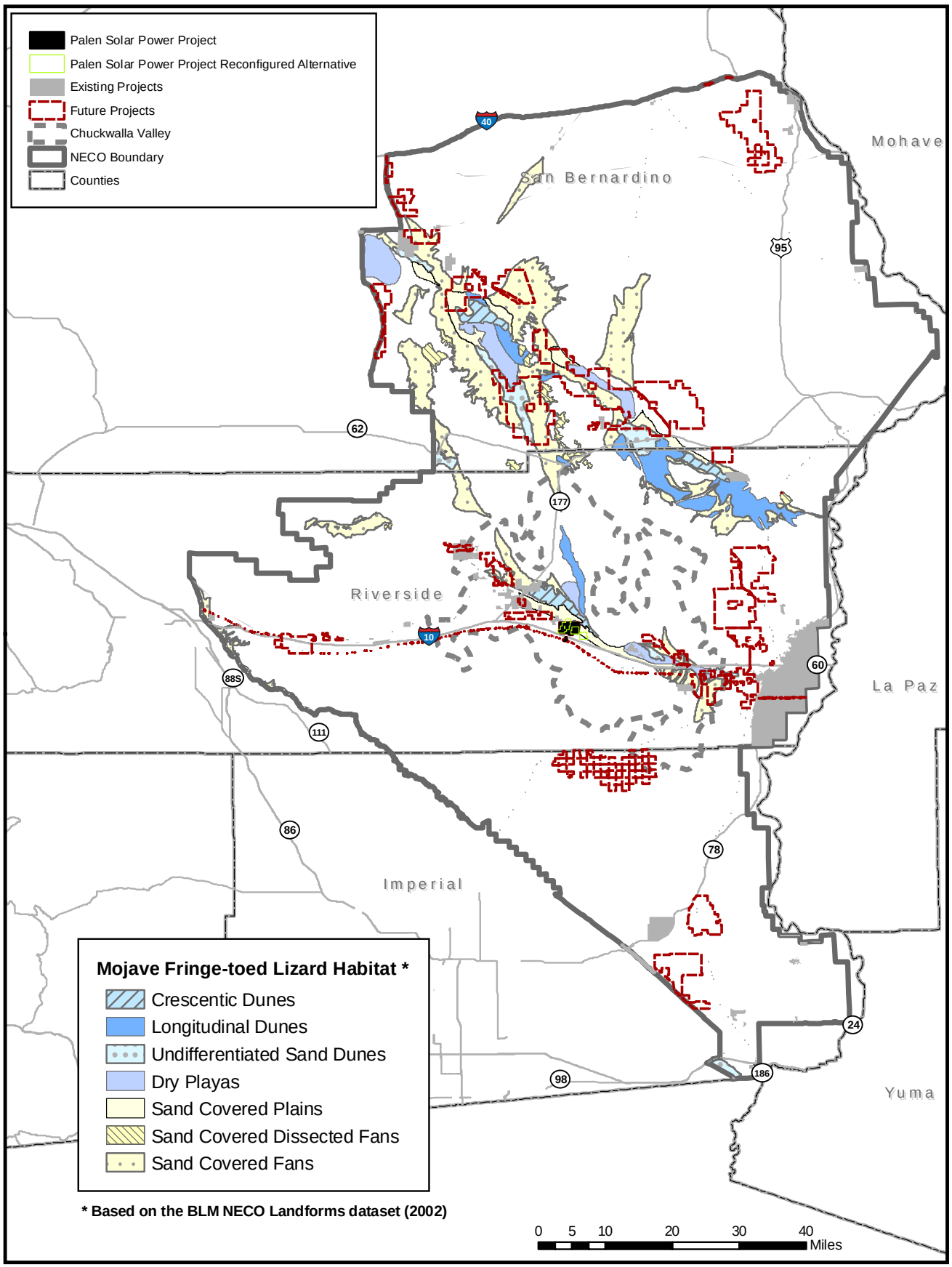


SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure 3.23-2

Desert Tortoise Chuckwalla to Chemehuevi DWAMs and Critical Habitat

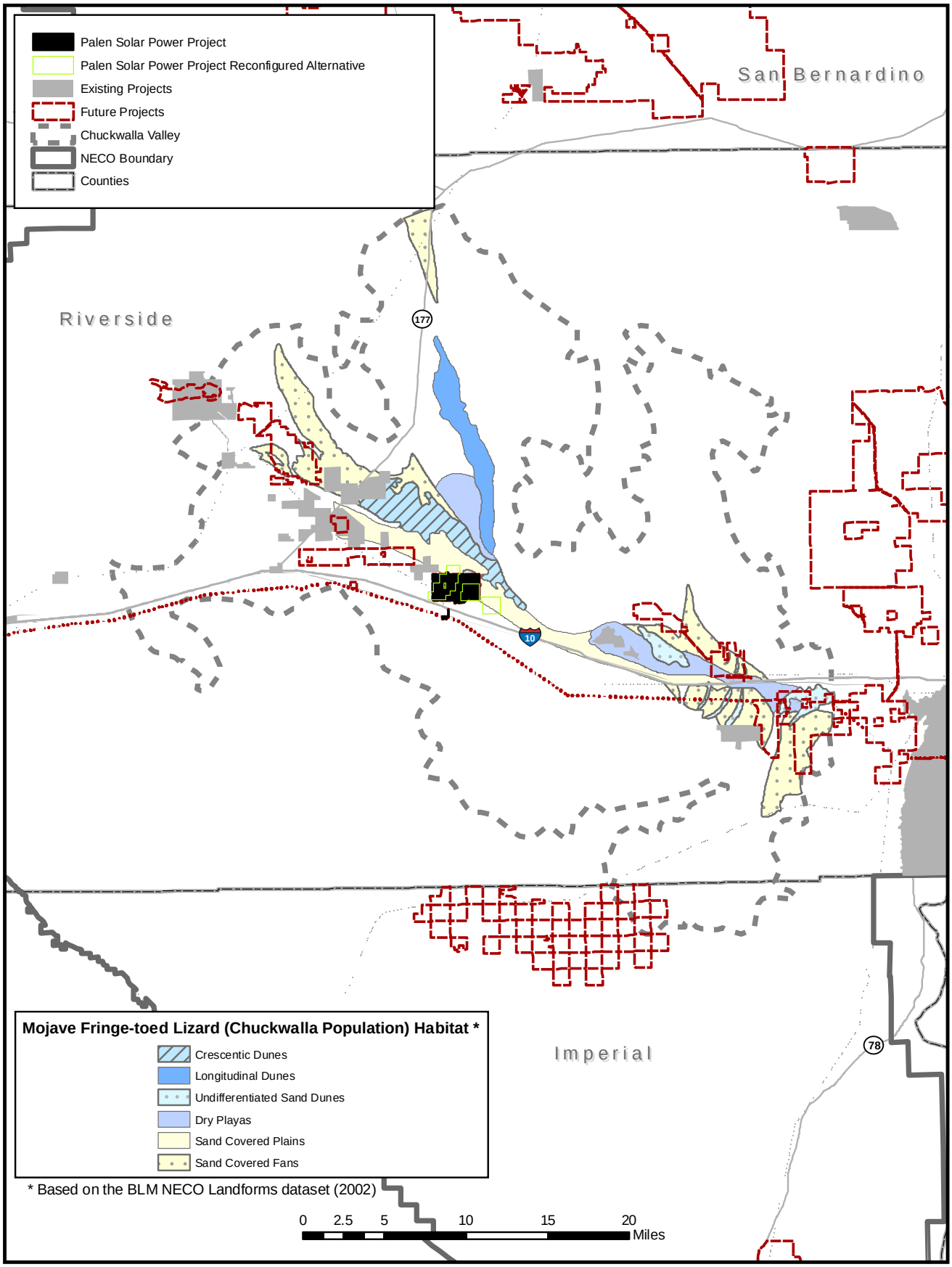


SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure 3.23-3

Mojave Fringe-Toed Lizard Habitat



SOURCE: CEC RSA, 2010

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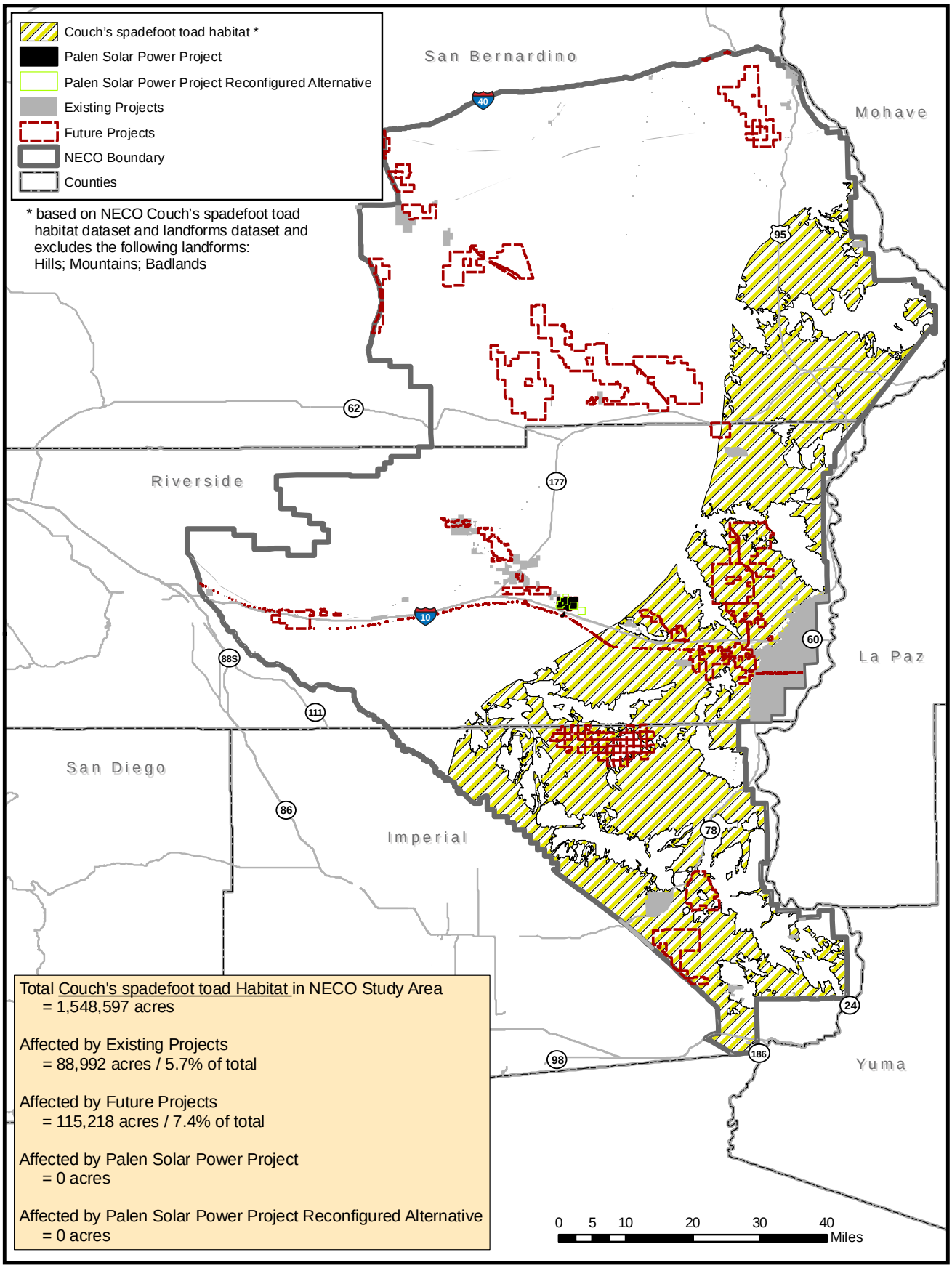
Figure 3.23-4

Mojave Fringe-Toed Lizard Habitat
Chuckwalla Population

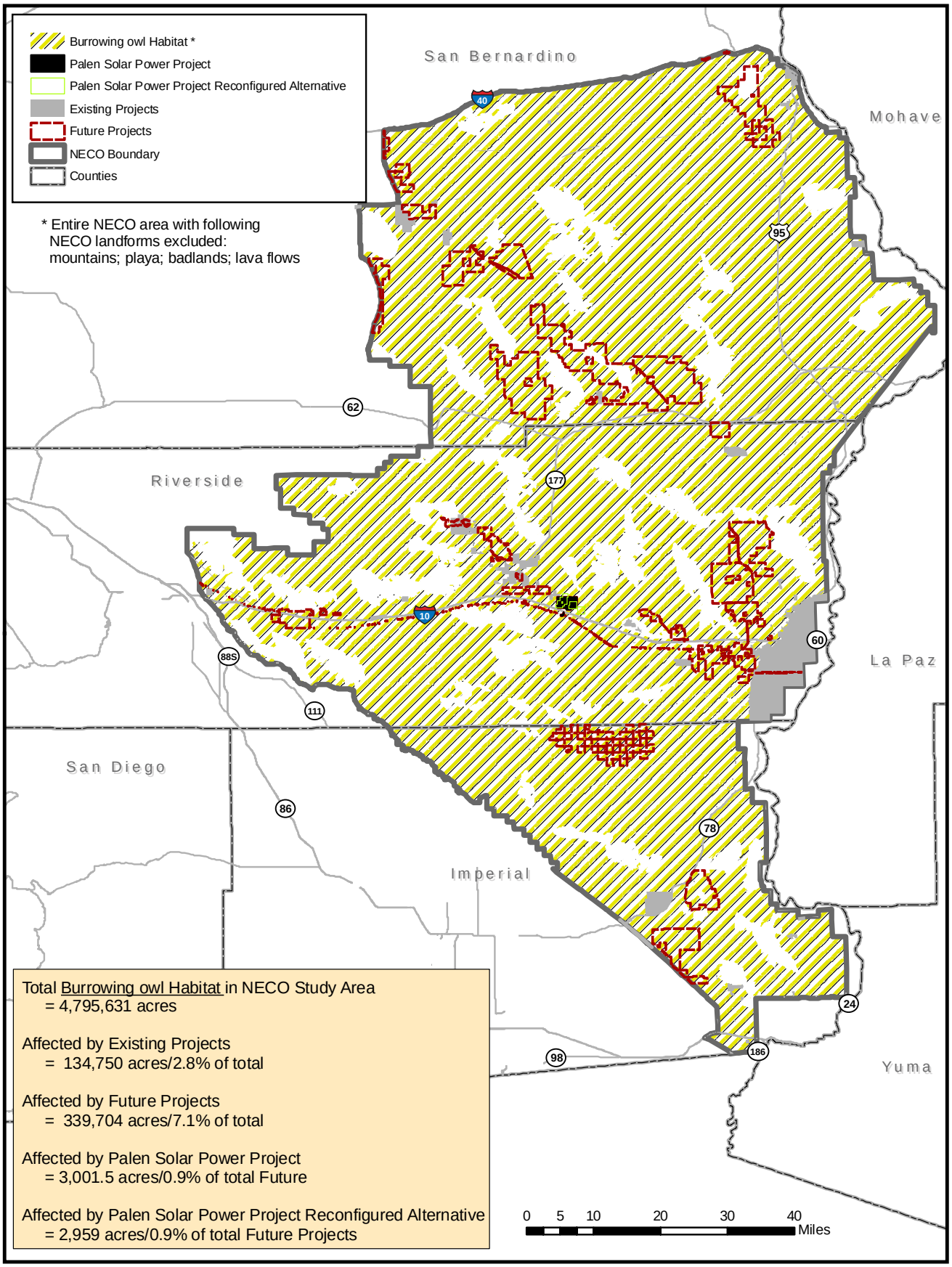


SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure 3.23-5

Couch's Spadefoot Toad Habitat

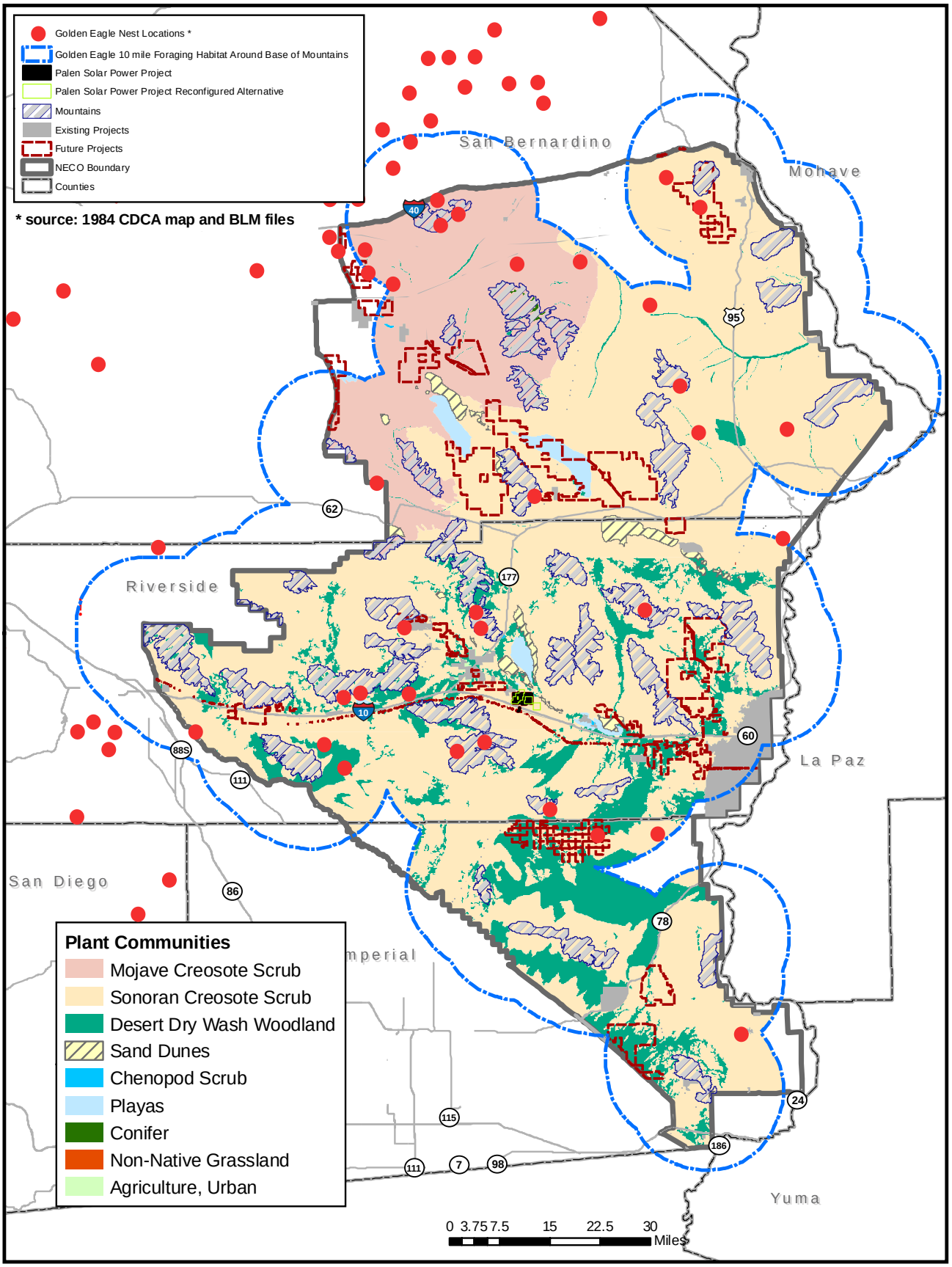


SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure 3.23-6

Burrowing Owl Habitat

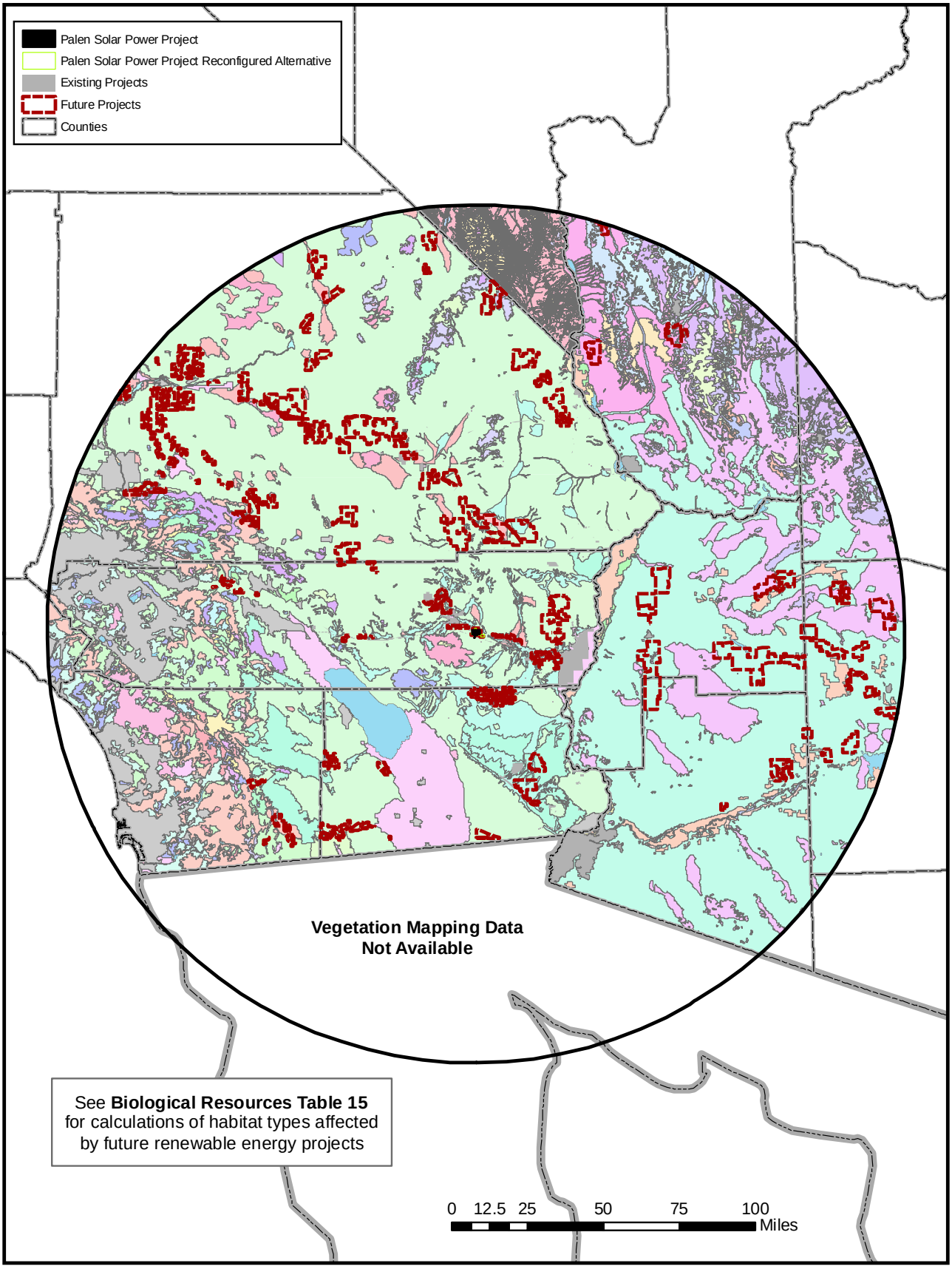


SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure 3.23-7

Golden Eagle Foraging Habitat within 10 Miles of Mountains

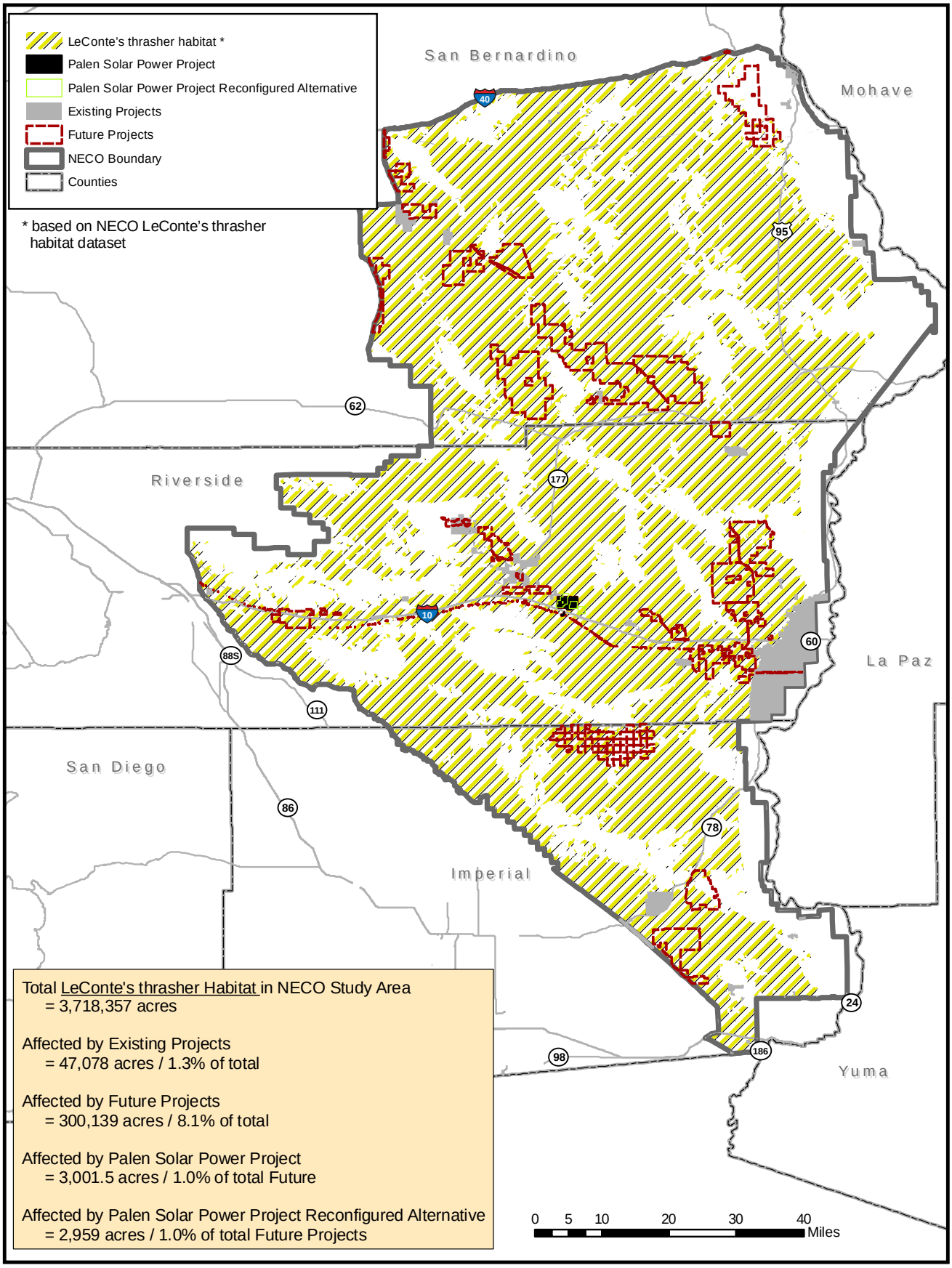


SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure 3.23-8

Golden Eagle Foraging Habitat within 140 Miles Radius of Project

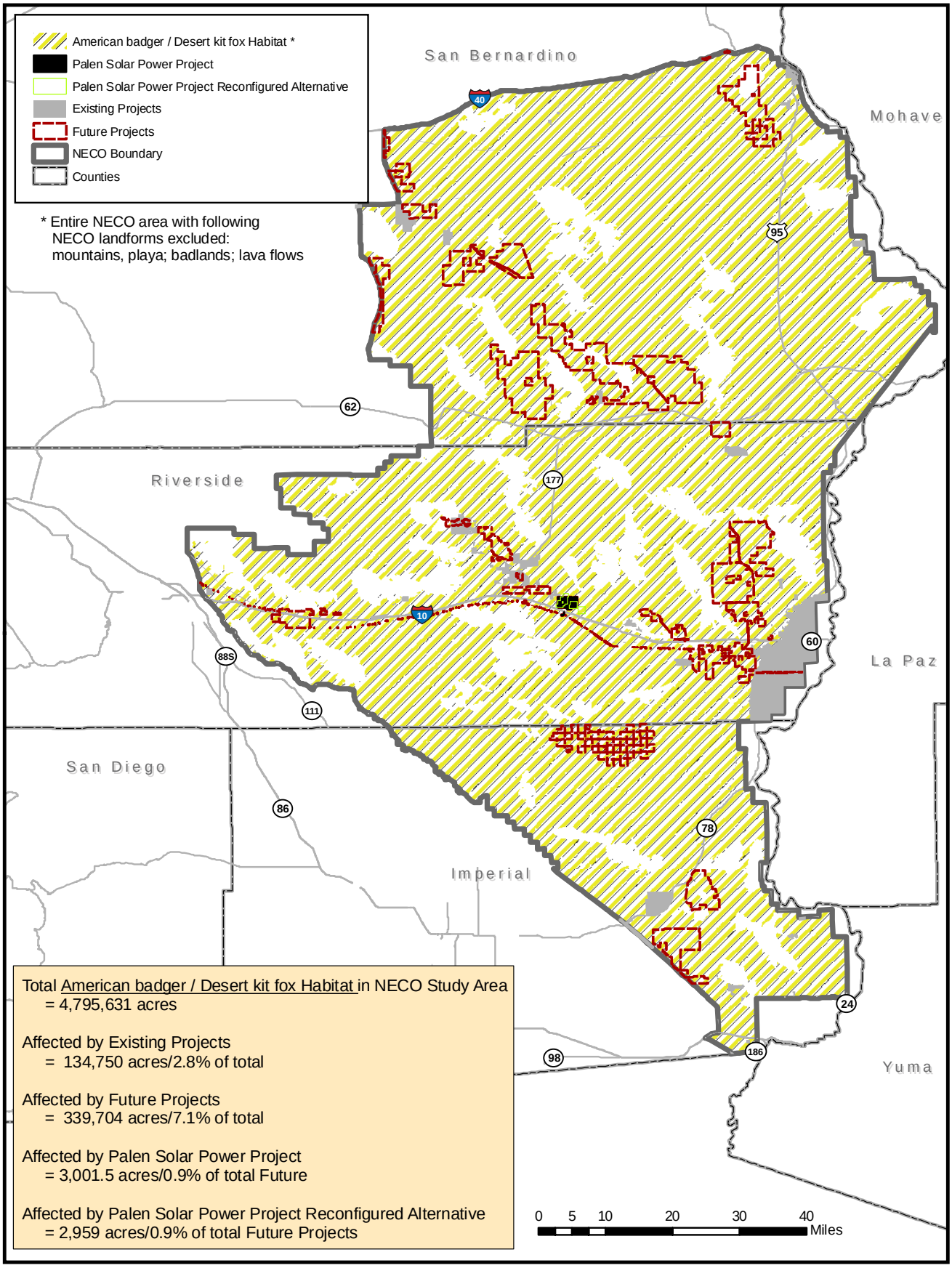


SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure 3.23-9

Leconte's Thrasher Habitat

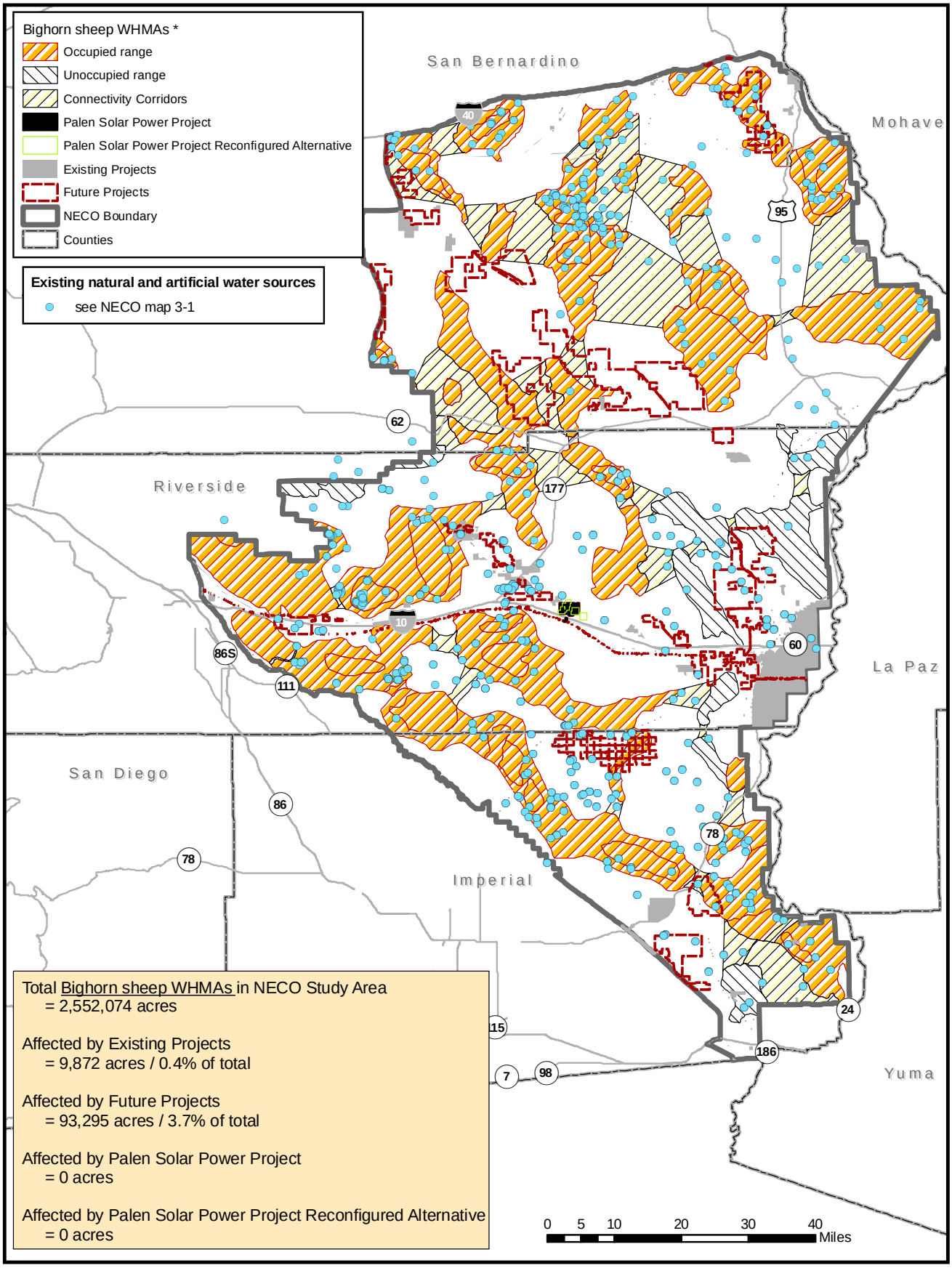


SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure 3.23-10

American Badger/Desert Kit Fox Habitat

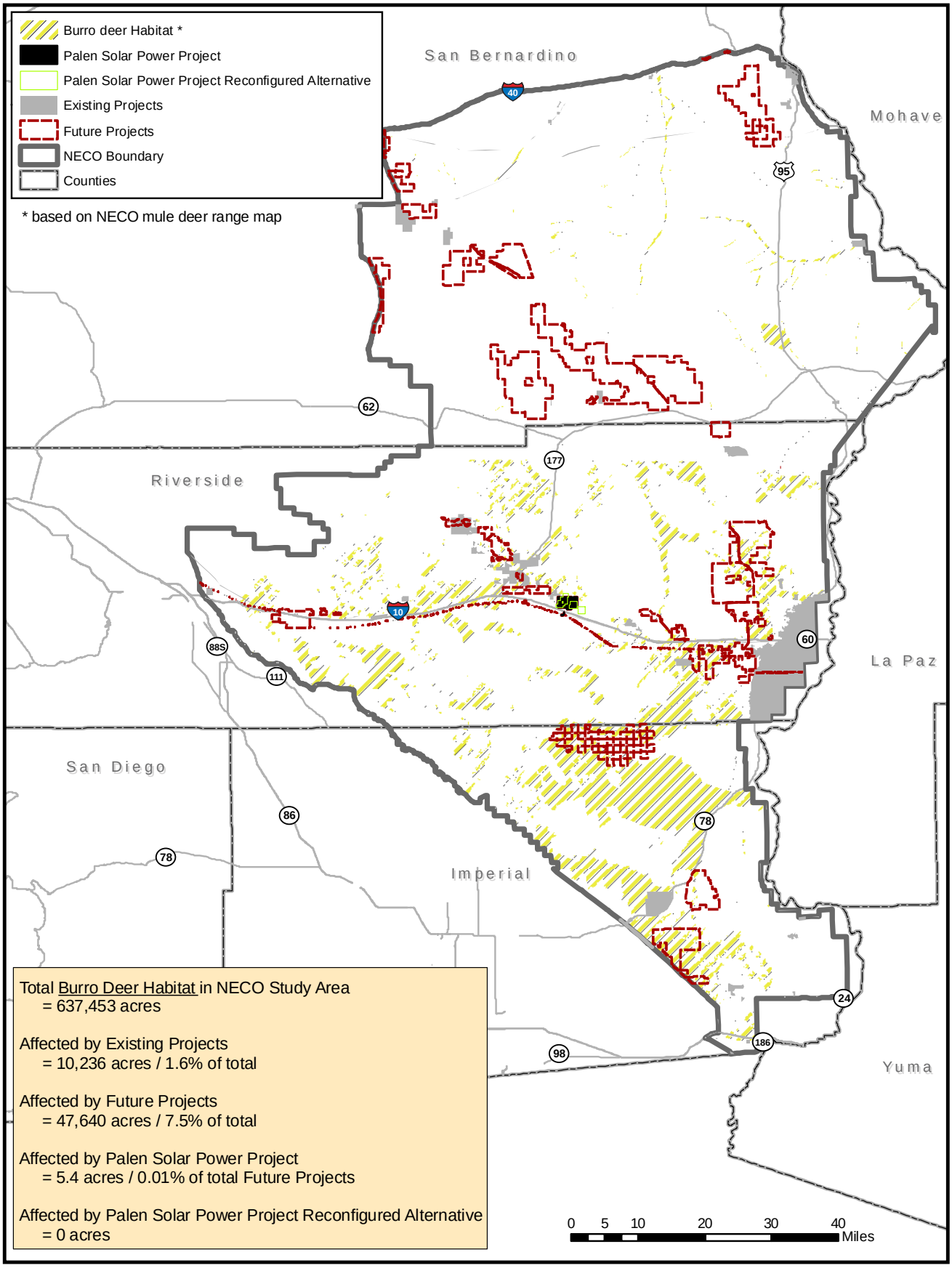


SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure 3.23-11

Bighorn Sheep WHMAs

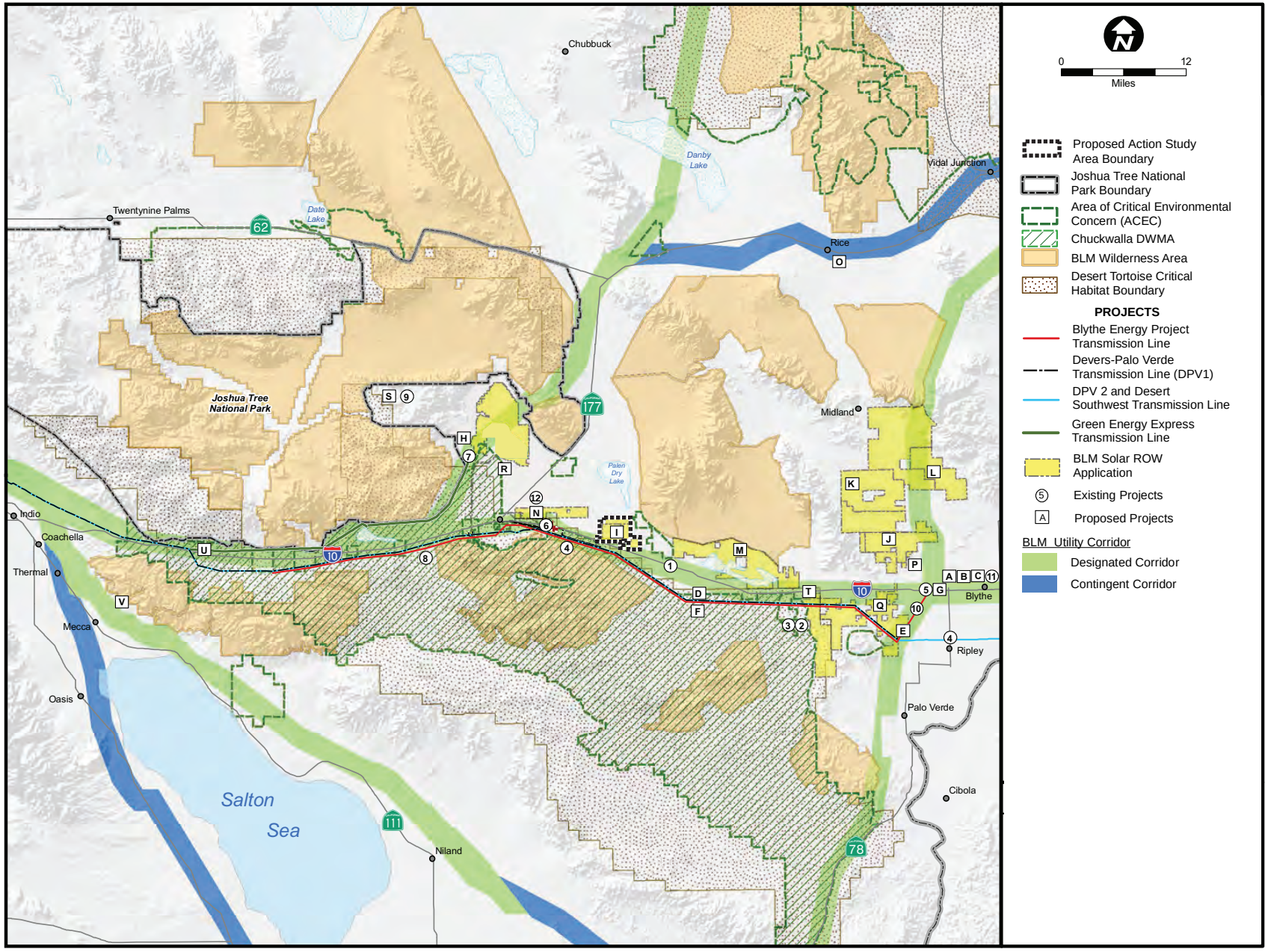


SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

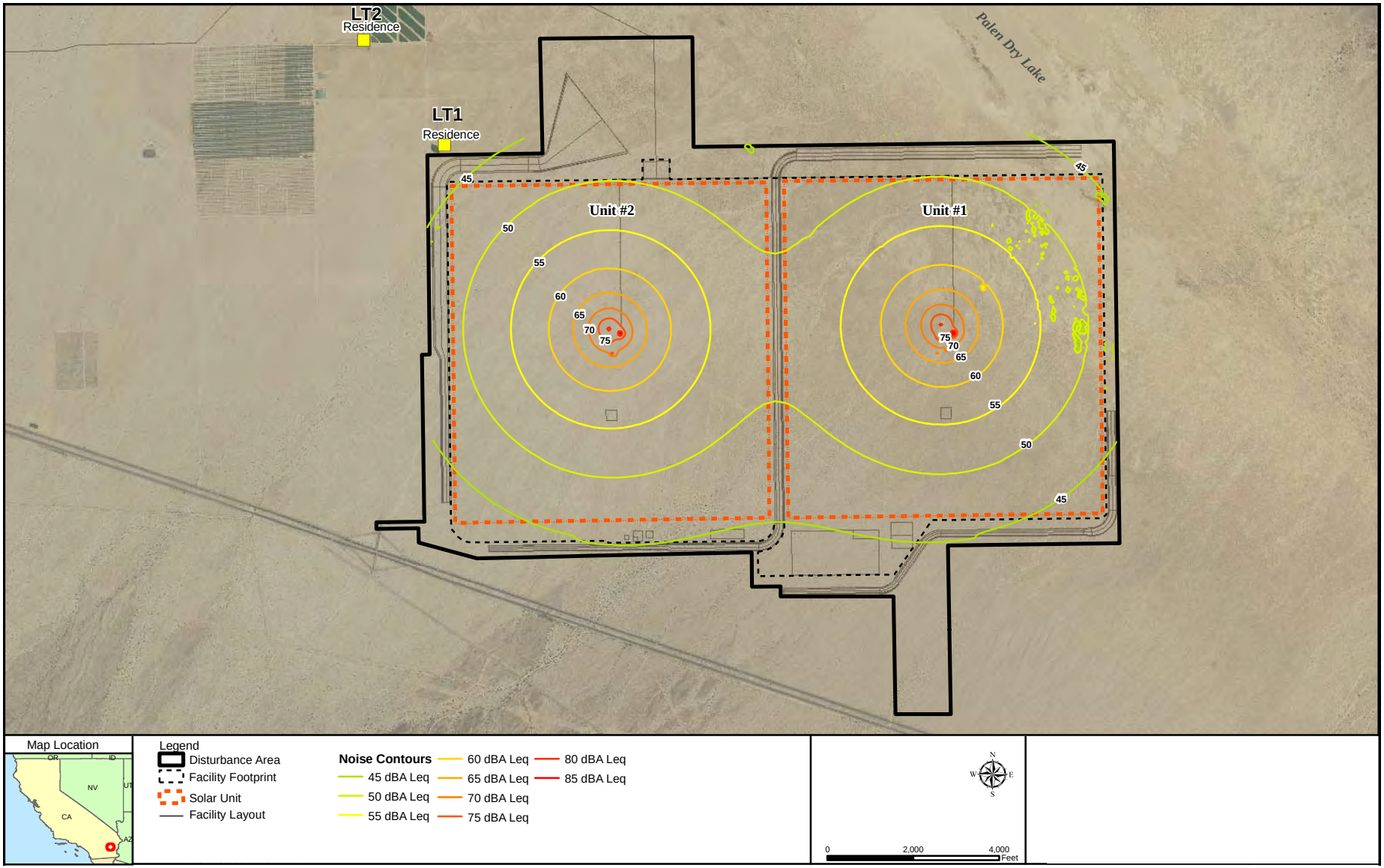
Figure 3.23-12

Burro Deer Range



SOURCE: California Energy Commission, 2010; BLM, 2010

Figure 4.1-1
BLM Rights of Way with Existing and Future/Foreseeable Projects



SOURCE: CEC RSA Part I, 2010

Figure 4.9-1
Noise Measurement Locations
and Noise Contours

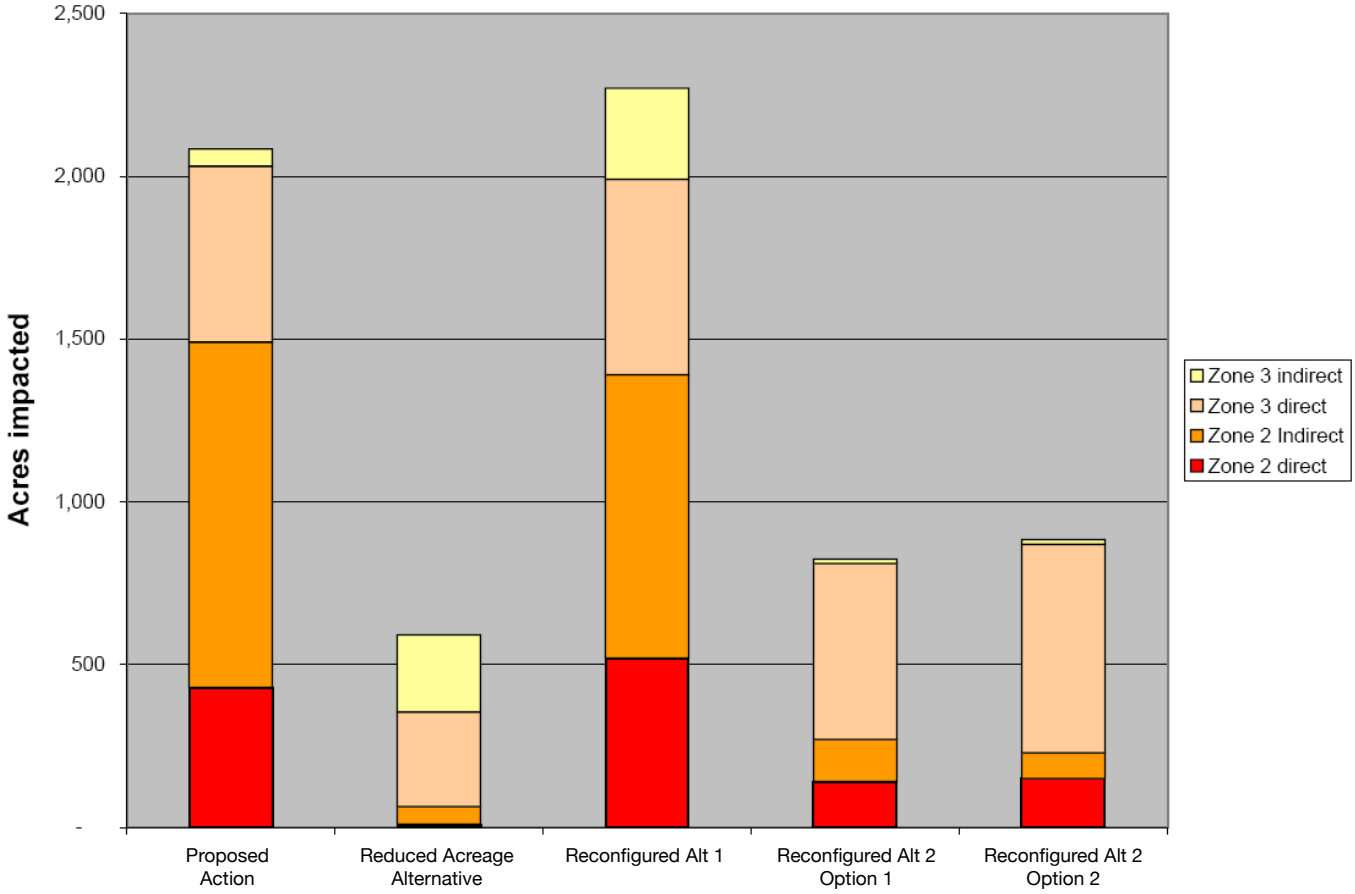
Note: The intrusion of the eastern array into the sand transport corridor (red dunes and surrounding grey dunes) can clearly be seen.

SOURCE: CEC RSA Part II, 2010

Palen Solar Power Project FEIS . 210291.01

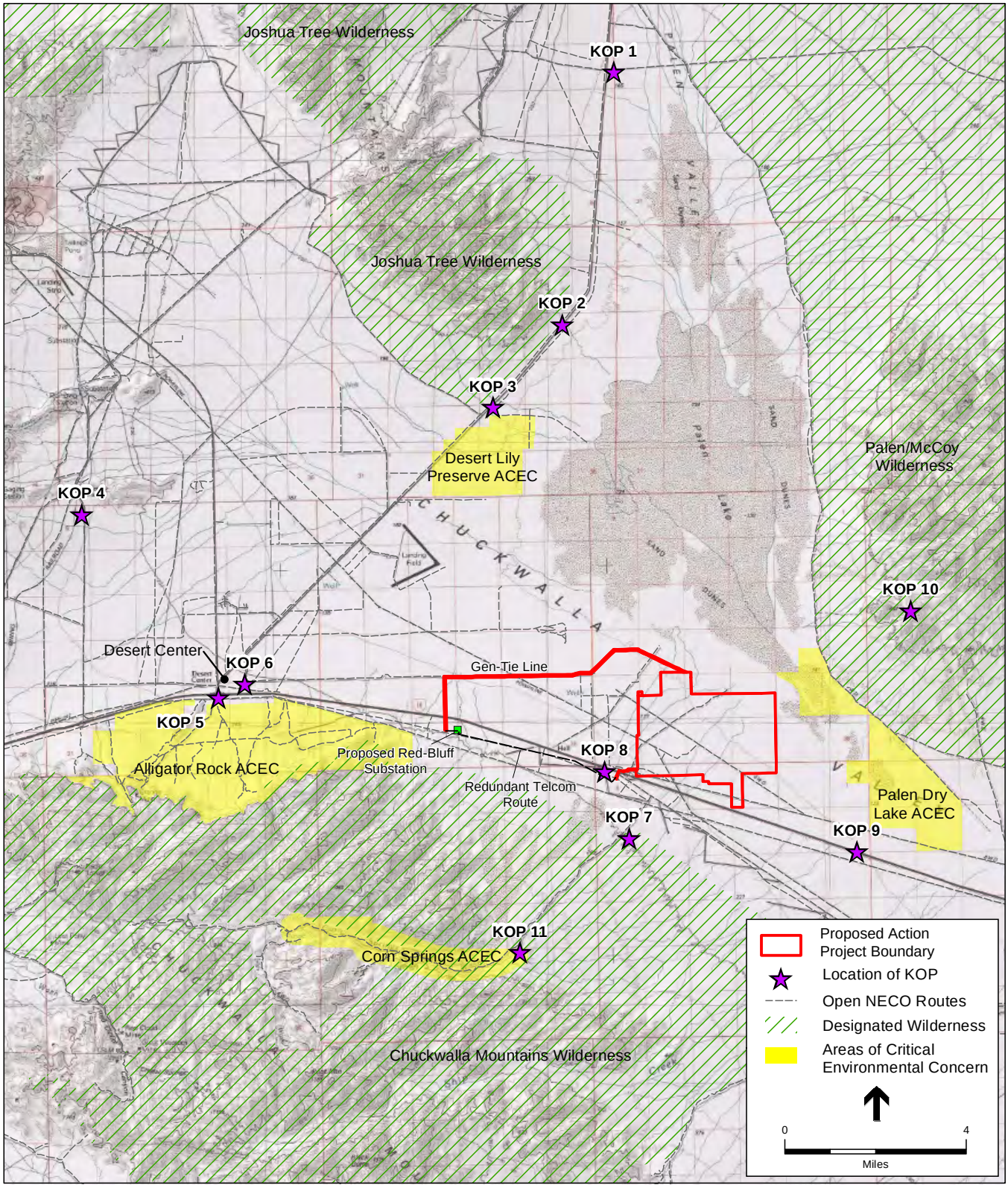
Figure 4.14-1

PSPP Intrusion into the Chuckwalla Sand Transport Corridor



SOURCE: CEC RSA Part II, 2010

Figure 4.14-2
Summary of Alternatives' Impacts on the Sand Transport Corridor



SOURCE: AFC, 2009

Palen Solar Power Project FEIS . 210291.01

Figure 4.18-1

Location of Key Observation Points (KOPs)

SOURCE: CEC RSA Part II, 2010

Figure 4.18-2
Foreground View of an Existing Solar Energy Facility
(Kramer Junction SEGS Project)

Unidentified trough project under different lighting conditions

Acciona Nevada Solar One

Acciona Nevada Solar One

SOURCE: Genesis AFC, August 2009

Palen Solar Power Project FEIS . 210291.01

Figure 4.18-3

Aerial Views of Existing Solar Trough Projects

Kramer Junction

Nevada Solar One

SOURCE: Genesis AFC, August 2009

Palen Solar Power Project FEIS . 210291.01

Figure 4.18-4

Examples of Solar Trough Spread Glare

Existing Condition

Simulated Condition

SOURCE: AFC, 2009

Palen Solar Power Project FEIS . 210291.01

Figure 4.18-5

View from KOP-1, Highway 177 and Palen Pass Road,
Looking South Toward the PSPP Site

Existing Condition

Simulated Condition

Palen Solar Power Project FEIS . 210291.01

SOURCE: AFC, 2009

Figure 4.18-6

View from KOP-2, Highway 177 at the Edge of Joshua Tree Wilderness, Looking Southeast toward the PSPP Site

Existing Condition

Simulated Condition

Palen Solar Power Project FEIS . 210291.01

SOURCE: AFC, 2009

Figure 4.18-7

View from KOP-3, Desert Lily Sanctuary Entrance/Parking Area,
Looking Southeast toward the PSPP Site

Existing Condition

Simulated Condition

SOURCE: AFC, 2009

Palen Solar Power Project FEIS . 210291.01

Figure 4.18-8

View from KOP-4, Eagle Mountain Road,
Looking East toward the PSPP Site

Existing Condition

Simulated Condition

SOURCE: AFC, 2009

Palen Solar Power Project FEIS . 210291.01

Figure 4.18-9

View from KOP-5, I-10 Interchange at Desert Center,
Looking East toward the PSPP Site

Existing Condition

Simulated Condition

SOURCE: AFC, 2009

Palen Solar Power Project FEIS . 210291.01

Figure 4.18-10

View from KOP-6, Residential community entrance/exit in Desert Center, Looking East toward the PSPP Site

Existing Condition

Simulated Condition

SOURCE: AFC, 2009

Figure 4.18-11

View from KOP-7, Corn Springs Road at the edge
of Chuckwalla Mountains Wilderness,
Looking North toward the PSPP Site

Existing Condition

Simulated Condition

SOURCE: AFC, 2009

Palen Solar Power Project FEIS . 210291.01

Figure 4.18-12

View from KOP-8, I-10 eastbound near the southwestern corner of the Project, Looking Northeast toward the PSPP Site

Existing Condition

Simulated Condition

Palen Solar Power Project FEIS . 210291.01

SOURCE: AFC, 2009

Figure 4.18-13

View from KOP-9, I-10 westbound near the southeastern corner of the Project, Looking Northwest toward the PSPP Site

Existing Condition

Simulated Condition

Palen Solar Power Project FEIS . 210291.01

SOURCE: CEC RSA Part II, 2010

Figure 4.18-14

View from KOP-10, Palen-McCoy Wilderness,
Looking Southwest toward the PSPP Site

Existing Condition

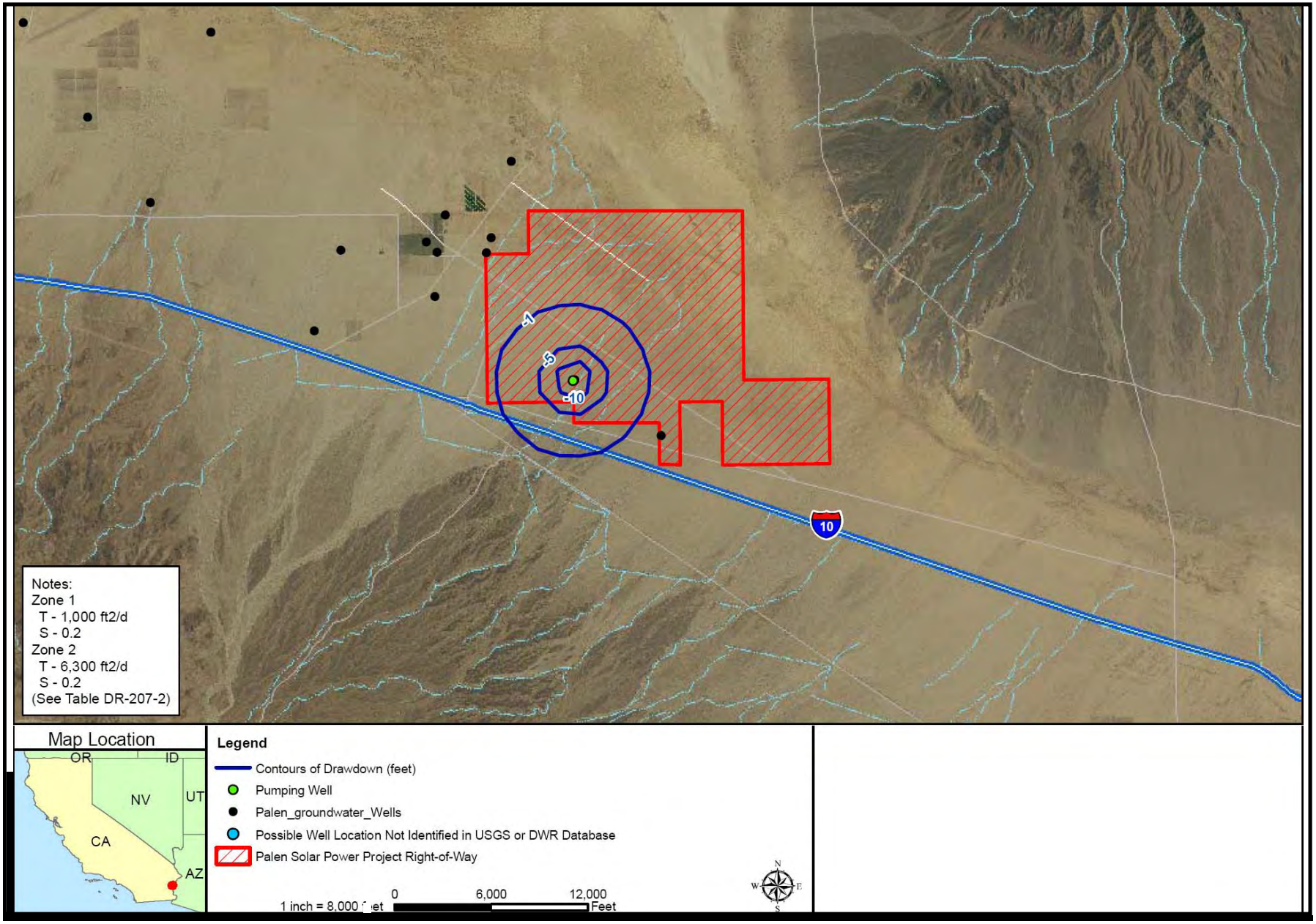
Simulated Condition

Palen Solar Power Project FEIS . 210291.01

SOURCE: CEC RSA Part II, 2010

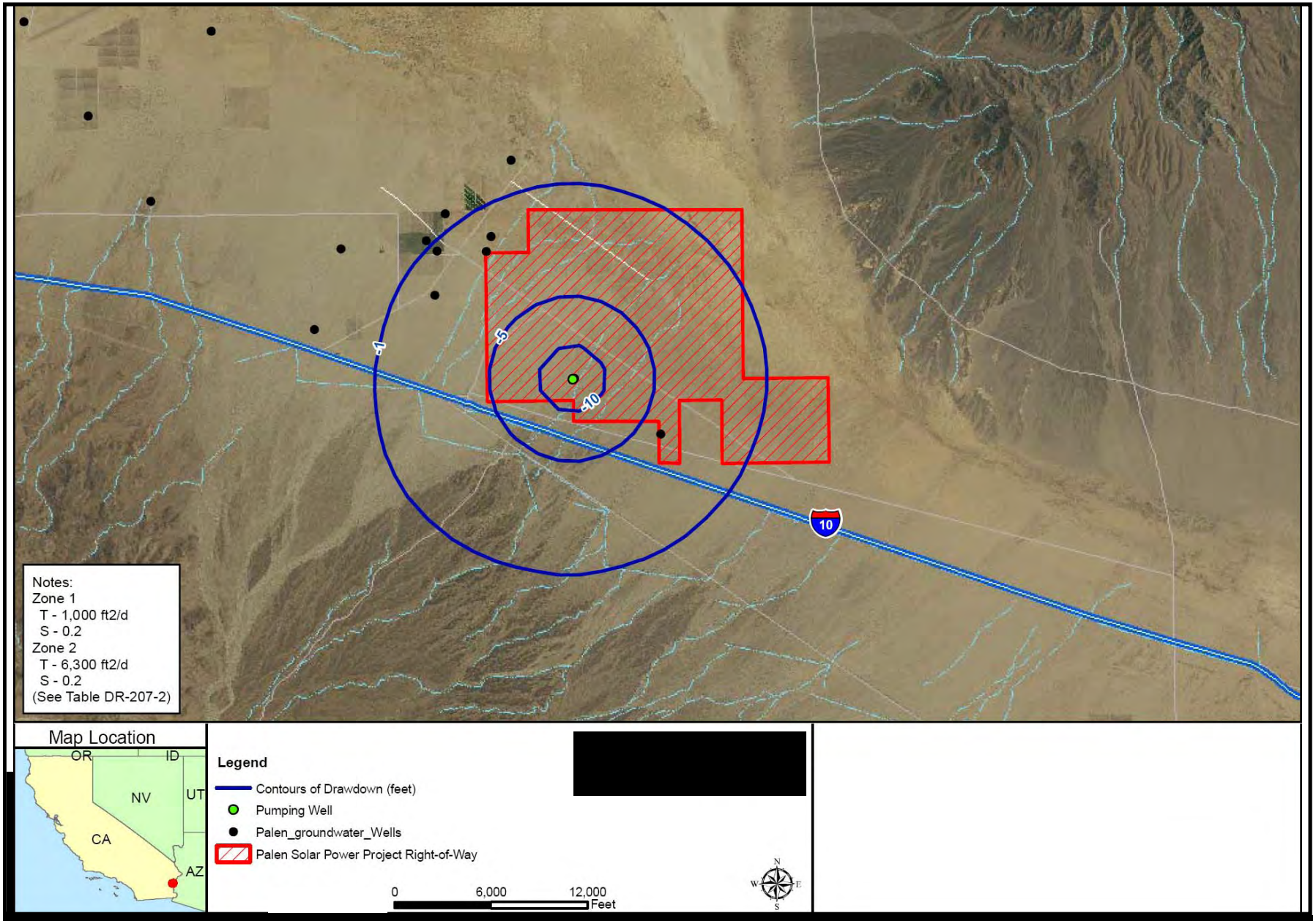
Figure 4.18-15

View from KOP-11, Chuckwalla Mountains Wilderness,
Looking Northeast toward the PSPP Site



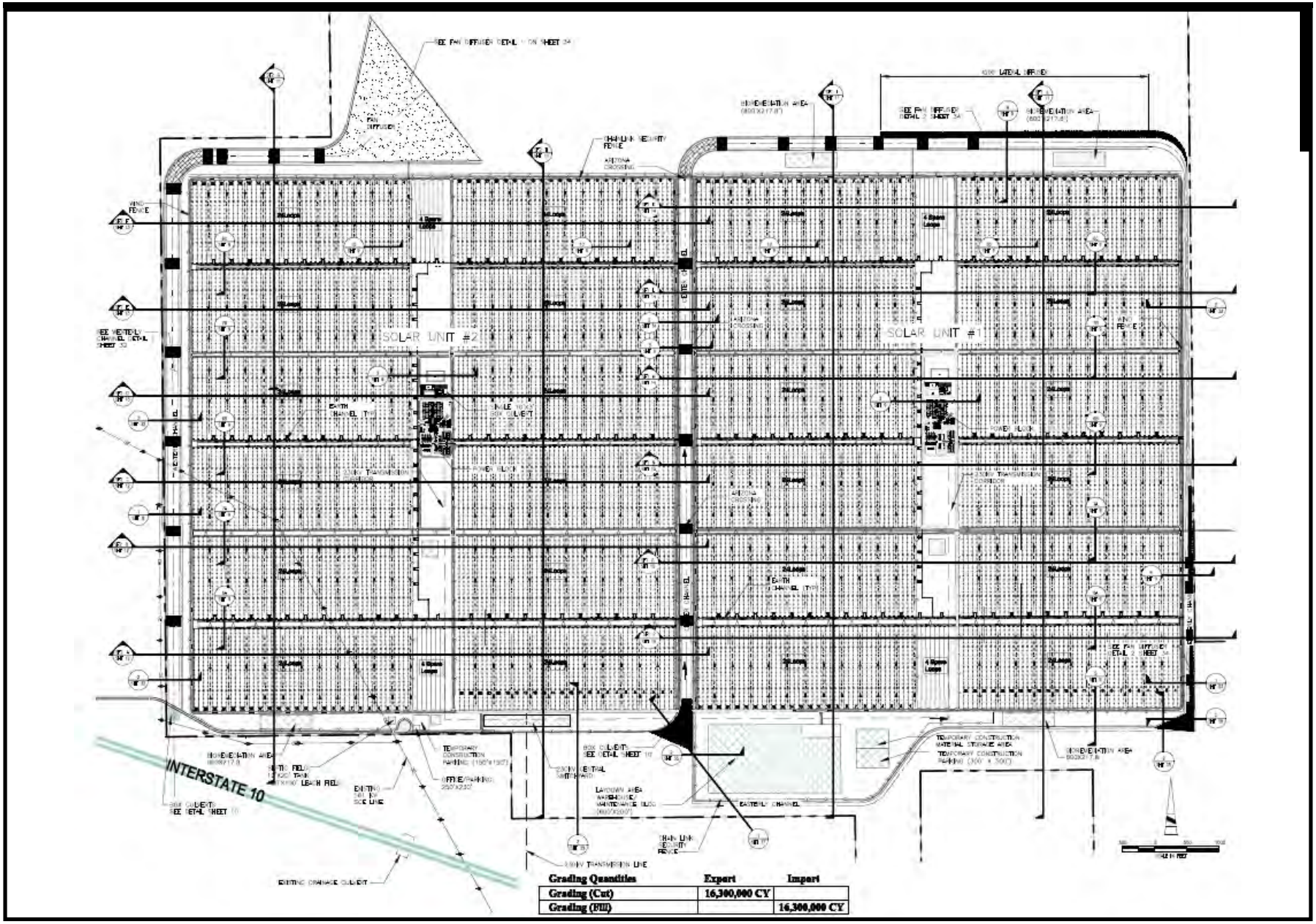
SOURCE: CEC/BLM, 2010

Figure 4.19-1
Chuckwalla Valley Groundwater Basin Levels,
End of Construction



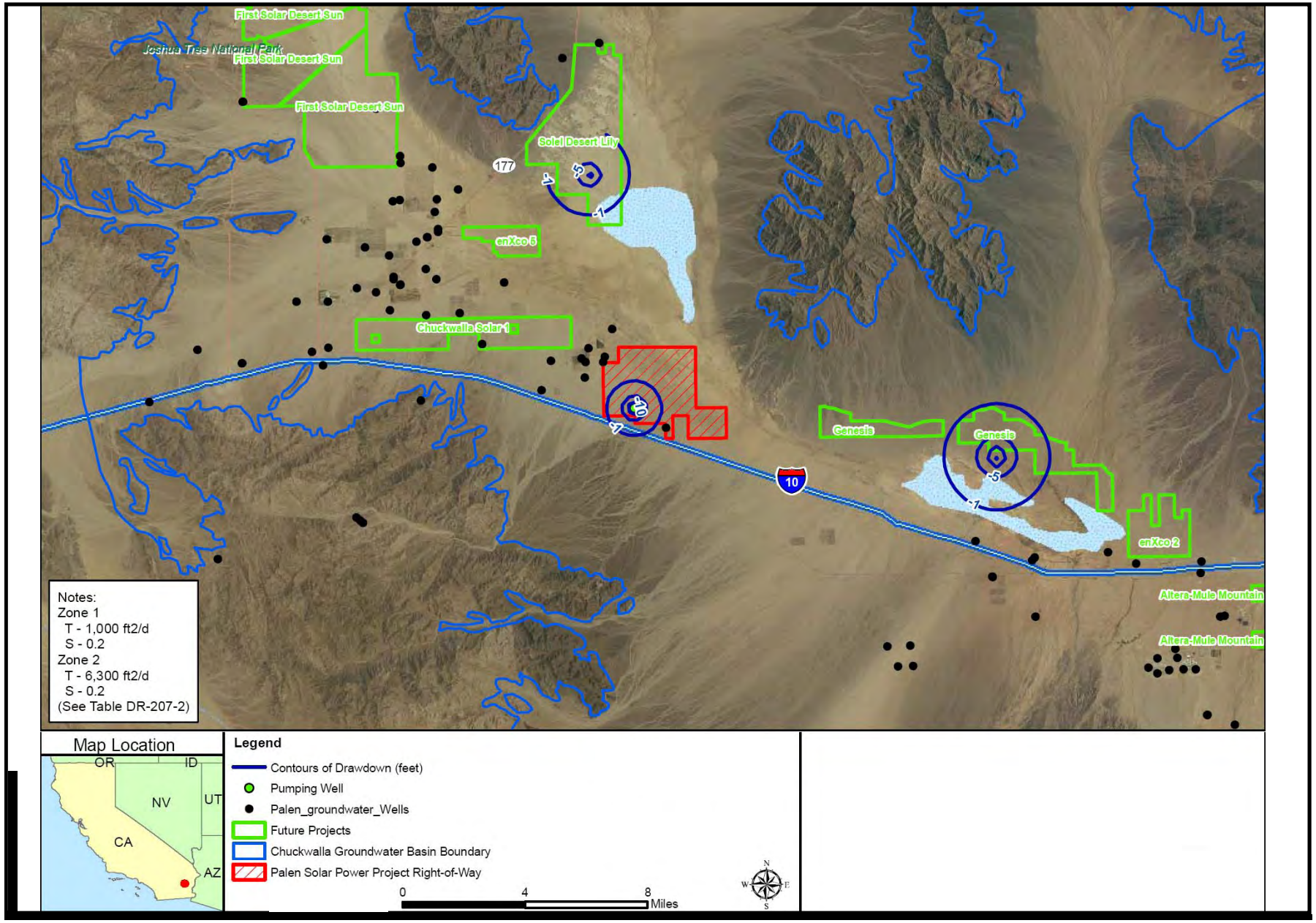
SOURCE: CEC/BLM, 2010

Figure 4.19-2
Chuckwalla Valley Groundwater Basin Levels,
End of Operation



SOURCE: CEC/BLM, 2010

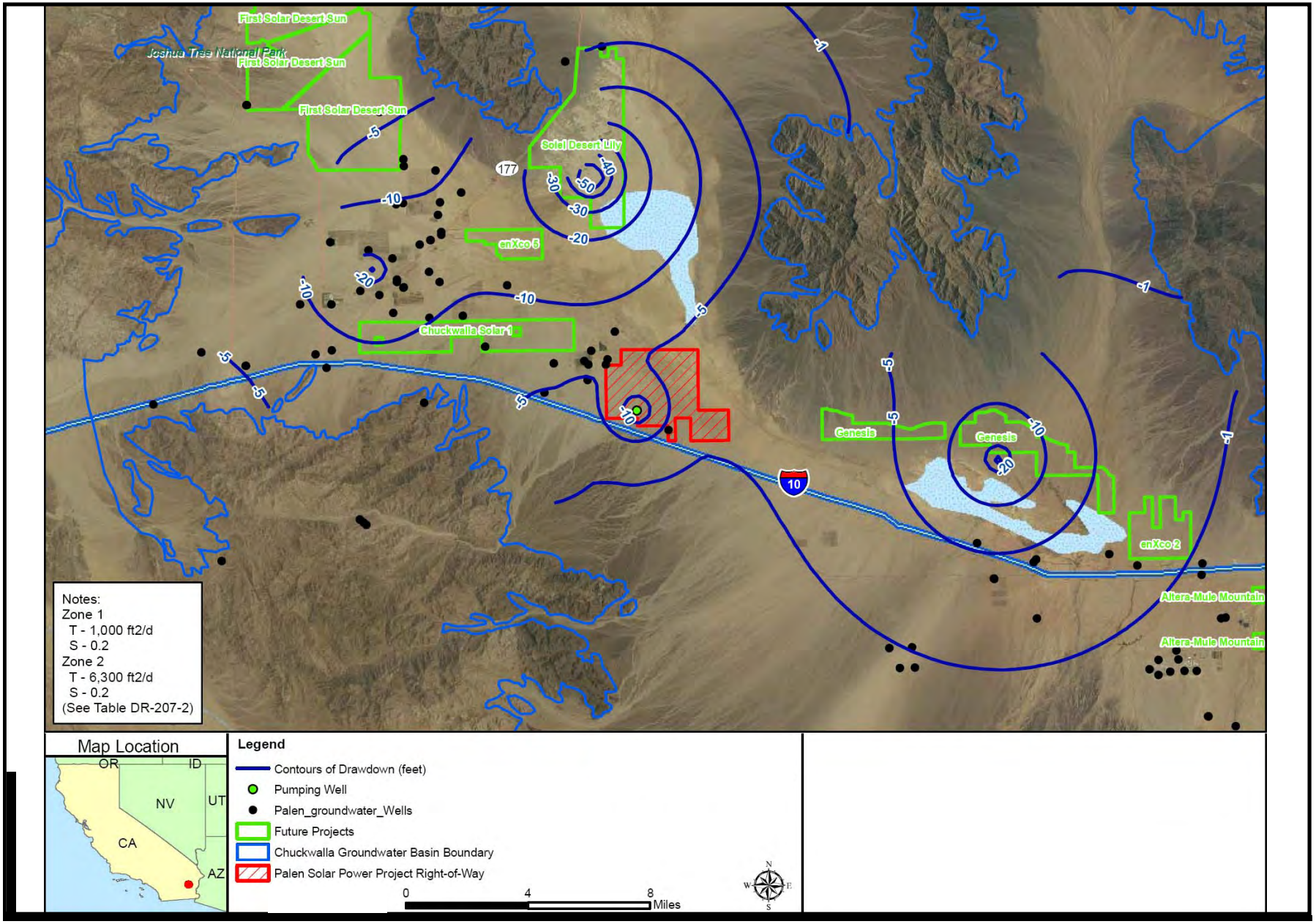
Figure 4.19-3
Preliminary Conceptual Drainage Plan



SOURCE: CEC/BLM, 2010

Figure 4.19-4

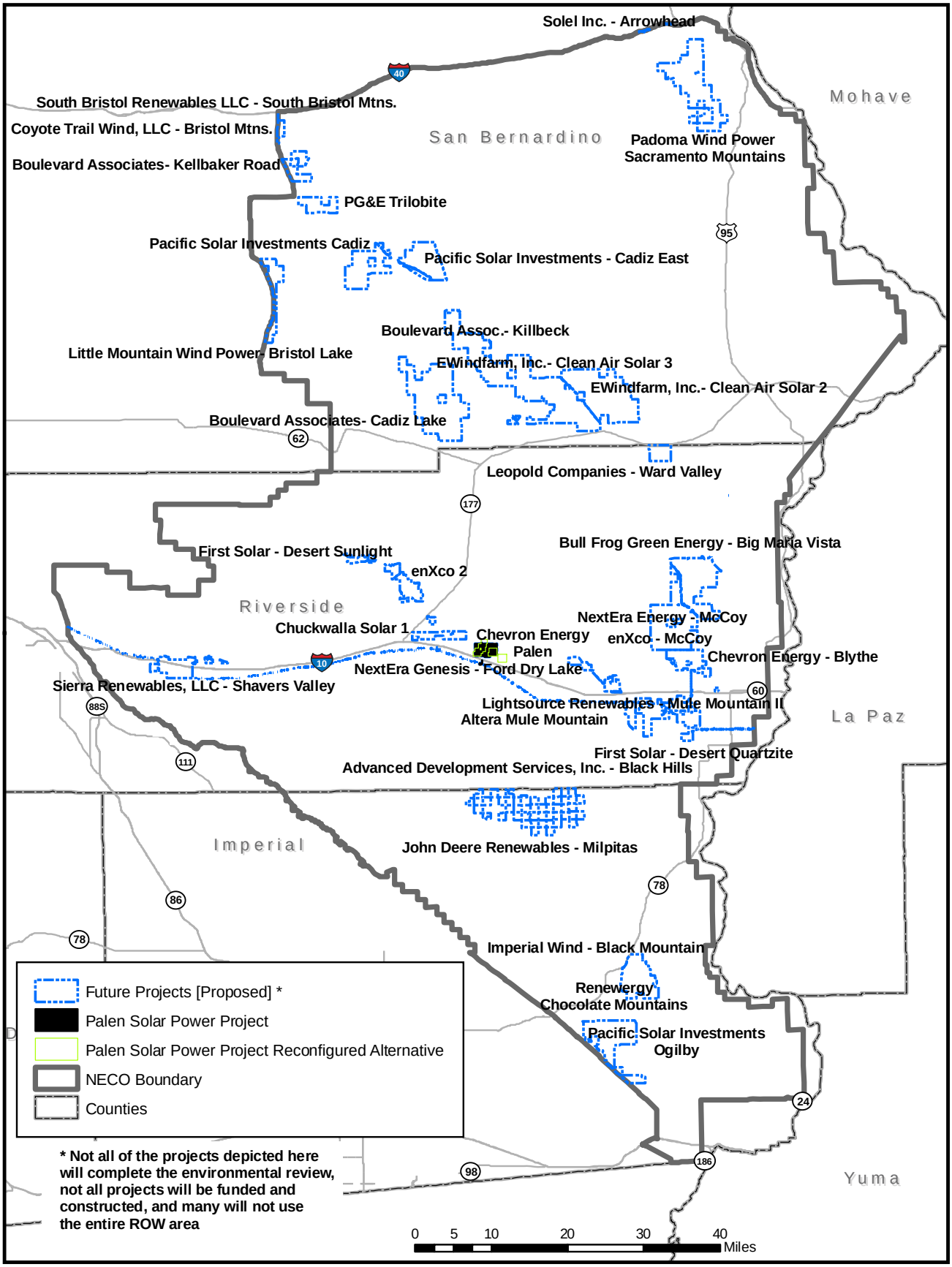
Chuckwalla Valley Groundwater Basin Cumulative Groundwater Levels, End of Construction



SOURCE: CEC/BLM, 2010

Figure 4.19-5

Chuckwalla Valley Groundwater Basin Cumulative Groundwater Levels, End of Operation



SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure 4.21-1

Foreseeable Projects within the Neco Boundary

APPENDIX B
Conditions of Certification

TABLE B-1
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS		
COMPLIANCE-1, Unrestricted Access: BLM's AO, responsible BLM staff, the CPM, responsible Energy Commission staff, and delegated agencies or consultants shall be guaranteed and granted unrestricted access to the power plant site, related facilities, project-related staff, and the records maintained on-site, for the purpose of conducting audits, surveys, inspections, or general site visits. Although BLM's AO and the CPM will normally schedule site visits on dates and times agreeable to the project owner, BLM's AO and the CPM reserve the right to make unannounced visits at any time.		CEC
COMPLIANCE-2, Compliance Record: The project owner shall maintain project files on-site or at an alternative site approved by BLM's AO and the CPM for the life of the project, unless a lesser period of time is specified by the conditions of certification. The files shall contain copies of all "as-built" drawings, documents submitted as verification for conditions, and other project-related documents. As-built drawings of all facilities including linear facilities shall be provided to the BLM AO for inclusion in the BLM administrative record within 90 days of completion of that portion of the facility or project. BLM and Energy Commission staff and delegate agencies shall, upon request to the project owner, be given unrestricted access to the files maintained pursuant to this condition.		CEC
COMPLIANCE-3, Compliance Verification Submittals: Each condition of certification is followed by a means of verification. The verification describes the Energy Commission's procedure(s) to ensure post-certification compliance with adopted conditions. The verification procedures, unlike the conditions, may be modified as necessary by BLM's AO and the CPM. Verification of compliance with the conditions of certification can be accomplished by the following: 1. Monthly and/or annual compliance reports filed by the project owner or authorized agent, reporting on work done and providing pertinent documentation, as required by the specific conditions of certification; 2. Appropriate letters from delegate agencies verifying compliance; 3. BLM and Energy Commission staff audits of project records; and/or 4. BLM and Energy Commission staff inspections of work, or other evidence that the requirements are satisfied. Verification lead times associated with start of construction may require the project owner to file submittals during the certification process, particularly if construction is planned to commence shortly after certification. A cover letter from the project owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. The cover letter subject line shall identify the project by AFC and BLM case file numbers, the appropriate condition(s) of certification by condition number(s), and a brief description of the subject of the submittal. The project owner shall also identify those submittals not required by a condition of certification with a statement such as: "This submittal is for information only and is not required by a specific condition of certification." When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal and BLM/CEC submittal number. The project owner is responsible for the delivery and content of all verification submittals to the BLM's AO and CPM, whether such condition was satisfied by work performed by the project owner or an agent of the project owner.		CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
All hardcopy submittals shall be addressed to each of the following: John Kalish, Field Manager Dale Rundquist, CPM (CACA-48810) (09 AFC 7C) U.S. Bureau of Land Management California Energy Commission Palm Springs-South Coast Field Office 1516 Ninth Street, MS 2000 1201 Bird Center Drive Palm Springs, CA 92262 Sacramento, CA 95814 Those submittals shall be accompanied by a searchable electronic copy, on a CD or by e-mail, as agreed upon by BLM's AO and the CPM. If the project owner desires BLM and/or Energy Commission staff action by a specific date, that request shall be made in the submittal cover letter and shall include a detailed explanation of the effects on the project if that date is not met.		
COMPLIANCE-4, Pre-Construction Matrix and Tasks Prior to Start of Construction: Prior to commencing construction, a compliance matrix addressing only those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to BLM's AO and the CPM. This matrix will be included with the project owner's first compliance submittal or prior to the first pre-construction meeting, whichever comes first. It will be submitted in the same format as the compliance matrix described below. In order to begin any on-site mobilization or surface disturbing activities on public land, the BLM AO must approve a written Notice to Proceed (NTP). NTPs will be phased as appropriate to facilitate timely implementation of construction. Construction shall not commence until the pre-construction matrix is submitted, all pre-construction conditions have been complied with, and BLM's AO and the CPM have issued a letter and BLM has issued a NTP to the project owner authorizing construction. Various lead times for submittal of compliance verification documents to BLM's AO and the CPM for conditions of certification are established to allow sufficient BLM and Energy Commission staff time to review and comment and, if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule. Failure to submit compliance documents within the specified lead-time may result in delays in authorization to commence various stages of project development. If the project owner anticipates commencing project construction as soon as the project is certified, it may be necessary for the project owner to file compliance submittals prior to project certification. Compliance submittals should be completed in advance where the necessary lead time for a required compliance event extends beyond the date anticipated for start of construction. The project owner must understand that the submittal of compliance documents prior to project certification is at the owner's own risk. Any approval by Energy Commission staff is subject to change, based upon BLM's ROW Grant and the Energy Commission Decision.		CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
Compliance Reporting There are two different compliance reports that the project owner must submit to assist BLM's AO and the CPM in tracking activities and monitoring compliance with the terms and conditions of BLM's ROW Grant and the Energy Commission Decision. During construction, the project owner or authorized agent will submit monthly compliance reports. During operation, an annual compliance report must be submitted. These reports, and the requirement for an accompanying compliance matrix, are described below. The majority of the conditions of certification require that compliance submittals be submitted to BLM's AO and the CPM in the monthly or annual compliance reports.		
COMPLIANCE-5, Compliance Matrix: A compliance matrix shall be submitted by the project owner to BLM's AO and the CPM along with each monthly and annual compliance report. The compliance matrix is intended to provide BLM's AO and the CPM with the current status of all conditions of certification in a spreadsheet format. The compliance matrix must identify: 1. the technical area; 2. the condition number; 3. a brief description of the verification action or submittal required by the condition; 4. the date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.); 5. the expected or actual submittal date; 6. the date a submittal or action was approved by the Chief Building Official (CBO), BLM's AO, CPM, or delegate agency, if applicable; and 7. the compliance status of each condition, e.g., "not started," "in progress" or "completed" (include the date). 8. if the condition was amended, the date of the amendment. Satisfied conditions shall be placed at the end of the matrix.		CEC
COMPLIANCE-6, Monthly Compliance Report: The first monthly compliance report is due one month following the Energy Commission business meeting date upon which the project was approved, unless otherwise agreed to by BLM's AO and the CPM. The first monthly compliance report shall include the AFC and BLM case file numbers and an initial list of dates for each of the events identified on the Key Events List. The Key Events List Form is found at the end of this section. During pre-construction and construction of each power plant, the project owner or authorized agent shall submit an original and an electronic searchable version of the monthly compliance report within 10 working days after the end of each reporting month or other period of time agreed to by BLM's AO and the CPM. Monthly compliance reports shall be clearly identified for the month being reported. The reports shall contain, at a minimum: 1. A summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;		CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
2. Documents required by specific conditions to be submitted along with the monthly compliance report. Each of these items must be identified in the transmittal letter, as well as the conditions they satisfy and submitted as attachments to the monthly compliance report; 3. An initial, and thereafter updated, compliance matrix showing the status of all conditions of certification (fully satisfied conditions do not need to be included in the matrix after they have been reported as completed); 4. A list of conditions that have been satisfied during the reporting period, and a description or reference to the actions that satisfied the condition; 5. A list of any submittal deadlines that were missed, accompanied by an explanation and an estimate of when the information will be provided; 6. A cumulative listing of any approved changes to conditions of certification; 7. A listing of any filings submitted to, or permits issued by, other governmental agencies during the month; 8. A projection of project compliance activities scheduled during the next two months. The project owner shall notify BLM's AO and the CPM as soon as any changes are made to the project construction schedule that would affect compliance with conditions of certification; 9. A listing of the month's additions to the on-site compliance file; and 10. A listing of complaints, notices of violation, official warnings, and citations received during the month, a description of the resolution of the resolved actions, and the status of any unresolved actions. All sections, exhibits, or addendums shall be separated by tabbed dividers or as acceptable by BLM's AO and the CPM.		
COMPLIANCE-7: Annual Compliance Report: After construction of each power plant is complete or when a power plant goes into commercial operations, the project owner shall submit annual compliance reports instead of monthly compliance reports. The reports are for each year of commercial operation and are due to BLM's AO and the CPM each year at a date agreed to by BLM's AO and the CPM. Annual compliance reports shall be submitted over the life of the project unless otherwise specified by BLM's AO and the CPM. Each annual compliance report shall include the AFC and BLM case file numbers, identify the reporting period and shall contain the following: 1. An updated compliance matrix showing the status of all conditions of certification (fully satisfied conditions do not need to be included in the matrix after they have been reported as completed); 2. A summary of the current project operating status and an explanation of any significant changes to facility operations during the year; 3. Documents required by specific conditions to be submitted along with the annual compliance report. Each of these items must be identified in the transmittal letter, with the condition it satisfies, and submitted as attachments to the annual compliance report;		CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
4. A cumulative listing of all post-certification changes by the Energy Commission or changes to the BLM ROW grant or approved POD by BLM, or cleared by BLM's AO and the CPM; 5. An explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided; 6. A listing of filings submitted to, or permits issued by, other governmental agencies during the year; 7. A projection of project compliance activities scheduled during the next year; 8. A listing of the year's additions to the on-site compliance file; 9. An evaluation of the on-site contingency plan for unplanned facility closure, including any suggestions necessary for bringing the plan up to date [see Compliance Conditions for Facility Closure addressed later in this section]; and 10. A listing of complaints, notices of violation, official warnings, and citations received during the year, a description of the resolution of any resolved matters, and the status of any unresolved matters.		
COMPLIANCE-8: Confidential Information: Any information that the project owner deems confidential shall be submitted to the Energy Commission's executive director with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information that is determined to be confidential shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501 et. seq. Any information the ROW holder deems confidential shall be submitted to the BLM AO with a written request for said confidentiality along with a justification for the request in accordance with 43 CFR 2804.13. All confidential submissions to BLM should be clearly stamped "proprietary information" by the holder when submitted.		CEC
COMPLIANCE-9, Reporting of Complaints, Notices, and Citations: Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering with date and time stamp recording. All recorded complaints shall be responded to within 24 hours. The telephone number shall be posted at the project site and made easily visible to passersby during construction and operation. The telephone number shall be provided to BLM's AO and the CPM who will post it on the Energy Commission's web page at: http://www.energy.ca.gov/sitingcases/power_plants_contacts.html. Any changes to the telephone number shall be submitted immediately to BLM's AO and the CPM, who will update the web page. In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies to BLM's AO and the CPM of all complaint forms, including noise and lighting complaints, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the NOISE conditions of certification. All other complaints shall be recorded on the complaint form (Attachment A).		CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
COMPLIANCE-10, Planned Closure: In order to ensure that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure, will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a revision or update to the approved Closure, Revegetation and Rehabilitation Plan to BLM and the Energy Commission for review and approval at least 12 months (or other period of time agreed to by BLM's AO and the CPM) prior to commencement of closure activities. The project owner shall file 50 copies and 50 CDs with the Energy Commission and 10 copies and 10 CDs with BLM (or other number of copies agreed upon by BLM's AO and the CPM) of a proposed facility closure plan/Closure, Revegetation and Rehabilitation Plan. The plan shall: 1. identify and discuss any impacts and mitigation to address significant adverse impacts associated with proposed closure activities and to address facilities, equipment, or other project related materials that must be removed from the site; 2. identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project; 3. address conformance of the plan with all applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of facility closure, and applicable conditions of certification; and. 4. Address any changes to the site revegetation, rehabilitation, monitoring and long-term maintenance specified in the existing plan that are needed for site revegetation and rehabilitation to be successful. Prior to submittal of an amended or revised Closure, Revegetation and Restoration Plan, a meeting shall be held between the project owner, BLM's AO and the Energy Commission CPM for the purpose of discussing the specific contents of the plan. In the event that there are significant issues associated with the proposed facility Closure, Revegetation and Restoration plan's approval, or the desires of local officials or interested parties are inconsistent with the plan, BLM's AO the CPM shall hold one or more workshops and/or BLM and the Energy Commission may hold public hearings as part of its approval procedure. As necessary, prior to or during the closure process, the project owner shall take appropriate steps to eliminate any immediate threats to public health and safety and the environment, but shall not commence any other closure activities until BLM and the Energy Commission approve the facility Closure, Revegetation and Restoration plan.		CEC
COMPLIANCE-11, Unplanned Temporary Closure: In order to ensure that public health and safety and the environment are protected in the event of an unplanned temporary facility closure, it is essential to have an On-Site Contingency Plan in place. The On-Site Contingency Plan will help to ensure that all necessary steps to mitigate public health and safety impacts and environmental impacts are taken in a timely manner. The project owner shall submit an On-Site Contingency Plan for BLM's AO and CPM review and approval. The plan shall be submitted no less than 60 days (or other time agreed to by BLM's AO and the CPM) after approval of any NTP or letter		CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
granting approval to commence construction for each phase of construction. A copy of the approved plan must be in place during commercial operation of the facility and shall be kept at the site at all times. The project owner, in consultation with BLM's AO and the CPM, will update the On-Site Contingency Plan as necessary. BLM's AO and the CPM may require revisions to the On-Site Contingency Plan over the life of the project. In the annual compliance reports submitted to the Energy Commission, the project owner will review the On-Site Contingency Plan, and recommend changes to bring the plan up to date. Any changes to the plan must be approved by BLM's AO and the CPM. The On-Site Contingency Plan shall provide for taking immediate steps to secure the facility from trespassing or encroachment. In addition, for closures of more than 90 days, unless other arrangements are agreed to by BLM's AO and the CPM, the plan shall provide for removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment, and the safe shutdown of all equipment. (Also see specific conditions of certification for the technical areas of Hazardous Materials Management and Waste Management.) In addition, consistent with requirements under unplanned permanent closure addressed below, the nature and extent of insurance coverage, and major equipment warranties must also be included in the On-Site Contingency Plan. In addition, the status of the insurance coverage and major equipment warranties must be updated in the annual compliance reports. In the event of an unplanned temporary closure, the project owner shall notify BLM's AO and the CPM, as well as other responsible agencies, by telephone, fax, or e-mail, within 24 hours and shall take all necessary steps to implement the On-Site Contingency Plan. The project owner shall keep BLM's AO and the CPM informed of the circumstances and expected duration of the closure. If BLM's AO and the CPM determine that an unplanned temporary closure is likely to be permanent, or for a duration of more than six months, a Closure Plan consistent with the requirements for a planned closure shall be developed and submitted to BLM's AO and the CPM within 90 days of BLM's AO and the CPM's determination (or other period of time agreed to by BLM's AO and the CPM).		
COMPLIANCE-12, Unplanned Permanent Closure: The On-Site Contingency Plan required for unplanned temporary closure shall also cover unplanned permanent facility closure. All of the requirements specified for unplanned temporary closure shall also apply to unplanned permanent closure. In addition, the On-Site Contingency Plan shall address how the project owner will ensure that all required closure steps will be successfully undertaken in the event of abandonment. In the event of an unplanned permanent closure, the project owner shall notify BLM's AO and the CPM, as well as other responsible agencies, by telephone, fax, or e-mail, within 24 hours and shall take all necessary steps to implement the On-Site Contingency Plan. The project owner shall keep BLM's AO and the CPM informed of the status of all closure activities. To ensure that public health and safety and the environment are protected in the event of an unplanned permanent closure, the project owner shall submit an On-Site Contingency Plan no less than 60 days after a NTP is issued for each phase of development.		CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
COMPLIANCE 13, Post-Certification Changes to the Decision: Amendments, ownership Changes, Staff Approved Project Modifications and Verification Changes: The project owner must petition the Energy Commission pursuant to Title 20, California Code of Regulations, section 1769, in order to modify the project (including linear facilities) design, operation or performance requirements, and to transfer ownership or operational control of the facility. The BLM ROW holder must file a written request in the form of an application to the BLM AO in order to change the terms and conditions of their ROW grant or POD. Written requests will be in a manner prescribed by the BLM AO. Implementation of a project modification without first securing BLM approval may result in financial and other liabilities in accordance with 43 CFR 2808. It is the responsibility of the project owner to contact BLM's AO and the CPM to determine if a proposed project change should be considered a project modification pursuant to section 1769. Implementation of a project modification without first securing Energy Commission staff approval may result in enforcement action that could result in civil penalties in accordance with section 25534 of the Public Resources Code. A petition is required for amendments and for staff approved project modifications as specified below. Both shall be filed as a "Petition to Amend." Staff will determine if the change is significant or insignificant. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to BLM's AO and the CPM, who will file it with the Energy Commission's Dockets Unit in accordance with Title 20, California Code of Regulations, section 1209. The criteria that determine which type of approval and the process that applies are explained below. They reflect the provisions of Section 1769 at the time this condition was drafted. If the Commission's rules regarding amendments are amended, the rules in effect at the time an amendment is requested shall apply. ***Amendment*** The project owner shall petition the Energy Commission, pursuant to Title 20, California Code of Regulations, Section 1769(a), when proposing modifications to the project (including linear facilities) design, operation, or performance requirements. If a proposed modification results in deletion or change of a condition of certification, or makes changes that would cause the project not to comply with any applicable laws, ordinances, regulations or standards, the petition will be processed as a formal amendment to the Energy Commission's final decision, which requires public notice and review of the BLM-Energy Commission staff analysis, and approval by the full Energy Commission. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(a). Upon request, the CPM will provide you with a sample petition to use as a template. The ROW holder shall file an application to amend the BLM ROW grant for any substantial deviation or change in use in accordance with the regulations at 43 CFR 2807.20. The requirements to amend a ROW grant are the same as when filing a new application including paying processing and monitoring fees and rent. ***Staff Approved Project Modification*** Modifications that do not result in deletions or changes to conditions of certification, and that are compliant with laws, ordinances, regulations and standards, may be authorized by BLM's AO and the CPM as a staff approved project modification (SAPM) pursuant to section 1769(a) (2). Once staff files an intention to approve the proposed project		CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
modifications, any person may file an objection to staff's determination within 14 days of service on the grounds that the modification does not meet the criteria of section 1769 (a)(2). If a person objects to staff's determination, the petition must be processed as a formal amendment to the decision and must be approved by the full commission at a noticed business meeting or hearing. BLM and the Energy Commission intend to integrate a process to jointly approve SAPMs to avoid duplication of approval processes and ensure appropriate documentation for the public record. ***Change of Ownership*** Change of ownership or operational control also requires that the project owner file a petition pursuant to section 1769(b). This process requires public notice and approval by the full Commission and BLM. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(b). Upon request, the CPM will provide you with a sample petition to use as a template. The transfer of ownership of a BLM ROW grant must be through the filing of an application for assignment of the grant in accordance with 43 CFR 2807.21. ***Verification Change*** A verification may be modified by BLM's AO and the CPM without requesting an amendment to the ROW Grant or Energy Commission decision if the change does not require modifying any conditions of certification and provides an effective alternate means of verification.		
FACILITY DESIGN		
GEN-1, California Building Standards Code: The project owner shall design, construct, and inspect the project in accordance with the 2007 California Building Standards Code (CBSC), also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval (the CBSC in effect is the edition that has been adopted by the California Building Standards Commission and published at least 180 days previously). The project owner shall ensure that all the provisions of the above applicable codes are enforced during the construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility. All transmission facilities (lines, switchyards, switching stations and substations) are covered in the conditions of certification in the Transmission System Engineering section of this document. In the event that the initial engineering designs are submitted to the CBO when the successor to the 2007 CBSC is in effect, the 2007 CBSC provisions shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. The project owner shall ensure that all contracts with contractors, subcontractors, and suppliers clearly specify that all work performed and materials supplied comply with the codes listed above.	Within 30 days following receipt of the certificate of occupancy, the project owner shall submit to the CPM a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation, and inspection requirements of the applicable LORS and the Energy Commission's decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the certificate of occupancy within 30 days of receipt from the CBO. Once the certificate of occupancy has been issued, the project owner shall inform the CPM at least 30 days prior to any construction, addition, alteration, moving, demolition, repair, or maintenance to be performed on any portion(s) of the completed facility that requires CBO approval for compliance with the above codes. The CPM will then determine if the CBO needs to approve the work.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
GEN-2, Schedule of Facility Design Submittals: Before submitting the initial engineering designs for CBO review, the project owner shall furnish the CPM and the CBO with a schedule of facility design submittals, and master drawing and master specifications lists. The schedule shall contain a list of proposed submittal packages of designs, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide specific packages to the CPM upon request.	At least 60 days (or a project owner and CBO approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO and to the CPM the schedule, the master drawings, and master specifications list of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures, systems, and equipment defined above in Condition of Certification **GEN-2**. Major structures and equipment may be added to or deleted from the list only with CPM approval. The project owner shall provide schedule updates in the monthly compliance report.	CEC
GEN-3, Payments to the CBO: The project owner shall make payments to the CBO for design review, plan checks, and construction inspections, based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. These fees may be consistent with the fees listed in the 2007 CBC, adjusted for inflation and other appropriate adjustments; may be based on the value of the facilities reviewed; may be based on hourly rates; or may be otherwise agreed upon by the project owner and the CBO.	The project owner shall make the required payments to the CBO in accordance with the agreement between the project owner and the CBO. The project owner shall send a copy of the CBO's receipt of payment to the CPM in the next monthly compliance report indicating that applicable fees have been paid.	CEC
GEN-4, Resident Engineer: Prior to the start of rough grading, the project owner shall assign a California- registered architect, or a structural or civil engineer, as the resident engineer (RE) in charge of the project. All transmission facilities (lines, switchyards, switching stations, and substations) are addressed in the conditions of certification in the Transmission System Engineering section of this document. The RE may delegate responsibility for portions of the project to other registered engineers. Registered mechanical and electrical engineers may be delegated responsibility for mechanical and electrical portions of the project, respectively. A project may be divided into parts, provided that each part is clearly defined as a distinct unit. Separate assignments of general responsibility may be made for each designated part. The RE shall: 1. Monitor progress of construction work requiring CBO design review and inspection to ensure compliance with LORS; 2. Ensure that construction of all facilities subject to CBO design review and inspection conforms in every material respect to applicable LORS, these conditions of certification, approved plans, and specifications; 3. Prepare documents to initiate changes in approved drawings and specifications when either directed by the project owner or as required by the conditions of the project; 4. Be responsible for providing project inspectors and testing agencies with complete and up-to-date sets of stamped drawings, plans, specifications, and any other required documents;	At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the resume and registration number of the RE and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within 5 days of the approval. If the RE or the delegated engineer(s) is subsequently reassigned or replaced, the project owner has 5 days to submit the resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within 5 days of the approval.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
5. Be responsible for the timely submittal of construction progress reports to the CBO from the project inspectors, the contractor, and other engineers who have been delegated responsibility for portions of the project; and 6. Be responsible for notifying the CBO of corrective action or the disposition of items noted on laboratory reports or other tests when they do not conform to approved plans and specifications. The resident engineer (or his delegate) must be located at the project site, or be available at the project site within a reasonable period of time, during any hours in which construction takes place. The RE shall have the authority to halt construction and to require changes or remedial work if the work does not meet requirements. If the RE or the delegated engineers are reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.		
GEN-5, California Registered Engineer Assignments: Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: a civil engineer; a soils, geotechnical, or civil engineer experienced and knowledgeable in the practice of soils engineering; and an engineering geologist. Prior to the start of construction, the project owner shall assign at least one of each of the following California registered engineers to the project: a design engineer who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; a mechanical engineer; and an electrical engineer. (California Business and Professions Code section 6704 et seq., and sections 6730, 6731 and 6736 require state registration to practice as a civil engineer or structural engineer in California). All transmission facilities (lines, switchyards, switching stations, and substations) are handled in the conditions of certification in the Transmission System Engineering section of this document. The tasks performed by the civil, mechanical, electrical, or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project (for example, proposed earthwork, civil structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer. The project owner shall submit, to the CBO for review and approval, the names, qualifications, and registration numbers of all responsible engineers assigned to the project. If any one of the designated responsible engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned responsible engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer. A. The civil engineer shall: 1. Review the foundation investigations, geotechnical, or soils reports prepared by the soils engineer, the geotechnical engineer, or by a civil engineer experienced and knowledgeable in the practice of soils engineering;	At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible civil engineer, soils (geotechnical) engineer and engineering geologist assigned to the project. At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of construction, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible design engineer, mechanical engineer, and electrical engineer assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the responsible engineers within 5 days of the approval. If the designated responsible engineer is subsequently reassigned or replaced, the project owner has 5 days in which to submit the resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within 5 days of the approval.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
2. Design (or be responsible for the design of), stamp, and sign all plans, calculations, and specifications for proposed site work, civil works, and related facilities requiring design review and inspection by the CBO. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads and sanitary sewer systems; and 3. Provide consultation to the RE during the construction phase of the project and recommend changes in the design of the civil works facilities and changes to the construction procedures. B. The soils engineer, geotechnical engineer, or civil engineer experienced and knowledgeable in the practice of soils engineering, shall: 1. Review all the engineering geology reports; 2. Prepare the foundation investigations, geotechnical, or soils reports containing field exploration reports, laboratory tests, and engineering analysis detailing the nature and extent of the soils that could be susceptible to liquefaction, rapid settlement or collapse when saturated under load; 3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with requirements set forth in the 2007 CBC (depending on the site conditions, this may be the responsibility of either the soils engineer, the engineering geologist, or both); and 4. Recommend field changes to the civil engineer and RE. This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform to the predicted conditions used as the basis for design of earthwork or foundations. C. The engineering geologist shall: 1. Review all the engineering geology reports and prepare a final soils grading report; and 2. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 2007 CBC (depending on the site conditions, this may be the responsibility of either the soils engineer, the engineering geologist, or both). D. The design engineer shall: 1. Be directly responsible for the design of the proposed structures and equipment supports; 2. Provide consultation to the RE during design and construction of the project; 3. Monitor construction progress to ensure compliance with engineering LORS; 4. Evaluate and recommend necessary changes in design; and 5. Prepare and sign all major building plans, specifications, and calculations.		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
E. The mechanical engineer shall be responsible for, and sign and stamp a statement with, each mechanical submittal to the CBO, stating that the proposed final design plans, specifications, and calculations conform to all of the mechanical engineering design requirements set forth in the Energy Commission's decision. F. The electrical engineer shall: 1. Be responsible for the electrical design of the project; and 2. Sign and stamp electrical design drawings, plans, specifications, and calculations.		
GEN-6, Certified Special Inspector: Prior to the start of an activity requiring special inspection, including prefabricated assemblies, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 2007 CBC. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in the Transmission System Engineering section of this document. A certified weld inspector, certified by the American Welding Society (AWS), and/or American Society of Mechanical Engineers (ASME) as applicable, shall inspect welding performed on-site requiring special inspection (including structural, piping, tanks and pressure vessels). The special inspector shall: 1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection; 2. Inspect the work assigned for conformance with the approved design drawings and specifications; 3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action; and 4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans, specifications, and other provisions of the applicable edition of the CBC.	At least 15 days (or project owner- and CBO-approved alternative time frame) prior to the start of an activity requiring special inspection, the project owner shall submit to the CBO for review and approval, with a copy to the CPM, the name(s) and qualifications of the certified weld inspector(s), or other certified special inspector(s) assigned to the project to perform one or more of the duties set forth above. The project owner shall also submit to the CPM a copy of the CBO's approval of the qualifications of all special inspectors in the next monthly compliance report. If the special inspector is subsequently reassigned or replaced, the project owner has 5 days in which to submit the name and qualifications of the newly assigned special inspector to the CBO for approval. The project owner shall notify the CPM of the CBO's approval of the newly assigned inspector within 5 days of the approval.	CEC
GEN-7, Design and/or Construction Discrepancy: If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend required corrective actions. The discrepancy documentation shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this condition of certification and, if appropriate, applicable sections of the CBC and/or other LORS.	The project owner shall transmit a copy of the CBO's approval of any corrective action taken to resolve a discrepancy to the CPM in the next monthly compliance report. If any corrective action is disapproved, the project owner shall advise the CPM, within 5 days, of the reason for disapproval and the revised corrective action to obtain CBO's approval.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
GEN-8, CBO Final Approval: The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. The project owner shall notify the CPM after obtaining the CBO's final approval. The project owner shall retain one set of approved engineering plans, specifications, and calculations (including all approved changes) at the project site or at another accessible location during the operating life of the project. Electronic copies of the approved plans, specifications, calculations, and marked-up as-builts shall be provided to the CBO for retention by the CPM.	Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM, in the next monthly compliance report, (a) a written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans. After storing the final approved engineering plans, specifications, and calculations described above, the project owner shall submit to the CPM a letter stating both that the above documents have been stored and the storage location of those documents. Within 90 days of the completion of construction, the project owner shall provide to the CBO three sets of electronic copies of the above documents at the project owner's expense. These are to be provided in the form of "read only" (Adobe .pdf 6.0) files, with restricted (password-protected) printing privileges, on archive quality compact discs.	CEC
CIVIL-1, Submittals to the CBO: The project owner shall submit to the CBO for review and approval the following: 1. Design of the proposed drainage structures and the grading plan; 2. An erosion and sedimentation control plan; 3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and 4. Soils, geotechnical, or foundation investigations reports required by the 2007 CBC.	At least 15 days (or project owner- and CBO-approved alternative time frame) prior to the start of site grading the project owner shall submit the documents described above to the CBO for design review and approval. In the next monthly compliance report following the CBO's approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.	CEC
CIVIL-2, Unforeseen adverse soil or geologic conditions: The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible soils engineer, geotechnical engineer, or the civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications, and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area.	The project owner shall notify the CPM within 24 hours, when earthwork and construction is stopped as a result of unforeseen adverse geologic/soil conditions. Within 24 hours of the CBO's approval to resume earthwork and construction in the affected areas, the project owner shall provide to the CPM a copy of the CBO's approval.	CEC
CIVIL-3, Inspections and Discrepancy Reports: The project owner shall perform inspections in accordance with the 2007 CBC. All plant site-grading operations, for which a grading permit is required, shall be subject to inspection by the CBO. If, in the course of inspection, it is discovered that the work is not being performed in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO, and the CPM. The project owner shall prepare a written report, with copies to the CBO and the CPM, detailing all discrepancies, non-compliance items, and the proposed corrective action.	Within five days of the discovery of any discrepancies, the resident engineer shall transmit to the CBO and the CPM a non-conformance report (NCR), and the proposed corrective action for review and approval. Within five days of resolution of the NCR, the project owner shall submit the details of the corrective action to the CBO and the CPM. A list of NCRs, for the reporting month, shall also be included in the following monthly compliance report.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
CIVIL-4, Final Grading Plan Approval: After completion of finished grading and erosion and sedimentation control and drainage work, the project owner shall obtain the CBO's approval of the final grading plans (including final changes) for the erosion and sedimentation control work. The civil engineer shall state that the work within his/her area of responsibility was done in accordance with the final approved plans.	Within 30 days (or project owner- and CBO-approved alternative time frame) of the completion of the erosion and sediment control mitigation and drainage work, the project owner shall submit to the CBO, for review and approval, the final grading plans (including final changes) and the responsible civil engineer's signed statement that the installation of the facilities and all erosion control measures were completed in accordance with the final approved combined grading plans, and that the facilities are adequate for their intended purposes, along with a copy of the transmittal letter to the CPM. The project owner shall submit a copy of the CBO's approval to the CPM in the next monthly compliance report.	CEC
STRUC-1, Structure Approval: Prior to the start of any increment of construction of any major structure or component listed in Facility Design Table 2 of condition of certification GEN 2, above, the project owner shall submit to the CBO for design review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force procedures, designs, plans and drawings shall be those for the following items (from Table 2, above): 1. Major project structures; 2. Major foundations, equipment supports, and anchorage; and 3. Large field-fabricated tanks. Construction of any structure or component shall not begin until the CBO has approved the lateral force procedures to be employed in designing that structure or component. The project owner shall: 1. Obtain approval from the CBO of lateral force procedures proposed for project structures; 2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (for example, highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications; 3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation;	At least 60 days (or project owner- and CBO-approved alternative time frame) prior to the start of any increment of construction of any structure or component listed in Facility Design Table 2 of condition of certification GEN 2,above, the project owner shall submit to the CBO the above final design plans, specifications and calculations, with a copy of the transmittal letter to the CPM. The project owner shall submit to the CPM, in the next monthly compliance report, a copy of a statement from the CBO that the proposed structural plans, specifications, and calculations have been approved and comply with the requirements set forth in applicable engineering LORS.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
4. Ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. The final designs, plans, calculations, and specifications shall be signed and stamped by the responsible design engineer; and 5. Submit to the CBO the responsible design engineer's signed statement that the final design plans conform to applicable LORS.		
STRUC-2, Structure Document Submittal: The project owner shall submit to the CBO the required number of sets of the following documents related to work that has undergone CBO design review and approval: 1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters); 2. Concrete pour sign-off sheets; 3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques); 4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and 5. Reports covering other structural activities requiring special inspections shall be in accordance with the 2007 CBC.	If a discrepancy is discovered in any of the above data, the project owner shall, within 5 days, prepare and submit an NCR describing the nature of the discrepancies and the proposed corrective action to the CBO, with a copy of the transmittal letter to the CPM. The NCR shall reference the condition(s) of certification and the applicable CBC chapter and section. Within 5 days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM. The project owner shall transmit a copy of the CBO's approval or disapproval of the corrective action to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within 5 days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.	CEC
STRUC-3, Design Change Submittals: The project owner shall submit to the CBO design changes to the final plans required by the 2007 CBC, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give to the CBO prior notice of the intended filing.	On a schedule suitable to the CBO, the project owner shall notify the CBO of the intended filing of design changes, and shall submit the required number of sets of revised drawings and the required number of copies of the other above-mentioned documents to the CBO, with a copy of the transmittal letter to the CPM. The project owner shall notify the CPM, via the monthly compliance report, when the CBO has approved the revised plans.	CEC
STRUC-4, Hazardous Materials Transport: Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in the 2007 CBC shall, at a minimum, be designed to comply with the requirements of that chapter.	At least 30 days (or project owner- and CBO-approved alternate time frame) prior to the start of installation of the tanks or vessels containing the above specified quantities of toxic or hazardous materials, the project owner shall submit to the CBO for design review and approval final design plans, specifications, and calculations, including a copy of the signed and stamped engineer's certification.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
	The project owner shall send copies of the CBO approvals of plan checks to the CPM in the following monthly compliance report. The project owner shall also transmit a copy of the CBO's inspection approvals to the CPM in the monthly compliance report following completion of any inspection.	
MECH-1, Proposed Final Design Submittal: The project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations for each plant major piping and plumbing system listed in Facility Design Table 2, condition of certification GEN 2, above. Physical layout drawings and drawings not related to code compliance and life safety need not be submitted. The submittal shall also include the applicable QA/QC procedures. Upon completion of construction of any such major piping or plumbing system, the project owner shall request the CBO's inspection approval of that construction. The responsible mechanical engineer shall stamp and sign all plans, drawings, and calculations for the major piping and plumbing systems, subject to CBO design review and approval, and submit a signed statement to the CBO when the proposed piping and plumbing systems have been designed, fabricated, and installed in accordance with all of the applicable laws, ordinances, regulations and industry standards, which may include, but are not limited to: 1. American National Standards Institute (ANSI) B31.1 (Power Piping Code); 2. ANSI B31.2 (Fuel Gas Piping Code); 3. ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code); 4. ANSI B31.8 (Gas Transmission and Distribution Piping Code); 5. Title 24, California Code of Regulations, Part 5 (California Plumbing Code); 6. Title 24, California Code of Regulations, Part 6 (California Energy Code, for building energy conservation systems and temperature control and ventilation systems); 7. Title 24, California Code of Regulations, Part 2 (California Building Code); and 8. Kern County codes. The CBO may deputize inspectors to carry out the functions of the code enforcement agency.	At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of any increment of major piping or plumbing construction listed in Facility Design Table 2, condition of certification GEN 2, above, the project owner shall submit to the CBO for design review and approval the final plans, specifications, and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with applicable LORS, and shall send the CPM a copy of the transmittal letter in the next monthly compliance report. The project owner shall transmit to the CPM, in the monthly compliance report following completion of any inspection, a copy of the transmittal letter conveying the CBO's inspection approvals.	CEC
MECH-2, Pressure Vessels: For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by applicable LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of that installation.	At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for design review and approval, the above listed documents, including a copy of the signed and	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
The project owner shall: 1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated, and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and 2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications, and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.	stamped engineer's certification, with a copy of the transmittal letter to the CPM. The project owner shall transmit to the CPM, in the monthly compliance report following completion of any inspection, a copy of the transmittal letter conveying the CBO's and/or Cal-OSHA inspection approvals.	
MECH-3, HVAC and Refrigeration Systems: The project owner shall submit to the CBO for design review and approval the design plans, specifications, calculations, and quality control procedures for any heating, ventilating, air conditioning (HVAC) or refrigeration system. Packaged HVAC systems, where used, shall be identified with the appropriate manufacturer's data sheets. The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the CBC and other applicable codes. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of that construction. The final plans, specifications and calculations shall include approved criteria, assumptions, and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with the applicable LORS.	At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the CBO the required HVAC and refrigeration calculations, plans, and specifications, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the CBC and other applicable codes, with a copy of the transmittal letter to the CPM.	CEC
ELEC-1, Electrical Construction: Prior to the start of any increment of electrical construction for all electrical equipment and systems 480 Volts or higher (see a representative list, below), with the exception of underground duct work and any physical layout drawings and drawings not related to code compliance and life safety, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications, and calculations. Upon approval, the above listed plans, together with design changes and design change notices, shall remain on the site or at another accessible location for the operating life of the project. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in the Transmission System Engineering section of this document. A. Final plant design plans shall include: 1. one-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems; and 2. system grounding drawings. B. Final plant calculations must establish: 1. short-circuit ratings of plant equipment; 2. ampacity of feeder cables;	At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for design review and approval the above listed documents. The project owner shall include in this submittal a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next monthly compliance report.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
3. voltage drop in feeder cables; 4. system grounding requirements; 5. coordination study calculations for fuses, circuit breakers and protective relay settings for the 13.8 kV, 4.16 kV and 480 V systems; 6. system grounding requirements; and 7. lighting energy calculations. C. The following activities shall be reported to the CPM in the monthly compliance report: 1. Receipt or delay of major electrical equipment; 2. Testing or energization of major electrical equipment; and 3. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission decision.		
TRANSMISSION SYSTEM ENGINEERING		
TSE-1, Schedule of Transmission Facility Design Submittals: The project owner shall furnish to the CPM and to the CBO a schedule of transmission facility design submittals, a Master Drawing List, a Master Specifications List, and a Major Equipment and Structure List. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.	Prior to the start of construction, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major equipment below). Additions and deletions shall be made to the table only with CPM and CBO approval. The project owner shall provide schedule updates in the Monthly Compliance Report. **List of Major Equipment Components**: Breakers Step-up transformer Switchyard Busses Surge arrestors Disconnects Take-off facilities Electrical control building Switchyard control building Transmission pole/tower Grounding system	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
TRANSMISSION SYSTEM ENGINEERING (cont.)		
TSE-2, Engineer Assignments: Before the start of construction, the project owner shall assign to the project an electrical engineer and at least one of each of the following: a) a civil engineer; b) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; c) a design engineer who is either a structural engineer or a civil engineer and fully competent and proficient in the design of power plant structures and equipment supports; or d) a mechanical engineer (Business and Professions Code Sections 6704 et seq. require state registration to practice as either a civil engineer or a structural engineer in California). The tasks performed by the civil, mechanical, electrical, or design engineers may be divided between two or more engineers as long as each engineer is responsible for a particular segment of the project, e.g., proposed earthwork, civil structures, power plant structures, or equipment support. No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer. The civil, geotechnical, or civil and design engineer, assigned as required by Facility Design Condition GEN 5, may be responsible for design and review of the TSE facilities. The project owner shall submit to the CBO, for review and approval, the names, qualifications, and registration numbers of all engineers assigned to the project. If any one of the designated engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer. This engineer shall be authorized to halt earth work and require changes; if site conditions are unsafe or do not conform to the predicted conditions used as the basis for design of earth work or foundations. The electrical engineer shall: 1. be responsible for the electrical design of the power plant switchyard, outlet, and termination facilities; and 2. sign and stamp electrical design drawings, plans, specifications, and calculations.	Prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the names, qualifications, and registration numbers of all the responsible engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval. If the designated responsible engineer is subsequently reassigned or replaced, the project owner has 5 days in which to submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within 5 days of the approval.	CEC
TSE-3, Design and/or Construction Discrepancies: If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend corrective action (2001 California Building Code, Chapter 1, section 108.4, approval required; Chapter 17, section 1701.3, Duties and Responsibilities of the Special Inspector; Appendix Chapter 33, section 3317.7, Notification of Noncompliance). The discrepancy documentation shall become a controlled document and shall be submitted to the CBO for review and approval and refer to this condition of certification.	The project owner shall submit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days of receipt. If disapproved, the project owner shall advise the CPM, within 5 days, the reason for the disapproval, along with the revised corrective action required to obtain the CBO's approval.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
TRANSMISSION SYSTEM ENGINEERING (cont.)		
TSE-4, Power Plan Switchyard/Outlet Line and Termination Plans: For the power plant switchyard, outlet line and termination, the project owner shall not begin any construction until plans for that increment of construction have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. The following activities shall be reported in the monthly compliance report: a) receipt or delay of major electrical equipment; b) testing or energization of major electrical equipment; and c) the number of electrical drawings approved, submitted for approval, and still to be submitted.	Prior to the start of each increment of construction, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations for equipment and systems of the power plant switchyard, and outlet line and termination, including a copy of the signed and stamped statement from the responsible electrical engineer verifying compliance with all applicable LORS, and send the CPM a copy of the transmittal letter in the next monthly compliance report.	CEC
TSE-5, LORS and Requirements for Transmission Facilities: The project owner shall ensure that the design, construction, and operation of the proposed transmission facilities will conform to all applicable LORS, and the requirements listed below. The project owner shall submit the required number of copies of the design drawings and calculations, as determined by the CBO. Once approved, the project owner shall inform the CPM and CBO of any anticipated changes to the design, and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval. a) The power plant outlet line shall meet or exceed the electrical, mechanical, civil, and structural requirements of CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the High Voltage Electric Safety Orders, California ISO standards, National Electric Code (NEC) and related industry standards. b) Breakers and busses in the power plant switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis. c) Outlet line crossings and line parallels with transmission and distribution facilities shall be coordinated with the transmission line owner and comply with the owner's standards. d) The project conductors shall be sized to accommodate the full output of the project. e) Termination facilities shall comply with applicable SCE interconnection standards. f) The project owner shall provide to the CPM: i) The Special Protection System (SPS) sequencing and timing if applicable, ii) A letter stating that the mitigation measures or projects selected by the transmission owners for each reliability criteria violation, for which the project is responsible, are acceptable, and iv) A copy of the executed LGIA signed by the California ISO and the project owner.	Prior to the start of construction or start of modification of transmission facilities, the project owner shall submit to the CBO for approval: 1. Design drawings, specifications, and calculations conforming with CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the High Voltage Electric Safety Orders, CA ISO standards, National Electric Code (NEC) and related industry standards, for the poles/towers, foundations, anchor bolts, conductors, grounding systems, and major switchyard equipment; 2. For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions" and a statement signed and sealed by the registered engineer in responsible charge, or other acceptable alternative verification, that the transmission element(s) will conform with CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the High Voltage Electric Safety Orders, California ISO standards, National Electric Code (NEC), and related industry standards; 3. Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in charge, a route map, and an engineering description of the	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
TRANSMISSION SYSTEM ENGINEERING (cont.)		
	equipment and configurations covered by requirements TSE 5 a) through g); 4. The Special Protection System (SPS) sequencing and timing if applicable shall be provided concurrently to the CPM. 5. A letter stating that the mitigation measures or projects selected by the transmission owners for each reliability criteria violation, for which the project is responsible, are acceptable, and 6. A copy of the executed LGIA signed by the California ISO and the project owner. Prior to the start of construction of or modification of transmission facilities, the project owner shall inform the CBO and the CPM of any anticipated changes to the design that are different from the design previously submitted and approved and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval.	
TSE-6, Notice to the California Independent Systems Officer: The project owner shall provide the following Notice to the California Independent System Operator (California ISO) prior to synchronizing the facility with the California Transmission system: 1. At least one week prior to synchronizing the facility with the grid for testing, provide the California ISO a letter stating the proposed date of synchronization; and 2. At least one business day prior to synchronizing the facility with the grid for testing, provide telephone notification to the California ISO Outage Coordination Department.	The project owner shall provide copies of the California ISO letter to the CPM when it is sent to the California ISO one week prior to initial synchronization with the grid. The project owner shall contact the California ISO Outage Coordination Department, Monday through Friday, between the hours of 0700 and 1530 at (916) 351 2300 at least one business day prior to synchronizing the facility with the grid for testing. A report of conversation with the California ISO shall be provided electronically to the CPM one day before synchronizing the facility with the California transmission system for the first time.	CEC
TSE-7, Transmission Facility Inspection: The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM and CBO approved changes thereto, to ensure conformance with CPUC GO 95 or NESC, Title 8, CCR, Articles 35, 36 and 37 of the, "High Voltage Electric Safety Orders", applicable interconnection standards, NEC and related industry standards. In case of non-conformance, the project owner shall inform the CPM and CBO in writing, within 10 days of discovering such non-conformance and describe the corrective actions to be taken.	Within 60 days after first synchronization of the project, the project owner shall transmit to the CPM and CBO: 1 "As built" engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
TRANSMISSION SYSTEM ENGINEERING (cont.)		
	responsible charge. A statement attesting to conformance with CPUC GO 95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", and applicable interconnection standards, NEC, related industry standards. 2. An "as built" engineering description of the mechanical, structural, and civil portion of the transmission facilities signed and sealed by the registered engineer in responsible charge or acceptable alternative verification. "As built" drawings of the electrical, mechanical, structural, and civil portion of the transmission facilities shall be maintained at the power plant and made available, if requested, for CPM audit as set forth in the "Compliance Monitoring Plan". 3. A summary of inspections of the completed transmission facilities, and identification of any nonconforming work and corrective actions taken, signed and sealed by the registered engineer in charge.	
AIR QUALITY		
AQ-SC-1, Air Quality Construction Mitigation Manager (AQCMM): The project owner shall designate and retain an on-site AQCMM who shall be responsible for directing and documenting compliance with Conditions of Certification AQ SC3, AQ SC4 and AQ SC5 for the entire project site and linear facility construction. The on-site AQCMM may delegate responsibilities to one or more AQCMM Delegates. The AQCMM and AQCMM Delegates shall have full access to all areas of construction on the project site and linear facilities, and shall have the authority to stop any or all construction activities as warranted by applicable construction mitigation conditions. The AQCMM and AQCMM Delegates may have other responsibilities in addition to those described in this condition. The AQCMM shall not be terminated without written consent of the Compliance Project Manager (CPM).	At least 60 days prior to the start of ground disturbance, the project owner shall submit to the BLM's Authorized Officer and CPM for approval, the name, resume, qualifications, and contact information for the on-site AQCMM and all AQCMM Delegates.	CEC
AQ-SC-2, Air Quality Construction Mitigation Plan (AQCMP): The project owner shall provide an AQCMP, for approval, which details the steps that will be taken and the reporting requirements necessary to ensure compliance with Conditions of Certification AQ SC3, AQ SC4, and AQ SC5.	At least 30 days prior to the start of any ground disturbance, the project owner shall submit the AQCMP to the BLM's Authorized Officer and CPM for approval. The AQCMP shall include effectiveness and environmental data for the proposed soil stabilizer. The BLM's Authorized Officer or CPM will notify the project owner of any necessary modifications to the plan within 15 days from the date of receipt.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
AQ-SC-3, Construction Fugitive Dust Control: The AQCMM shall submit documentation to the BLM's Authorized Officer and CPM in each Monthly Compliance Report that demonstrates compliance with the Air Quality Construction Mitigation Plan (AQCMP) mitigation measures for the purposes of minimizing fugitive dust emission creation from construction activities and preventing all fugitive dust plumes from leaving the project. Any deviation from the AQCMP mitigation measures shall require prior BLM Authorized Officer and CPM notification and approval. a. The main access roads through the facility to the power block areas will be either paved or stabilized using soil binders, or equivalent methods, to provide a stabilized surface that is similar for the purposes of dust control to paving, that may or may not include a crushed rock (gravel or similar material with fines removed) top layer, prior to initiating construction in the main power block area, and delivery areas for operations materials (chemicals, replacement parts, etc.) will be paved or treated prior to taking initial deliveries. b. All unpaved construction roads and unpaved operation and maintenance site roads, as they are being constructed, shall be stabilized with a non-toxic soil stabilizer or soil weighting agent that can be determined to be both as efficient or more efficient for fugitive dust control as ARB approved soil stabilizers, and shall not increase any other environmental impacts, including loss of vegetation to areas beyond where the soil stabilizers are being applied for dust control. All other disturbed areas in the project and linear construction sites shall be watered as frequently as necessary during grading (consistent with **Biology** Conditions of Certification that address the minimization of standing water); and after active construction activities shall be stabilized with a non-toxic soil stabilizer or soil weighting agent, or alternative approved soil stabilizing methods, in order to comply with the dust mitigation objectives of Condition of Certification **AQ-SC4**. The frequency of watering can be reduced or eliminated during periods of precipitation. c. No vehicle shall exceed 10 miles per hour on unpaved areas within the construction site, with the exception that vehicles may travel up to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions. d. Visible speed limit signs shall be posted at the construction site entrances. e. All construction equipment vehicle tires shall be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways. f. Gravel ramps of at least 20 feet in length must be provided at the tire washing/cleaning station. g. All unpaved exits from the construction site shall be graveled or treated to prevent track-out to public roadways. h. All construction vehicles shall enter the construction site through the treated entrance roadways, unless an alternative route has been submitted to and approved by the CPM. i. Construction areas adjacent to any paved roadway below the grade of the surrounding construction area or otherwise directly impacted by sediment from site drainage shall be provided with sandbags or other equivalently effective measures to prevent run-off to roadways, or other similar run-off control measures as specified in the Storm Water Pollution Prevention Plan (SWPPP), only when such SWPPP measures are necessary so that this Condition does not conflict with the requirements of the SWPPP.	The AQCMM shall provide the CPM a Monthly Compliance Report to include the following to demonstrate control of fugitive dust emissions: A. a summary of all actions taken to maintain compliance with this Condition; B. copies of any complaints filed with the District in relation to project construction; and C. any other documentation deemed necessary by the CPM or AQCMM to verify compliance with this Condition. Such information may be provided via electronic format or disk at the project owner's discretion.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
j. All paved roads within the construction site shall be swept daily or as needed (less during periods of precipitation) on days when construction activity occurs to prevent the accumulation of dirt and debris. k. At least the first 500 feet of any paved public roadway exiting the construction site or exiting other unpaved roads en route from the construction site or construction staging areas shall be swept as needed (less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff resulting from the construction site activities is visible on the public paved roadways. l. All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered, or shall be treated with appropriate dust suppressant compounds. m. All vehicles that are used to transport solid bulk material on public roadways and that have potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least one foot of freeboard. n. Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) shall be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this Condition shall remain in place until the soil is stabilized or permanently covered with vegetation.		
AQ-SC-4, Dust Plume Response Requirement: The AQCMM or an AQCMM Delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be transported (A) off the project site and within 400 feet upwind of any regularly occupied structures not owned by the project owner or (B) 200 feet beyond the centerline of the construction of linear facilities indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMP shall include a section detailing how the additional mitigation measures will be accomplished within the time limits specified. The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed: Step 1: The AQCMM or Delegate shall direct more intensive application of the existing mitigation methods within 15 minutes of making such a determination. Step 2: The AQCMM or Delegate shall direct implementation of additional methods of dust suppression if Step 1, specified above, fails to result in adequate mitigation within 30 minutes of the original determination. Step 3: The AQCMM or Delegate shall direct a temporary shutdown of the activity causing the emissions if Step 2, specified above, fails to result in effective mitigation within one hour of the original determination. The activity shall not restart until the AQCMM or Delegate is satisfied that appropriate additional mitigation or other site conditions have changed so that visual dust plumes will not result upon restarting the shutdown source. The owner/operator may appeal to the CPM or BLM Authorized Officer any directive from the AQCMM or Delegate to shut down an activity, if the shutdown shall go into effect within one hour of the original determination, unless overruled by the CPM or BLM Authorized Officer before that time.	The AQCMM shall provide the BLM's Authorized Officer and the CPM a Monthly Compliance Report (**COMPLIANCE-6**) to include: A. a summary of all actions taken to maintain compliance with this condition; B. copies of any complaints filed with the District in relation to project construction; and C. any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
AQ-SC-5, Diesel-Fueled Engine Control: The AQCMM shall submit to the CPM, in the Monthly Compliance Report, a construction mitigation report that demonstrates compliance with the AQCMP mitigation measures for purposes of controlling diesel construction-related emissions. Any deviation from the AQCMP mitigation measures shall require prior and CPM notification and approval. a. All diesel-fueled engines used in the construction of the facility shall have clearly visible tags issued by the on-site AQCMM showing that the engine meets the Conditions set forth herein. b. All construction diesel engines with a rating of 50 hp or higher shall meet, at a minimum, the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines, as specified in California Code of Regulations, Title 13, section 2423(b)(1), unless a good faith effort to the satisfaction of the CPM that is certified by the on-site AQCMM demonstrates that such engine is not available for a particular item of equipment. In the event that a Tier 3 engine is not available for any off-road equipment larger than 100 hp, that equipment shall be equipped with a Tier 2 engine, or an engine that is equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides (NOx) and diesel particulate matter (DPM) to no more than Tier 2 levels unless certified by engine manufacturers or the on-site AQCMM that the use of such devices is not practical for specific engine types. For purposes of this Condition, the use of such devices is "not practical" for the following, as well as other, reasons. 1. There is no available retrofit control device that has been verified by either the California Air Resources Board or U.S. Environmental Protection Agency to control the engine in question to Tier 2 equivalent emission levels and the highest level of available control using retrofit or Tier 1 engines is being used for the engine in question; or 2. The construction equipment is intended to be on site for 10 days or less. 3. The CPM may grant relief from this requirement if the AQCMM can demonstrate a good faith effort to comply with this requirement and that compliance is not practical. c. The use of a retrofit control device may be terminated immediately, provided that the CPM is informed within 10 working days of the termination and that a replacement for the equipment item in question meeting the controls required in item "b" occurs within 10 days of termination of the use, if the equipment would be needed to continue working at this site for more than 15 days after the use of the retrofit control device is terminated, if one of the following Conditions exists: 1. The use of the retrofit control device is excessively reducing the normal availability of the construction equipment due to increased down time for maintenance, and/or reduced power output due to an excessive increase in back pressure. 2. The retrofit control device is causing or is reasonably expected to cause engine damage. 3. The retrofit control device is causing or is reasonably expected to cause a substantial risk to workers or the public. 4. Any other seriously detrimental cause which has the approval of the CPM prior to implementation of the termination.	The AQCMM shall include in the Monthly Compliance Report the following to demonstrate control of diesel construction-related emissions: A. A summary of all actions taken to control diesel construction related emissions; B. A list of all heavy equipment used on site during that month, including the owner of that equipment and a letter from each owner indicating that equipment has been properly maintained; and heavy earth-moving equipment and heavy duty construction- C. Any other documentation deemed necessary by the CPM, and the AQCMM to verify compliance with this Condition. Such information may be provided via electronic format or disk at the project owner's discretion.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
d. All related trucks with engines meeting the requirements of (b) above shall be properly maintained and the engines tuned to the engine manufacturer's specifications. e. All diesel heavy construction equipment shall not idle for more than five minutes. Vehicles that need to idle as part of their normal operation (such as concrete trucks) are exempted from this requirement. f. Construction equipment will employ electric motors when feasible.		
AQ-SC-6, Emission Standards Vehicles: The project owner, when obtaining dedicated on-road or off-road vehicles for mirror washing activities and other facility maintenance activities, shall only obtain new model year vehicles that meet California on-road vehicle emission standards or appropriate U.S.EPA/California off-road engine emission standards for the model year when obtained.	At least 30 days prior to the start commercial operation, the project owner shall submit to the CPM a copy of the plan that identifies the size and type of the on-site vehicle and equipment fleet and the vehicle and equipment purchase orders and contracts and/or purchase schedule. The plan shall be updated every other year and submitted in the Annual Compliance Report.	CEC
AQ-SC-7, Operation Dust Control Plan: The project owner shall provide a site Operations Dust Control Plan, including all applicable fugitive dust control measures identified in the verification of AQ SC3 that would be applicable to minimizing fugitive dust emission creation from operation and maintenance activities and preventing all fugitive dust plumes from leaving the project site that: A. describes the active operations and wind erosion control techniques such as windbreaks and chemical dust suppressants, including their ongoing maintenance procedures, that shall be used on areas that could be disturbed by vehicles or wind anywhere within the project boundaries; and B. identifies the location of signs throughout the facility that will limit traveling on unpaved portion of roadways to solar equipment maintenance vehicles only. In addition, vehicle speed shall be limited to no more than 10 miles per hour on these unpaved roadways, with the exception that vehicles may travel up to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions. The site operations fugitive dust control plan shall include the use of durable non-toxic soil stabilizers on all regularly used unpaved roads and disturbed off-road areas, or alternative methods for stabilizing disturbed off-road areas, within the project boundaries, and shall include the inspection and maintenance procedures that will be undertaken to ensure that the unpaved roads remain stabilized. The soil stabilizer used shall be a non-toxic soil stabilizer or soil weighting agent that can be determined to be as efficient as or more efficient for fugitive dust control than ARB approved soil stabilizers, and that shall not increase any other environmental impacts including loss of vegetation to areas beyond where the soil stabilizers are being applied for dust control. The performance and application of the fugitive dust controls shall also be measured against and meet the performance requirements of condition AQ-SC4. The measures and performance requirements of AQ-SC4 shall also be included in the operations dust control plan.	At least 30 days prior to start of commercial operation, the project owner shall submit to the CPM for review and approval a copy of the site Operations Dust Control Plan that identifies the dust and erosion control procedures, including effectiveness and environmental data for the proposed soil stabilizer, that will be used during operation of the project and that identifies all locations of the speed limit signs. Within 60 days after commercial operation, the project owner shall provide to the CPM a report identifying the locations of all speed limit signs, and a copy of the project employee and contractor training manual that clearly identifies that project employees and contractors are required to comply with the dust and erosion control procedures and on-site speed limits.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
AQ-SC-8, CPM Copies of Documents: The project owner shall provide the CPM copies of all District issued Authority-to-Construct (ATC) and Permit-to-Operate (PTO) documents for the facility. The project owner shall submit to the CPM for review and approval any modification proposed by the project owner to any project air permit. The project owner shall submit to the CPM any modification to any permit proposed by the District or U.S. Environmental Protection Agency (U.S. EPA), and any revised permit issued by the District or U.S. EPA, for the project.	The project owner shall submit any ATC, PTO, and proposed air permit modifications to the CPM within 5five working days of its submittal either by 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt.	CEC
AQ-SC-9, VOC Emission Reduction Credit (ERC) Sources: The project owner shall provide a list of the proposed VOC emission reduction credit (ERC) sources that total at least 68 pounds per day, shall submit requests to modify this list, and shall submit documentation confirming that the ERCs have been surrendered as required by South Coast Air Quality Management District rules.	The project owner shall provide to the CPM the following: A. The list of proposed emission reduction credit sources, with the amount of reduction, the location of reduction, the method of reduction and date of reduction prior to initiating construction. B. Documentation prior to the start of operation that demonstrates the emission reduction credits have been surrendered in a manner and timeframe that complies with district rules. C. Any requests to modify the list of emission reduction credits shall be provided no later than at least 30 days prior to their surrender.	CEC
AQ-SC-10, Water Quality and Annual Emissions: The project owner shall operate the cooling towers with high efficiency mist eliminators and shall determine and report water quality and annual emissions.	The project owner shall provide the following at least 30 days prior to installation of the cooling tower to the CPM for review and approval: A. The manufacturer specifications for the cooling tower, that provides the number of cells and design recirculating water flow rate for the two cooling towers. B. The manufacturer specifications for the mist eliminators that provide a manufacturer guarantee that the mist eliminators will reduce drift to no more than 0.0005% of recirculating water flow. The project owner shall provide the following in the Annual Compliance Reports: C. The sampling data for the recirculating water TDS concentration, performed at least quarterly, that demonstrates that the annual average TDS	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
	concentration was no more than 2,000 milligrams per liter (ppmw). D. The estimated annual particulate emissions from the cooling tower using the following equation: (annual gallons of water recirculated) x (0.000005 fraction mist) x (average annual TDS concentration in mg/l) / (1,000,000) x (8.34 lbs/gallon).	
AQ-SC-11, Assurance that Engine Operation will not Cause Exceedance of Ambient Air Quality Standards: The project owner shall use one of the following four options to assure that the operation of the emergency engines will not cause an exceedance of the state or federal 1-hour NO2 ambient air quality standards: 1) The project owner shall provide an air dispersion modeling analysis that demonstrates to Staff's satisfaction that the currently proposed or officially revised worst-case operating emissions would not have the potential to cause exceedances of the state or federal 1-hour NO2 ambient air quality standards, or 2) The project owner shall procure emergency generator engines that meet ARB Tier 4 standards for NOx emissions (0.5 grams per brake horsepower), or 3) In the event that Tier 4 engines are not available at the time of engine purchase, the project owner shall; a) provide documentation from engine manufacturers that Tier 4 engines are not available; and b) procure emergency engines that have a NOx emissions guarantee of no more than 2.6 grams per brake horsepower, or 4) The project owner shall agree to limit the emergency generator engine testing duration to no more than 30 minutes per event and a testing frequency limited to the minimum required by engine manufacturer. In no event shall the project owner propose the use of an emergency engine that does not meet the most strict applicable federal or state engine emission limit regulation without a signed waiver from U.S. EPA or ARB as appropriate. The project owner shall justify the date of engine purchase.	The project owner shall provide to the CPM the air dispersion modeling analysis, if performed, that demonstrates compliance with Part 1) of this Condition at least 30 days prior to purchasing the emergency engine generators for this project, or shall provide documentation to the CPM at least five days prior to purchasing the engine generators that demonstrates how they would comply with Part 2), or Part 3), or Part 4) of this Condition.	CEC
AQ-SC12, Gasoline Storage Tank: For the aboveground gasoline storage tank, the project owner shall comply with South Coast Air Quality Management District Rule 461 and Air Resources Board Executive Orders (EOs) otherwise applicable to storage tanks larger than 250 gallons and shall: a. Ensure that the above ground gasoline storage tank installed is no larger than 250 gallons in storage capacity and that the tank and associated fuel dispensing unit is equipped with appropriate Phase I and Phase II ARB vapor recovery systems otherwise applicable under District Rule 461 to storage tanks larger than 250 gallons at the time of installation. b. Maintain onsite a list of the SCAQMD Rule 461 and ARB EO design, testing, and other requirements applicable at the time of purchase to storage tanks larger than 250 gallons, including vapor recovery system. c. Maintain onsite a log of all inspections, repairs, tests, and maintenance on equipment subject to the requirements specified in part (b) above. Such logs or records shall be maintained at the facility for at least two (2) years and available upon request.	No later than 30 days prior to purchasing the above ground storage tank and its components, the project owner shall provide to the CPM for approval the final tank and vapor recovery system design specifications and a list of applicable Rule 461 and EO design, testing, and other requirements, including specifications for the vapor recovery equipment. The project owner shall also provide gasoline throughput records in the Annual Compliance Report and shall make the site available for inspection of equipment and records by representatives of the District, ARB, and the Energy Commission.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
AQ-1, Operation of Equipment: Operation of this equipment shall be conducted in accordance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.	The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-2, Equipment Maintenance: This equipment shall be properly maintained and kept in good operating condition at all times.	The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-3, Liquefied Petroleum Gas (LPG): This equipment shall be fired exclusively with liquefied petroleum gas (LPG) which meets the requirements of AQMD Rule 431.1 and the standards specified in CCR Title 13, Section 2292.6 for California motor vehicles.	The project owner shall maintain records of the LPG deliveries and specifications onsite for a period of three years and shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-4, Source Test(s) for Criteria Pollutants: The operator shall conduct source test(s) for the pollutant(s) identified below. ***Pollutant to be Tested Required | Test Method(s) | Averaging Time | Test Location*** NOx emissions | District Method 100.1 | 1 hour | Stack CO emissions | District Method 100.1 | 1 hour | Stack SOx emissions | Approved District method | District approved averaging time | Fuel Sample VOC emissions | Approved District method | 1 hour | Stack PM10 emissions | Approved District method | District approved averaging time | Stack The test shall be conducted after AQMD approval of the source test protocol, but no later than 180 days after initial start-up. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test. The test shall be conducted to determine the oxygen levels in the exhaust. In addition, the tests shall measure the fuel flow rate (CFH), the flue gas flow rate. The test shall be conducted in accordance with AQMD approved test protocol. The protocol shall be submitted to the AQMD engineer no later than 45 days before the proposed test date and shall be approved by the AQMD before the test commences. The test protocol shall include the proposed operating conditions of the turbine during the tests, the identity of the testing lab, a statement from the testing lab certifying that it meets the criteria of Rule 304, and a description of all sampling and analytical procedures. The test shall be conducted when this equipment is operating at maximum and minimum loads.	The project owner shall provide a source test protocol to the District for approval and CPM for review at least 45 days prior to the first source test. The project owner shall notify the District and the CPM within 10 working days before the execution of the source test required in this condition. The test shall be conducted within 180 days after initial start-up and the test results shall be submitted to the District and to the CPM within 60 days after test was conducted.	CEC
AQ-5, Annual Fuel Usage Limit: The project owner shall limit the fuel usage to no more than 698,087 gallons in any one year. For the purpose of this Condition, one year shall be defined as a period of 12 consecutive months determined on a rolling basis with a new 12-month period beginning on the first day of each calendar month. For the purpose of this Condition, fuel usage shall be defined as the total propane usage of a single boiler. The project owner shall maintain records in a manner approved by the District to demonstrate compliance with this Condition.	The project owner shall submit records required by this condition in the Annual Compliance Report, including the monthly start and end readings of the fuel flow meter (**AQ-7**).	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
AQ-6, Monthly Fuel Usage Limit: The project owner shall limit the fuel usage to no more than 58,174 gallons in any one month. For the purpose of this Condition, fuel usage shall be defined as the total propane usage of a single boiler. The project owner shall maintain records in a manner approved by the District to demonstrate compliance with this Condition.	The project owner shall submit to the CPM the record of boiler fuel usage demonstrating compliance with this Condition as part of the Annual Compliance Report.	CEC
AQ-7, Flow Meter: The project owner shall install and maintain a(n) flow meter to accurately indicate the fuel usage being supplied to the boiler. The project owner shall also install and maintain a device to continuously record the parameter being measured.	At least 30 days prior to the installation of the boiler, the project owner shall provide the District and the CPM the specification of the flow meter.	CEC
AQ-8, AQMD Source Test Report: At least 30 days prior to the installation of the boiler, the project owner shall provide the District and the CPM the specification of the flow meter. 1. Source test results shall be submitted to the AQMD no later than 60 days after the source test was conducted. 2. Emission data shall be expressed in terms of concentration (ppmv) corrected to three percent oxygen (dry basis), mass rate (lb/hr), and lb/MMCF. In addition, solid PM emissions, if required to be tested, shall also be reported in terms of grains/DSCF. 3. All exhaust flow rate shall be expressed in terms of dry standard cubic feet per minute (DSCFM) and dry actual cubic feet per minute (DACFM). 4. All moisture concentration shall be expressed in terms of percent corrected to three percent oxygen. Source test results shall also include the oxygen levels in the exhaust, fuel flow rate (gallons per hour), and the flue gas temperature.	None required.	CEC
AQ-9, NOx Emission Limits: The NOx emissions from this equipment shall not exceed 9 ppmv, measured over 60 minute averaging time period at three percent O2.	As part of the Annual Compliance Report, the project owner shall include information demonstrating compliance with the boiler operating emission rates.	CEC
AQ-10, CO Emission Limits: The CO emissions from this equipment shall not exceed 50 ppmv, measured over 60 minute averaging time period at three percent O2.	As part of the Annual Compliance Report, the project owner shall include information demonstrating compliance with the boiler operating emission rates.	CEC
AQ-11: The 9 PPM NOx emission limits shall not apply during start-up and shutdown periods. Start-up and shutdown periods each shall not exceed 15 minutes. Written records of start-ups and shutdowns shall be maintained and made available upon request from the Executive Officer.	The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-12: The 50 PPM CO emission limits shall not apply during start-up and shutdown periods. Start-up and shutdown periods each shall not exceed 15 minutes. Written records of start-ups and shutdowns shall be maintained and made available upon request from the Executive Officer.	The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
AQ-13, Equipment Emission Limits: The project owner shall limit emissions from this equipment as follows: PM-10: 639 lbs in any one year; NOx: 709 lbs in any one year; Sox: 722 lbs in any one year. The project owner shall calculate the yearly emissions for NOx, PM10 and SOx using the equation below and the following emission factors: NOx: 1.02 lb/1,000 gal; PM10: 0.92 lb/1,000 gal; and SOx:1.03 lb/1,000 gal. Yearly Emissions, lb/year = X (E.F.) where X = yearly fuel usage in 1,000 gal/year and E.F. = emission factor indicated above. For the purpose of this Condition, the yearly emission limit shall be defined as a period of 12 consecutive months determined on a rolling basis with a new 12-month period beginning on the first day of each calendar month.	As part of the Annual Compliance Report, the project owner shall include information demonstrating compliance with the boiler operating emission rates**.**	CEC
AQ-14, Additional Equipment Emission Limits: The project owner shall limit emissions from this equipment as follows: PM10: 53 lbs in any one month; NOx: 59 lbs in any one month; Sox: 60 lbs in any one month; VOC: 27 lbs in any one month. The project owner shall calculate the monthly emissions for NOx, VOC, PM10 and SOx using the equation below and the following emission factors: NOx: 1.02 lb/1,000 gal; VOC: 0.46 lb/1,000 gal; PM10: 0.92 lb/1,000 gal; and SOx: 1.03 lb/1,000 gal. Monthly Emissions, lb/month = X (E.F.) where X = monthly fuel usage in 1,000 gal/month and E.F. = emission factor indicated above.	As part of the Annual Compliance Report, the project owner shall include information demonstrating compliance with the boiler operating emission rates.	CEC
AQ-15, Annual Equipment Time Limit: The project owner shall limit the annual operation of this equipment to no greater than 5,110 hours in any one year.	The project owner shall submit to the CPM the boiler hours of use records demonstrating compliance with this Condition as part of the Annual Compliance Report.	CEC
AQ-16, Boiler Operation Loads: The boiler shall not be operated at loads of less than 25 percent except during initial start-up and shutdown.	The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
AQ-17, Non-Resettable Totalizing Fuel Meter: The project owner shall install and maintain a non-resettable totalizing fuel meter to accurately indicate the fuel usage of the engine.	At least 30 days prior to the installation of the engine, the project owner shall provide the District and the CPM the specification of the fuel meter.	CEC
AQ-18, Fuel Sulfur Content: The project owner shall only use diesel fuel containing sulfur less than or equal to 15 ppm by weight.	The project owner shall make the site available for inspection of equipment and fuel purchase records by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-19, Equipment Compliance: This equipment shall comply with Rule 431.2 and 1470.	At least 30 days prior to purchasing the engines the project owner shall submit the engine specifications for review and approval demonstrating that the engines meet NSPS and ARB ATCM emission limit requirements at the time of engine purchase, and also meets the emission limit requirements of Rule 1470. The project owner shall submit records demonstrating compliance with the engine use and sulfur content limitations of Conditions **AQ-21** and **AQ-18** in the Annual Compliance Report, including a photograph showing the annual reading of engine hours.	CEC
AQ-20, Non-Resettable Totalizing Fuel Meter: An operational non-resettable totalizing time meter shall be installed and maintained to indicate the engine elapsed operating time.	At least 30 days prior to the installation of the engine, the project owner shall provide the District and the CPM the specification of the hour meter.	CEC
AQ-21, Annual Engine Time Limit: This engine shall not be operated more than 200 hours in any one year, which includes no more than 50 hours per year and one hour per week for maintenance and testing as required in Rule 1470©(2).	The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-22, Engine Operation Log: The project owner shall keep a log of engine operations documenting the total time the engine is operated each month and the specific reason for operation as: a. Emergency use b. Maintenance and testing c. Other (be specific) In addition, for each time the engine is manually started, the log shall include the date of engine operation, the specific reason for operation, and the totalizing hour meter reading (in hours and tenths of hours) at the beginning and the end of the operation. On or before January 15 of each year, the project owner shall record in the engine operating log: a. The total hours of engine operation for the previous calendar year, and	The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
b. The total hours of engine operation for maintenance and testing for the previous calendar year Engine operation log(s) shall be retained on site for a minimum of three calendar years and shall be made available to the Executive Officer or representative upon request.		
AQ-23: BACT Emission Limits: This equipment shall comply with the following BACT emission limits. NOx + VOC: 3.0 gm/bhp-hr CO: 2.6 gm/bhp-hr PM10: 0.15 gm/bhp-hr	As part of the Annual Compliance Report, the project owner shall include information demonstrating compliance with the fire pump engine operating emission rates.	CEC
AQ-24, **Non-Resettable Totalizing Fuel Meter:** The operator shall install and maintain a(n) non-resettable totalizing fuel meter to accurately indicate the fuel usage of the engine.	At least 30 days prior to the installation of the engine, the project owner shall provide the District and the CPM the specification of the fuel meter.	CEC
AQ-25, Equipment Compliance: This equipment shall comply with Rule 431.2 and 1470.	At least 30 days prior to purchasing the engines the project owner shall submit the engine specifications for review and approval demonstrating that the engines meet NSPS and ARB ATCM emission limit requirements at the time of engine purchase, and also meets the emission limit requirements of Rule 1470. The project owner shall submit records demonstrating compliance with the engine use and sulfur content limitations of Conditions **AQ-21** and **AQ-18** in the Annual Compliance Report, including a photograph showing the annual reading of engine hours.	CEC
AQ-26, Non-Resettable Totalizing Fuel Meter: An operational non-resettable totalizing time meter shall be installed and maintained to indicate the engine elapsed operating time.	At least 30 days prior to the installation of the engine, the project owner shall provide the District and the CPM the specification of the hour meter.	CEC
AQ-27, Annual Engine Time Limit: This engine shall not be operated more than 200 hours in any one year, which includes no more than 50 hours per year and one hour per week for maintenance and testing as required in Rule 1470(c)(2).	The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-28, Operation Beyond Allotted Time; Operation beyond the allotted time for engine maintenance and testing shall be allowed only in the event of a loss of grid power or up to 30 minutes prior to a rotating outage, provided that the utility distribution company has ordered rotating outages in the control area where the engine is located or has indicated that it expects to issue such an order at a certain time, and the engine is located in a utility service block that is subject to the rotating outage. Engine operation shall be terminated immediately after the utility distribution company advises that a rotating outage is no longer imminent or in effect.	The project owner shall submit to the CPM the specific reason for operation of the emergency generator engine as part of the Annual Compliance Report, and the project owner shall submit to the CPM the hours of emergency generator engine operation as part of the Annual Compliance Report.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
AQ-29, Interruptible Service Contract: This engine shall not be used as part of an interruptible service contract in which a facility receives a payment or reduced rates in return for reducing electric load on the grid when requested by the utility or the grid operator.	The project owner shall submit to the CPM the specific reason for operation of the emergency generator engine as part of the Annual Compliance Report, and the project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-30, Engine Operation Log: The project owner shall keep a log of engine operations documenting the total time the engine is operated each month and the specific reason for operation as: a. Emergency use b. Maintenance and testing c. Other (be specific) In addition, for each time the engine is manually started, the log shall include the date of engine operation, the specific reason for operation, and the totalizing hour meter reading (in hours and tenths of hours) at the beginning and the end of the operation. On or before January 15 of each year, the project owner shall record in the engine operating log: a. The total hours of engine operation for the previous calendar year, and b. The total hours of engine operation for maintenance and testing for the previous calendar year Engine operation log(s) shall be retained on site for a minimum of three calendar years and shall be made available to the Executive Officer or representative upon request.	The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-31, BACT Emission Limits: This equipment shall comply with the following BACT emission limits: NOx + VOC: 4.8 gm/bhp-hr CO: 2.6 gm/bhp-hr PM10: 0.15 gm/bhp-hr	As part of the Annual Compliance Report, the project owner shall include information demonstrating compliance with the emergency generator engine operating emission rates.	CEC
AQ-32, HTF Expansion Vessels: The HTF expansion vessels shall be vented to the activated carbon adsorption system no. 1 and no. 2, which is in full operation and which has been issued permits to construct under a/n 506830 and 506835, respectively.	The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-33, Comprehensive Inspection and Maintenance (I&M) Program: The project owner shall develop and implement a comprehensive inspection and maintenance (I&M) program to determine, repair or replace, and report leaks in the HTF piping network and expansion vessels. Such I&M program shall be submitted to the Executive Officer for approval no later than 180 days from the issuance of a permit to construct for this equipment. I&M program records and as well as any related records shall be kept on file for a period of three years and be made available to the Executive Officer upon request.	The project owner shall submit copies of the I&M program plan and protocol to the CPM for review at the same time when they submitted, in compliance with the timeframe requirements of this Condition, to the District for approval. The project owner shall submit information demonstrating compliance with the substantive and recordkeeping	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
In addition, the project owner shall submit a protocol to the Executive Officer within the first 60 days of full operation describing the methodology to be used to perform the following tasks: a. All pumps connectors, and pressure relief valves (PRVs) and associated rupture disks shall be electronically, visually or by audio, inspected once every operating day. b. All accessible valves, connectors, and PRV's (including rupture disks) shall be inspected quarterly using an AQMD Rule 1173 approved leak detection device calibrated for methane. c. VOC leaks greater than 100 ppmv shall be recorded and repaired or replaced within seven days of detection. d. VOC leaks greater than 10,000 ppmv shall be recorded and repaired or replaced within 24 hours of detection. e. The project owner shall maintain written records of all VOC leaks exceeding 100 ppmv. The records shall indicate the location of the leak, the type of leak, and the repair(s) or replacement made. The records shall be kept on file for a period of three years and shall be made available to the Executive Officer upon request, f. Pressure-sensing equipment shall be installed and operated which will be capable of detecting a major leak, rupture or spill within the HTF network.	provisions of this Condition during facility operation in the Annual Compliance Report.	
AQ-34, Heat Transfer Fluid (HTF) Records: The project owner shall maintain written records of the amount of heat transfer fluid (HTF) replaced on a monthly basis. Such records shall be kept on file for a period of three years and shall be made available to the Executive Officer upon request.	The project owner shall provide the amount of heat transfer fluid (HTF) replaced each year in the Annual Compliance Report. The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-35, VOC Emissions: The following component count shall be used to determine the fugitive VOC emissions: Valves: 1,969 per unit Pump Seals: 9 per unit Connectors: 2,091 per unit The project owner shall provide AQMD with a final component count within 90 days of completion of construction.	The project owner shall provide the District and the CPM the final HTF piping component count within 90 days of completion of construction, and shall keep a record of changes in the component count in the inspection and maintenance program documentation kept at the site.	CEC
AQ-36, Expansion Vessels: All expansion vessels shall be kept closed except during maintenance, inspection, repair or replacement.	The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-37, Operation and Maintenance of Equipment: This equipment shall be maintained and operated according to manufacturer's specification to ensure compliance with applicable AQMD, state, and federal rules and regulations.	The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
AQ-38, Records of Compliance: Written records shall be used to demonstrate compliance with all applicable AQMD, state, or federal rules and regulations, including records of any incidental or supporting operational data needed to justify findings.	The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-39, Emission Limits: The emissions from the ullage system, including all fugitives, shall not exceed the following limits: VOC: 824.40 lbs/month/unit; 4.95 tons/year/unit Compliance with the maximum monthly emission limit shall be verified by the project owner each month the source is operated. Compliance with the maximum monthly emission limit shall be verified using appropriate operational data and recordkeeping to fully document the maximum monthly emission rate. Written records of such documentation of compliance shall be retained for a period of three years and made available to the Executive Officer upon request.	As part of the Annual Compliance Report the project owner shall include information on operating emission rates to demonstrate compliance with this Condition. The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-40, Expansion Tank Ventilation: The expansion tank shall only be vented to the atmosphere through the carbon adsorption system issued a permit to construct under a/n 506830 (506835). In no event shall the ullage system be operated for more than 400 hours in any one year. The project owner shall maintain written records of elapsed operational time of the ullage system and such records shall be made available to the Executive Officer upon request.	As part of the Annual Compliance Report the project owner shall include information on operating hours of the ullage system to demonstrate compliance with this Condition. The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-41, Pressure Relief Valves: The project owner shall ensure that all pressure relief valves (PRVs) which vent to the atmosphere shall are equipped with rupture disks.	The project owner shall make the site available for inspection of equipment by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-42, Monitoring and Testing of Heat Transfer Fluid (HTF): The project owner shall monitor and test the heat transfer fluid (HTF) on a quarterly basis for HTF contamination in accordance with the procedures outlined in the Therminol analytical evaluation guidelines provided by the manufacturer. The ullage system shall be operated whenever the percentage of total contaminants in the HTF sample reaches a maximum of two percent by volume.	As part of the Annual Compliance Report the project owner shall include a summary of the quarterly HTF test results required by this Condition and a corresponding summary of the periods of HTF ullage system venting operation to show compliance with this Condition.	CEC
AQ-43, Soil VOC Emissions: The project owner shall measure VOC emissions three-inches above the soil surface on a weekly basis using a flame ionization detector (FID) or photo-ionization detector (PID) or other device approved by the Executive Officer. The project owner shall maintain written records of weekly VOC emissions from the bio-remediation unit during periods when the unit is in operation. The project owner shall submit a written protocol to the Executive Officer to incorporate the proposed monitoring, reporting and recordkeeping requirements for the bio-remediation unit to be reviewed and approved by AQMD staff prior to initial operation of the bio-remediation unit. a. During operation, if the soil in the bio-remediation unit results in a VOC reading of more than 50 ppmv calibrated as methane and measured 3 inches above the soil surface with a PID, FID, or other AQMD approved device, the bio-remediation unit shall be covered with a minimum of 10-mil plastic sheeting to control VOC emissions.	The project owner shall provide a written protocol to incorporate the proposed monitoring, reporting and recordkeeping requirements to the District for approval and CPM for review prior to initial operation of the bio-remediation unit, and shall provide the CPM a summary of the monitoring results and other actions taken to comply with this Condition in the Annual Compliance Report. The project owner shall provide a written protocol to incorporate	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
b. If the soil in the bio-remediation unit registers an organic matter concentration of less than 1,000 ppmw the project owner shall use naturally occurring soil bacteria or enhanced bioremediation procedures to treat the HTF contaminated soil. During operations, the bioremediation unit shall be covered with a minimum of 10-mil plastic sheeting to control VOC emissions. c. If the soil in the bio-remediation unit registers an organic matter concentration of greater than or equal to 1,000 ppmw and but less than or equal to 10,000 ppmw, the project owner shall use enhanced bio-remediation procedures to treat the HTF contaminated soil using accepted environmental engineering practices. Soil stockpiles shall be conditioned as necessary through the addition of nutrients, moisture, and air, to maintain conditions suitable for bio-remediation operations d. If the soil in the bio-remediation unit registers a VOC reading of greater than 10,000 ppmw, the project owner shall store the contaminated soil in sealed containers while onsite. The project owner shall dispose of the HTF contaminated soil at an off-site facility suitable for disposal of such materials. e. If the bio-remediation operation is not effective after six months of continuous operation, the project owner shall submit another written protocol to propose an alternate method of soil remediation for approval by the Executive Officer.		
AQ-44, Records of Compliance: Written records shall be used to demonstrate compliance with all applicable AQMD, state, or federal rules and regulations, including records of any incidental or supporting operational data needed to justify findings.	The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-45, VOC-Contaminated Soil: The project owner shall submit a VOC-contaminated soil handling plan in accordance with AQMD Rule 1166 to the Executive Officer for approval no later than 180 days from the issuance of a permit to construct for this equipment.	The project owner shall provide a VOC-contaminated soil handling plan to the District for approval and CPM for review within 180 days of the issuance of a permit to construct.	CEC
AQ-46, Monitoring of Carbon Beds: The project owner shall monitor for breakthrough between the first and second carbon beds while the carbon system is in use using an OVA or other monitoring device as approved by the Executive Officer. Breakthrough shall occur when the OVA or other approved monitoring device shows a VOC concentration of 5 ppmv or greater, measured as methane, downstream of the first carbon bed. The carbon in the first bed shall be replaced with fresh carbon at least five times per month as necessary or at the occurrence of breakthrough, whichever comes first, prior to occurrence of breakthrough in the second carbon bed.	The project owner shall provide a summary of the carbon bed monitoring data as part of the Annual Compliance Report and shall submit tests to the District as required in this Condition.	CEC
AQ-47, Carbon Adsorption Canisters: The project owner shall at any given time period, maintain at least 10 extra carbon adsorption canisters on the premises to ensure that the activated carbon adsorption systems can continuously operate without interruption whenever the ullage system is in operation.	The project owner shall make the site available for inspection of equipment by representatives of the District, ARB, and the Energy Commission.	CEC
AQ-48, Non-Resettable Totalizing Elapsed Time Meter: The project owner shall install a non-resettable, totalizing elapsed time meter to accurately indicate the cumulative operational time, in hours, of the activated carbon adsorption system.	At least 30 days prior to the installation of the carbon adsorption system, the project owner shall provide the District and the CPM the specification of the totalizing elapsed time meter.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
AQ-49, Initial Source Test Plan/Protocol: An initial source test plan/protocol shall be submitted to the Executive Officer 60 days prior to the test and shall be approved before the test begins. The plan shall include the proposed operating conditions of the of the equipment during the test, the test methods, the identity of the testing laboratory, a statement from the testing laboratory certifying that it meets the no conflict requirements of the AQMD and a description of all sampling and analytical procedures to be used.	The project owner shall provide an initial source test plan to the District for approval and CPM for review at least 60 days prior to the test.	CEC
AQ-50, Initial Source Test: The initial source test shall be performed within 60 days after full operation but no later than 180 days after the initial start-up of the equipment.	The project owner shall notify the District and the CPM at least 15 days before the execution of the compliance test required in this Condition.	CEC
AQ-51, Source Test Report: A written report of the source test results shall be submitted to the Executive Officer within 60 days after the test is completed and shall contain, at a minimum, the VOC concentration, in ppm, at the inlet to the first carbon bed, between the first and second carbon bed, and at the outlet from the second bed, speciated for benzene. The test report shall include the overall control efficiency for the carbon adsorption system.	A summary of the source test results shall be submitted to the CPM within 60 days, or at the same time as the full test report is submitted to the District if later and allowed by the District, after source test completion.	CEC
BIOLOGICAL RESOURCES		
BIO-1, Designated Biologist Selection and Qualifications: The Project owner shall assign at least one Designated Biologist to the Project. The Project owner shall submit the resume of the proposed Designated Biologist(s), with at least three references and contact information, to the Energy Commission Compliance Project Manager (CPM) and BLM's Authorized Officer for approval in consultation with CDFG and USFWS. The Designated Biologist must meet the following minimum qualifications: 1. Bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field; 2. Three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society; 3. Have at least one year of field experience with biological resources found in or near the Project area; 4. Meet the current USFWS Authorized Biologist qualifications criteria (www.fws.gov/ventura/speciesinfo/protocols_guidelines), demonstrate familiarity with protocols and guidelines for the desert tortoise, and be approved by the USFWS; and 5. Possess a California ESA Memorandum of Understanding pursuant to Section 2081(a) for desert tortoise. In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the CPM, in consultation with CDFG and USFWS, that the proposed Designated Biologist or alternate has the appropriate training and background to effectively implement the conditions of certification.	At least 30 days prior to construction-related ground disturbance, the Project owner shall submit the resumes of the Designated Biologists(s) along with the completed USFWS Desert Tortoise Authorized Biologist Request Form (www.fws.gov/ventura/speciesinfo/protocols_guidelines) and submit it to the USFWS and the CPM for review and final approval. No construction-related ground disturbance, grading, boring, or trenching shall commence until an approved Designated Biologist is available to be on site. If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM at least 10 working days prior to the termination or release of the preceding Designated Biologist. In an emergency, the Project owner shall immediately notify the CPM to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to the CPM for consideration.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-2, Designated Biologist Duties: The Project owner shall ensure that the Designated Biologist performs the activities described below during any site mobilization activities, construction-related ground disturbance, grading, boring or trenching activities. The Designated Biologist may be assisted by the approved Biological Monitor(s) but remains the contact for the Project owner, BLM's Authorized Officer and the CPM. The Designated Biologist Duties shall include the following: 1. Advise the Project owner's Construction and Operation Managers on the implementation of the biological resources conditions of certification; 2. Consult on the preparation of the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) to be submitted by the Project owner; 3. Be available to supervise, conduct and coordinate mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as special-status species or their habitat; 4. Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions; 5. Inspect active construction areas where animals may have become trapped prior to construction commencing each day. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (e.g., parking lots) for animals in harm's way; 6. Notify the Project owner and BLM's Authorized Officer and the CPM of any non-compliance with any biological resources condition of certification; 7. Respond directly to inquiries of BLM's Authorized Officer and the CPM regarding biological resource issues; 8. Maintain written records of the tasks specified above and those included in the BRMIMP. Summaries of these records shall be submitted in the Monthly Compliance Report and the Annual Compliance Report; 9. Train the Biological Monitors as appropriate, and ensure their familiarity with the BRMIMP, Worker Environmental Awareness Program (WEAP) training, and USFWS guidelines on desert tortoise surveys and handling procedures <www.fws.gov/ventura/speciesinfo/protocols_guidelines>; and 10. Maintain the ability to be in regular, direct communication with representatives of CDFG, USFWS, BLM's Authorized Officer and the CPM, including notifying these agencies of dead or injured listed species and reporting special-status species observations to the California Natural Diversity Data Base.	The Designated Biologist shall provide copies of all written reports and summaries that document biological resources compliance activities in the Monthly Compliance Reports submitted to the CPM. If actions may affect biological resources during operation a Designated Biologist shall be available for monitoring and reporting. During Project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report unless his or her duties cease, as approved by the CPM.	CEC
BIO-3, Biological Monitor Selection and Qualification: The Designated Biologist shall submit the resume, at least three references, and contact information of the proposed Biological Monitors to BLM's Authorized Officer and the CPM. The resume shall demonstrate, to the satisfaction of the CPM, the appropriate education and experience to accomplish the assigned biological resource tasks. The Biological Monitor is the equivalent of the USFWS designated Desert Tortoise Monitor (USFWS 2008).	The Project owner shall submit the specified information to the CPM for approval at least 30 days prior to the start of any site mobilization or construction-related ground disturbance, grading, boring, and trenching. The Designated Biologist shall submit a written statement to the CPM	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
Biological Monitor(s) training by the Designated Biologist shall include familiarity with the conditions of certification, BRMIMP, WEAP, and USFWS guidelines on desert tortoise surveys and handling procedures <www.fws.gov/ventura/speciesinfo/protocols_guidelines>.	confirming that individual Biological Monitor(s) has been trained including the date when training was completed. If additional biological monitors are needed during construction the specified information shall be submitted to the CPM for approval at least 10 days prior to their first day of monitoring activities.	
BIO-4, Biological Monitor Duties: The Biological Monitors shall assist the Designated Biologist in conducting surveys and in monitoring of site mobilization activities, construction-related ground disturbance, fencing, grading, boring, trenching, or reporting. The Designated Biologist shall remain the contact for the Project owner and the CPM.	The Designated Biologist shall submit in the Monthly Compliance Report to the CPM copies of all written reports and summaries that document biological resources compliance activities, including those conducted by Biological Monitors. If actions may affect biological resources during operation a Biological Monitor, under the supervision of the Designated Biologist, shall be available for monitoring and reporting.	CEC
BIO-5, Designated Biologist and Biological Monitor Authority: The Project owner's construction/operation manager shall act on the advice of the Designated Biologist and Biological Monitor(s) to ensure conformance with the biological resources conditions of certification. The Designated Biologist shall have the authority to immediately stop any activity that is not in compliance with these conditions and/or order any reasonable measure to avoid take of an individual of a listed species. If required by the Designated Biologist and Biological Monitor(s) the Project owner's construction/operation manager shall halt all site mobilization, ground disturbance, grading, boring, trenching and operation activities in areas specified by the Designated Biologist. The Designated Biologist shall: 1. Require a halt to all activities in any area when determined that there would be an unauthorized adverse impact to biological resources if the activities continued; 2. Inform the Project owner and the construction/operation manager when to resume activities; and 3. Notify BLM's Authorized Officer and the CPM if there is a halt of any activities and advise them of any corrective actions that have been taken or would be instituted as a result of the work stoppage. If the Designated Biologist is unavailable for direct consultation, the Biological Monitor shall act on behalf of the Designated Biologist.	The Project owner shall ensure that the Designated Biologist or Biological Monitor notifies the CPM and BLM immediately (and no later than the morning following the incident, or Monday morning in the case of a weekend) of any non-compliance or a halt of any site mobilization, ground disturbance, grading, construction, or operation activities. If the non-compliance or halt to construction or operation relates to desert tortoise or any other federal- or state- listed species, the Project owner shall also notify Carlsbad Office of the USFWS and the Ontario Office of the CDFG at the same time. The Project owner shall notify the CPM of the circumstances and actions being taken to resolve the problem. Whenever corrective action is taken by the Project owner, a determination of success or failure will be made by the CPM in consultation with BLM, USFWS and CDFG within 5 working days after receipt of notice that corrective action is completed, or the Project owner would be notified by the CPM that coordination with other agencies would require additional time before a determination can be made.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-6, Worker Environmental Awareness Program (WEAP): The Project owner shall develop and implement a Project-specific Worker Environmental Awareness Program (WEAP) and shall secure approval for the WEAP from BLM's Authorized Officer and the CPM. The WEAP shall be administered to all onsite personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, subcontractors, and delivery personnel. The WEAP shall be implemented during site preconstruction, construction, operation, and closure. The WEAP shall: 1. Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting written material and electronic media, including photographs of protected species, is made available to all participants; 2. Discuss the locations and types of sensitive biological resources on the Project site and adjacent areas, and explain the reasons for protecting these resources; provide information to participants that no snakes, reptiles, or other wildlife shall be harmed; 3. Place special emphasis on desert tortoise, including information on physical characteristics, distribution, behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures; 4. Include a discussion of fire prevention measures to be implemented by workers during Project activities; request workers dispose of cigarettes and cigars appropriately and not leave them on the ground or buried; 5. Describe the temporary and permanent habitat protection measures to be implemented at the Project site; 6. Identify whom to contact if there are further comments and questions about the material discussed in the program; and 7. Include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines. The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.	At least 30 days prior to start of construction-related ground disturbance, the Project owner shall provide to the CPM for review and approval and to BLM, USFWS and CDFG a copy of the final WEAP and all supporting written materials and electronic media prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program. The Project owner shall provide in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. At least 10 days prior to construction-related ground disturbance activities the Project owner shall submit two copies of the approved final WEAP. Training acknowledgement forms signed during construction shall be kept on file by the Project owner for at least 6 months after the start of commercial operation. Throughout the life of the Project, the WEAP shall be repeated annually for permanent employees, and shall be routinely administered within 1 week of arrival to any new construction personnel, foremen, contractors, subcontractors, and other personnel potentially working within the Project area. Upon completion of the orientation, employees shall sign a form stating that they attended the program and understand all protection measures. These forms shall be maintained by the Project owner and shall be made available to the CPM, BLM, USFWS and CDFG and upon request. Workers shall receive and be required to visibly display a hardhat sticker or certificate that they have completed the training. During Project operation, signed statements for operational personnel shall be kept on file for 6 months following the termination of an individual's employment.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-7, Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP): The Project owner shall develop a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), and shall submit two copies of the proposed BRMIMP to the BLM-Authorized Officer and the CPM for review and approval. The Project owner shall implement the measures identified in the approved BRMIMP. The BRMIMP shall incorporate avoidance and minimization measures described in final versions of the Desert Tortoise Relocation Translocation Plan, the Raven Management Plan, the Closure, Conceptual Restoration Plan, the Burrowing Owl Mitigation and Monitoring Plan, and the Weed Management Plan. The BRMIMP shall be prepared in consultation with the Designated Biologist and shall include accurate and up-to-date maps depicting the location of sensitive biological resources that require temporary or permanent protection during construction and operation. The BRMIMP shall include complete and detailed descriptions of the following: 1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the Project owner; 2 All biological resources conditions of certification identified as necessary to avoid or mitigate impacts; 3. All biological resource mitigation, monitoring and compliance measures required in federal agency terms and conditions, such as those provided in the USFWS Biological Opinion; 4. All sensitive biological resources to be impacted, avoided, or mitigated by Project construction, operation, and closure; 5. All required mitigation measures for each sensitive biological resource; 6. All measures that shall be taken to avoid or mitigate temporary disturbances from construction activities; 7. Duration for each type of monitoring and a description of monitoring methodologies and frequency; 8. Performance standards to be used to help decide if/when proposed mitigation is or is not successful; 9. All performance standards and remedial measures to be implemented if performance standards are not met; 10. Biological resources-related facility closure measures including a description of funding mechanism(s); 11. A process for proposing plan modifications to BLM's Authorized Officer and the CPM and appropriate agencies for review and approval; and 12. A requirement to submit any sightings of any special-status species that are observed on or in proximity to the Project site, or during Project surveys, to the California Natural Diversity Data Base (CNDDB) per CDFG requirements.	The Project owner shall submit the draft BRMIMP to the CPM and BLM at least 30 days prior to start of any preconstruction site mobilization and construction-related ground disturbance, grading, boring, and trenching. At the same time the Project owner shall provide to CDFG and USFWS a copy of all portions of the draft BRMIMP relating to desert tortoise and any other federal or state-listed species. The Project owner shall provide final BRMIMP to the CPM, BLM, CDFG and USFWS at least 7 days prior to start of any construction-related ground disturbance, grading, boring, and trenching. The BRMIMP shall contain all of the required measures included in all biological conditions of certification. No construction-related ground disturbance, grading, boring, or trenching may occur prior to approval of the final BRMIMP by the CPM and BLM. If any permits have not yet been received when the final BRMIMP is submitted, these permits shall be submitted to the CPM within 5 days of their receipt, and the BRMIMP shall be revised or supplemented to reflect the permit condition(s). The Project owner shall submit to the CPM and BLM the revised or supplemented BRMIMP within 10 days following the Project owner's receipt of any additional permits. Under no circumstances shall ground disturbance proceed without implementation of all permit conditions. To verify that the extent of construction disturbance does not exceed that described in these conditions, the Project owner shall submit aerial photographs, at an approved scale, taken before and after construction to the CPM, BLM, USFWS and CDFG. The first set of aerial photographs shall reflect site conditions prior to any preconstruction site mobilization and construction-related ground disturbance, grading, boring, and trenching, and shall be submitted prior to initiation of such activities. The second set of aerial photographs shall be taken subsequent to completion of construction, and shall be submitted to the CPM, BLM, USFWS and CDFG no later than 90 days after completion of construction. The Project owner shall also provide a final accounting in whole acres of vegetation communities/cover	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
	types present before and after construction. Construction acreages shall be rounded to the nearest acre. Any changes to the approved BRMIMP must be approved by the CPM and BLM in consultation with CDFG and USFWS. Implementation of BRMIMP measures (for example, construction activities that were monitored, species observed) shall be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of Project construction, the Project owner shall provide to the CPM, for review and approval, a written construction termination report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the Project's preconstruction site mobilization and construction-related ground disturbance, grading, boring, and trenching, and which mitigation and monitoring items are still outstanding.	
Bio-8, Impact Avoidance and Minimization Measures: The Project owner shall undertake the following measures to manage the Project site and related facilities during construction, operation and maintenance in a manner to avoid or minimize impacts to biological resources: 1. Limit Disturbance Areas. Minimize soil disturbance by locating staging areas, laydowns, and temporary parking or storage for linears in existing disturbed areas. Equipment maintenance and refueling shall not be conducted within 100 feet of any sensitive resource (for example, waters of the state, desert dry wash woodland, dune habitats and rare plant populations). Limit the width of the work area near sensitive resources. Avoid blading temporary access roads where feasible and instead drive over and crush the vegetation to preserve the seed bank and biotic soil crusts. The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) shall be delineated with stakes and flagging prior to construction activities in consultation with the Designated Biologist. Spoils and topsoil shall be stockpiled in disturbed areas lacking native vegetation and which do not provide habitat for special-status species. Parking areas, staging and disposal site locations shall similarly be located in areas without native vegetation or special-status species habitat. All disturbances, Project vehicles and equipment shall be confined to the flagged areas. 2. Minimize Road Impacts. New and existing roads that are planned for construction, widening, or other improvements shall not extend beyond the flagged impact area as described above. All vehicles passing or turning around would do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads or the construction zone, the route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.	All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Implementation of the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of Project construction, the Project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how measures have been completed. As part of the Annual Compliance Report, each year following construction the Designated Biologist shall provide a report to the CPM that describes compliance with avoidance and minimization measures to be implemented during operation (for example, a summary of the incidence of roadkilled animals during the year, implementation of measures to avoid toxic spills, erosion and sedimentation, efforts to enforce worker guidelines, etc.). No less than 30 days prior to construction-related ground disturbance the Project owner shall provide the CPM, USFWS and CDFG with plans showing the design of a	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
3. Minimize Traffic Impacts. Vehicular traffic during Project construction and operation shall be confined to existing routes of travel to and from the Project site, and cross country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit shall not exceed 25 miles per hour within the Project area, on maintenance roads for linear facilities, or on access roads to the Project site. 4. Monitor During Construction. In areas that have not been fenced with desert tortoise exclusion fencing and cleared, the Designated Biologist shall be present at the construction site during all Project activities that have potential to disturb soil, vegetation, and wildlife. The Designated Biologist or Biological Monitor shall clear ahead of equipment during brushing and grading activities. If desert tortoises are found during construction monitoring, procedures outlined in **BIO-9** shall be implemented. 5. Minimize Impacts of Transmission/Pipeline Alignments, Roads, and Staging Areas. Staging areas for construction on the plant site shall be within the area that has been fenced with desert tortoise exclusion fencing and cleared. For construction activities outside of the plant site (transmission line, pipeline alignments) access roads, pulling sites, and storage and parking areas shall be designed, installed, and maintained with the goal of minimizing impacts to native plant communities and sensitive biological resources. Transmission lines and all electrical components shall be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee's (APLIC's) S*uggested Practices for Avian Protection on Power Lines* (APLIC 2006) and *Mitigating Bird Collisions with Power Lines* (APLIC 1994) to reduce the likelihood of large bird electrocutions and collisions. Where feasible avoid impacts to desert washes and special-status plants by adjusting the locations of poles and laydown areas, and the alignment of the roads and pipelines. Construction drawings and grading plans shall depict the locations of sensitive resources and demonstrate where temporary impacts to sensitive resources can be avoided and where they cannot. 6. Avoid Use of Toxic Substances. Soil bonding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants. 7. Minimize Lighting Impacts. Facility lighting shall be designed, installed, and maintained to prevent side casting of light towards wildlife habitat. 8. Minimize Noise Impacts. A continuous low-pressure technique shall be used for steam blows, to the extent possible, in order to reduce noise levels in sensitive habitat proximate to the Project site. Loud construction activities (e.g., unsilenced high pressure steam blowing, pile driving, or other) shall be avoided from February 15 to April 15, when it would result in noise levels over 65 dBA in nesting habitat (excluding noise from passing vehicles). Loud construction activities may be permitted from February 15 to April 15 only if: a. The Designated Biologist provides documentation (i.e., nesting bird data collected using methods described in **BIO-15** and maps depicting location of the nest survey area in relation to noisy construction) to the CPM indicating that no active nests would be subject to 65 dBA noise, OR b. The Designated Biologist or Biological Monitor monitors active nests within the range of construction-related noise exceeding 65 dBA. The monitoring shall be conducted in accordance with Nesting Bird Monitoring and Management Plan approved by the CPM. The Plan shall include adaptive management measures to prevent disturbance to nesting birds from construction related noise. Triggers for adaptive management shall be evidence of Project-related disturbance to nesting birds such as: agitation behavior (displacement, avoidance, and defense);	culvert under the Project Site Access Road that would provide access for desert tortoise and other wildlife. No less than 30 days after of completion of construction of the Project site access road the Project owner shall provide as-built drawings of the culvert. If loud construction activities are proposed between February 15 to April 15 which would result in noise levels over 65 dBA in nesting habitat, the Project owner shall submit nest survey results (as described in 8a) to the CPM no more than 7 days before initiating such construction. If an active nest is detected within this survey area the Project owner shall submit a Nesting Bird Monitoring and Management Plan to the CPM for review and approval no more than 7 days before initiating noisy construction.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
increased vigilance behavior at nest sites; changes in foraging and feeding behavior, or nest site abandonment. The Nesting Bird Monitoring and Management Plan shall include a description of adaptive management actions, which shall include, but not be limited to, cessation of construction activities that are deemed by the Designated Biologist to be the source of disturbance to the nesting bird.		
9. Avoid Vehicle Impacts to Desert Tortoise. Parking and storage shall occur within the area enclosed by desert tortoise exclusion fencing to the extent feasible. No vehicles or construction equipment parked outside the fenced area shall be moved prior to an inspection of the ground beneath the vehicle for the presence of desert tortoise. If a desert tortoise is observed outside the areas fenced with desert tortoise exclusion fencing it shall be left to move on its own. If it does not move within 15 minutes, a Designated Biologist or Biological Monitor under the Designated Biologist's direct supervision may move it out of harms way as described in the USFWS Desert Tortoise Field Manual (USFWS 2009a)		
10. Install Box Culvert. To provide for connectivity for desert tortoise and other wildlife, the Project owner shall install a box culvert suitable for passage by desert tortoise and other wildlife under the Project Site Access Road. The box culvert shall be a concrete structure no less than 4 feet high and 6 feet wide with 3:1 side slopes and shall maintain a minimum of 18 inches of native material on the floor of the culvert at all times to facilitate tortoise movement.		
11. Avoid Wildlife Pitfalls. To avoid trapping desert tortoise and other wildlife in trenches, pipes or culverts, the following measures shall be implemented:		
a. Backfill Trenches. At the end of each work day, the Designated Biologist shall ensure that all potential wildlife pitfalls (trenches, bores, and other excavations) outside the area fenced with desert tortoise exclusion fencing have been backfilled. If backfilling is not feasible, all trenches, bores, and other excavations shall be sloped at a 3:1 ratio at the ends to provide wildlife escape ramps, or covered completely to prevent wildlife access, or fully enclosed with desert tortoise-exclusion fencing. All trenches, bores, and other excavations outside the areas permanently fenced with desert tortoise exclusion fencing shall be inspected periodically throughout the day, at the end of each workday, and at the beginning of each day by the Designated Biologist or a Biological Monitor. Should a tortoise or other wildlife become trapped, the Designated Biologist or Biological Monitor shall move the tortoise out of harm's way as described in the USFWS Desert Tortoise Field Manual (USFWS 2009a). Any wildlife encountered during the course of construction shall be allowed to leave the construction area unharmed.		
b. Avoid Entrapment of Desert Tortoise. Any construction pipe, culvert, or similar structure with a diameter greater than 3 inches, stored less than 8 inches aboveground and within desert tortoise habitat (i.e., outside the permanently fenced area) for one or more nights, shall be inspected for tortoises before the material is moved, buried or capped. As an alternative, all such structures may be capped before being stored outside the fenced area, or placed on elevated pipe racks. These materials would not need to be inspected or capped if they are stored within the permanently fenced area after the clearance surveys have been completed.		
12. Minimize Standing Water. Water applied to dirt roads and construction areas (trenches or spoil piles) for dust abatement shall use the minimal amount needed to meet safety and air quality standards in an effort to prevent the formation of puddles, which could attract desert tortoises and common ravens to construction sites. A Biological Monitor shall patrol these areas to ensure water does not puddle and shall take appropriate action to reduce water application where necessary.		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
13. Dispose of Road-killed Animals. Road killed animals or other carcasses detected by personnel on roads associated with the Project area will be reported immediately to a Biological Monitor or Designated Biologist (or Project Environmental Compliance Monitor, during Project operations), who will promptly remove the roadkill. For special-status species road-kill, the Biological Monitor or Designated Biologist (or Project Environmental Compliance Monitor, during Project operations) shall contact CDFG and USFWS within 1 working day of detection of the carcass for guidance on disposal or storage of the carcass; all other road kill shall be disposed of promptly. The Biological Monitor shall provide the special-status species record as described in **BIO-11** below.		
14. Minimize Spills of Hazardous Materials. All vehicles and equipment shall be maintained in proper working condition to minimize the potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The Designated Biologist shall be informed of any hazardous spills immediately as directed in the Project Hazardous Materials Plan. Hazardous spills shall be immediately cleaned up and the contaminated soil properly disposed of at a licensed facility. Servicing of construction equipment shall take place only at a designated area. Service/maintenance vehicles shall carry a bucket and pads to absorb leaks or spills.		
15. Worker Guidelines. During construction all trash and food-related waste shall be placed in self-closing containers and removed daily from the site. Workers shall not feed wildlife or bring pets to the Project site. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons. Vehicular traffic shall be confined to existing routes of travel to and from the Project site, and cross country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit when traveling on dirt access routes within desert tortoise habitat shall not exceed 25 miles per hour.		
16. Implement Sediment Control Measures Near Desert Washes. Standard erosion control measures shall be implemented for all phases of construction and operation where sediment run-off from exposed slopes threatens to enter waters of the state. Sediment and other flow-restricting materials shall be moved to a location where they shall not be washed back into the stream. Areas of disturbed soils (access and staging areas) which slope toward drainages shall be stabilized to reduce erosion potential.		
17. Monitor Ground Disturbing Activities Prior to Pre-Construction Site Mobilization. If pre-construction site mobilization requires ground- disturbing activities such as for geotechnical borings or hazardous waste evaluations, a Designated Biologist or Biological Monitor shall be present to monitor any actions that could disturb soil, vegetation, or wildlife.		
18. Control Unauthorized Use of the Project Access Roads. The secondary access road shall be gated at both ends and restricted to emergency response personnel as per proposed **COC WORKER SAFETY-6**. The Project owner shall also monitor and control any unauthorized use of the Project roads with gates, signage, and fencing as necessary to minimize traffic-related roadkills and ORV disturbance off-roads.		
19. Implement Erosion Control Measures. All disturbed soils and roads within the Project site shall be stabilized to reduce erosion potential, both during and following construction. All areas subject to temporary disturbance shall be restored to pre-project grade and stabilized to prevent erosion and promote natural revegetation. Temporarily disturbed areas within the Project area include, but are not limited to: linear facilities, temporary access roads, temporary lay-down and staging areas. If erosion control measures include the use of seed, only locally native plant species from a local seed source shall be used. Local seed includes seeds from plants within the Chuckwalla Valley or Colorado River Hydrologic Units.		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
20. Avoid Spreading Weeds. Prior to the start of construction, flag and avoid dense populations of highly invasive noxious weeds. If these areas cannot be avoided, they shall be pre-treated by the methods described in **BIO-14** (Weed Management Plan). Noxious weeds and other invasive non-native plants in the temporarily disturbed areas shall be managed according to the requirements in BIO-14. 21. Salvage Topsoil. Topsoil from the Project site shall be salvaged, preserved and re-used for restoration of temporarily disturbed areas. Salvaged topsoil shall be collected, stored and applied in a way that maintains the viability of seed and soil crusts. The Project owner shall excavate and collect the upper soil layer (the top 1 to 2 inches that includes the seed bank and biotic soil crust) as well as the lower soil layer up to a depth of 6 to 8 inches. The upper and lower soil layers shall be stockpiled separately in areas that will not be impacted by other grading, flooding, erosion, or pollutants. If the soil is to be stored more than 2 weeks it shall be spread out to a depth of no more than 6 inches to maintain the seed and soil crust viability. The Project owner shall install temporary construction fencing around stockpiled topsoil, and signage that indicates whether the pile is the upper layer seed bank, or the lower layer, and clearly indicates that the piles are for use only in erosion control. After construction, the Project owner shall replace the topsoil in the temporarily disturbed areas in the reverse order of stockpiling, starting with the 6-8 inch layer of subsoil, and then the seed-containing upper layer using a harrow or similar equipment to thinly distribute the layer to depths no greater than 1 to 2 inches. 22. Decommission Temporary Access Roads with Vertical Mulching. Discourage ORV use of temporary construction roads by installing vertical mulching at the head of the road to a distance necessary to obscure the road from view. Boulder barricades and gates shall not be used unless the remainder of the site is fenced to prevent driving around the gate or barricade. Designated ORV routes and roads shall not be closed.		
BIO-9, Desert Tortoise Protection: The Project owner shall undertake appropriate measures to manage the construction site and related facilities in a manner to avoid or minimize impacts to desert tortoise. Methods for clearance surveys, fence specification and installation, tortoise handling, artificial burrow construction, egg handling and other procedures shall be consistent with those described in the USFWS' 2009 Desert Tortoise Field Manual <http://www.fws.gov/ventura/speciesinfo/protocols_guidelines> or more current guidance provided by CDFG and USFWS. The Project owner shall also implement all terms and conditions described in the Biological Opinion prepared by USFWS. These measures include, but are not limited to, the following: 1. Desert Tortoise Fencing along Interstate 10. To avoid increases in vehicular-related mortality from disruption of local movement patterns along the existing ephemeral wash systems, desert tortoise-proof fencing shall be installed along the existing freeway right-of-way fencing, on both sides of I 10, for the entire east-west dimension of the Project configuration. The tortoise fencing shall be designed to direct tortoises to existing undercrossing to provide safe passage under the freeway, and shall be regularly inspected and maintained for the life of the Project. 2. Desert Tortoise Exclusion Fence Installation. To avoid impacts to desert tortoises, permanent desert tortoise exclusion fencing shall be installed along the permanent perimeter security fence and temporarily installed along the utility corridors. The proposed alignments for the permanent perimeter fence and utility rights-of-way fencing shall be flagged and surveyed within 24 hours prior to the initiation of fence construction. Clearance surveys of the perimeter fence and utility rights-of-way alignments shall be conducted by the Designated Biologist(s) using techniques outlined in the	All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Implementation of the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of desert tortoise clearance surveys the Designated Biologist shall submit a report to BLM, the CPM, USFWS, and CDFG describing implementation of each of the mitigation measures listed above. The report shall include the desert tortoise survey results, capture and release locations of any relocated desert tortoises, and any other information needed to demonstrate compliance with the measures described above. Within 6 months of completion of desert tortoise exclusion fence for Phase 1, I-10 desert tortoise exclusion fencing shall be installed. Within 3 months of completion of I-10 desert tortoise exclusion fence construction, the Project	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
USFWS' 2009 Desert Tortoise Field Manual. and may be conducted in any season with USFWS and CDFG approval. Biological Monitors may assist the Designated Biologist under his or her supervision. These fence clearance surveys shall provide 100 percent coverage of all areas to be disturbed and an additional transect along both sides of the fence line. This fence line transect shall cover an area approximately 90 feet wide centered on the fence alignment. Transects shall be no greater than 15 feet apart. All desert tortoise burrows, and burrows constructed by other species that might be used by desert tortoises, shall be examined to assess occupancy of each burrow by desert tortoises and handled in accordance with the USFWS' 2009 Desert Tortoise Field Manual. Any desert tortoise located during fence clearance surveys shall be handled by the Designated Biologist(s) in accordance with the USFWS' 2009 Desert Tortoise Field Manual. a. Timing, Supervision of Fence Installation. The exclusion fencing shall be installed prior to the onset of site clearing and grubbing. The fence installation shall be supervised by the Designated Biologist and monitored by the Biological Monitors to ensure the safety of any tortoise present. b. Fence Material and Installation. The permanent tortoise exclusionary fencing shall be constructed in accordance with the USFWS' 2009 Desert Tortoise Field Manual (Chapter 8 – Desert Tortoise Exclusion Fence). c. Security Gates. Security gates shall be designed with minimal ground clearance to deter ingress by tortoises. The gates may be electronically activated to open and close immediately after the vehicle(s) have entered or exited to prevent the gates from being kept open for long periods of time. Cattle grating designed to safely exclude desert tortoise shall be installed at the gated entries to discourage tortoises from gaining entry d. Fence Inspections. Following installation of the desert tortoise exclusion fencing for both the permanent site fencing and temporary fencing in the utility corridors, the fencing shall be regularly inspected. If tortoise were moved out of harm's way during fence construction, permanent and temporary fencing shall be inspected at least two times a day for the first 7 days to ensure a recently moved tortoise has not been trapped within the fence. Thereafter, permanent fencing shall be inspected monthly and during and within 24 hours following all major rainfall events. A major rainfall event is defined as one for which flow is detectable within the fenced drainage. Any damage to the fencing shall be temporarily repaired immediately to keep tortoises out of the site, and permanently repaired within 48 hours of observing damage. Inspections of permanent site fencing shall occur for the life of the project. Temporary fencing shall be inspected weekly and, where drainages intersect the fencing, during and within 24 hours following major rainfall events. All temporary fencing shall be repaired immediately upon discovery and, if the fence may have permitted tortoise entry while damaged, the Designated Biologist shall inspect the area for tortoise. 3. Desert Tortoise Clearance Surveys within the Plant Site. Clearance surveys shall be conducted in accordance with the USFWS Desert Tortoise Field Manual (USFWS 2009) (Chapter 6 – Clearance Survey Protocol for the Desert Tortoise – Mojave Population) and shall consist of two surveys covering 100 percent the project area by walking transects no more than 15-feet apart. If a desert tortoise is located on the second survey, a third survey shall be conducted. Each separate survey shall be walked in a different direction to allow opposing angles of observation. Clearance surveys of the plant site may only be conducted when tortoises are most active (April through May or September through October) unless the project receives approval from CDFG and USFWS. Clearance surveys of linear features may be conducted during anytime of the year. Any tortoise located during clearance surveys of the power plant site and linear features shall be translocated or relocated and monitored in accordance with the Desert Tortoise Relocation/Translocation Plan:	owner shall provide the CPM, BLM, USFWS, and CDFG with maps as well as photographic documentation showing the design and location of the fencing on both sides of I-10 south of the Project site. The Project Owner shall provide evidence of approval from Caltrans for installation of desert tortoise fencing along I-10 within their right-of-way at least 30-days prior to construction of the fencing.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
a. Burrow Searches. During clearance surveys all desert tortoise burrows, and burrows constructed by other species that might be used by desert tortoises, shall be examined by the Designated Biologist, who may be assisted by the Biological Monitors, to assess occupancy of each burrow by desert tortoises and handled in accordance with the USFWS Desert Tortoise Field Manual (USFWS 2009). To prevent reentry by a tortoise or other wildlife, all burrows shall be collapsed once absence has been determined in accordance with the Desert Tortoise Relocation/Translocation Plan. Tortoises taken from burrows and from elsewhere on the power plant site shall be relocated or translocated as described in the Desert Tortoise Relocation/Translocation Plan. b. Burrow Excavation/Handling. All potential desert tortoise burrows located during clearance surveys would be excavated by hand, tortoises removed, and collapsed or blocked to prevent occupation by desert tortoises in accordance with the Desert Tortoise Relocation/Translocation Plan. All desert tortoise handling, and removal, and burrow excavations, including nests, would be conducted by the Designated Biologist, who may be assisted by a Biological Monitor in accordance with the USFWS Desert Tortoise Field Manual (USFWS 2009). 4. Monitoring Following Clearing. Following the desert tortoise. clearance and removal from the power plant site and utility corridors, workers and heavy equipment shall be allowed to enter the project site to perform clearing, grubbing, leveling, and trenching activities. A Designated Biologist or Biological Monitor shall be onsite for clearing and grading activities to move tortoises missed during the initial tortoise clearance survey. Should a tortoise be discovered, it shall be relocated or translocated as described in the Desert Tortoise Relocation/Translocation Plan 5. Reporting. The Designated Biologist shall record the following information for any desert tortoises handled: a) the locations (narrative and maps) and dates of observation; b) general condition and health, including injuries, state of healing and whether desert tortoise voided their bladders; c) location moved from and location moved to (using GPS technology); d) gender, carapace length, and diagnostic markings (i.e., identification numbers or marked lateral scutes); e) ambient temperature when handled and released; and f) digital photograph of each handled desert. Desert tortoise moved from within project areas shall be marked and monitored in accordance with the Desert Tortoise Relocation/Translocation Plan.		
BIO-10, Desert Tortoise Relocation/Translocation Plan: The Project owner shall develop and implement a final Desert Tortoise Relocation/Translocation Plan (Plan) that is consistent with current USFWS approved guidelines, and meets the approval of the CPM. The Plan shall include guidance specific to each of the two phases of Project construction, as described in **BIO-29** (Phasing), and shall include measures to minimize the potential for repeated translocations of individual desert tortoises. The goals of the Desert Tortoise Relocation/Translocation Plan shall be to: relocate/translocate all desert tortoises from the project site to nearby suitable habitat; minimize impacts on resident desert tortoises outside the project site; minimize stress, disturbance, and injuries to relocated/translocated tortoises; and assess the success of the translocation effort through monitoring. The final Plan shall be based on the draft Desert Tortoise Relocation/Translocation Plan prepared by the Applicant (AECOM 2010a, DR-BIO-55) and shall include all revisions deemed necessary by BLM, USFWS, CDFG and the Energy Commission staff.	At least 30 days prior to site mobilization, the Project owner shall provide the CPM with the final version of a Plan that has been reviewed and approved by the CPM in consultation with BLM, USFWS and CDFG. All modifications to the approved Plan shall be made only after approval by the CPM, in consultation with BLM, USFWS and CDFG. Within 30 days after initiation of relocation and/or translocation activities, the Designated Biologist shall provide to the CPM for review and approval, a written report identifying which items of the Plan have been completed, and a summary of all modifications to measures made during implementation of the Plan.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-11, Desert Tortoise Compliance Verification: The Project owner shall provide Energy Commission, BLM, CDFG and USFWS staff with reasonable access to the Project site and compensation lands under the control of the Project owner and shall otherwise fully cooperate with the Energy Commission's and BLM's efforts to verify the Project owner's compliance with, or the effectiveness of, mitigation measures set forth in the conditions of certification. The Designated Biologist shall do all of the following: 1. Notification. Notify the CPM at least 14 calendar days before initiating construction-related ground disturbance activities; immediately notify the CPM in writing if the Project owner is not in compliance with any conditions of certification, including but not limited to any actual or anticipated failure to implement mitigation measures within the time periods specified in the conditions of certification; 2. Monitoring During Grubbing and Grading. Remain on site daily while vegetation salvage, grubbing, grading and other ground- disturbance construction activities are taking place to avoid or minimize take of listed species, and verify personally or use Biological Monitors to check for compliance with all impact avoidance and minimization measures, including checking all exclusion zones to ensure that signs, stakes, and fencing are intact and that human activities are restricted in these protective zones. 3. Monthly Compliance Inspections. Conduct compliance inspections at a minimum of once per month after clearing, grubbing, and grading are completed and submit a monthly compliance report to the CPM, BLM, USFWS and CDFG during construction 4. Notification of Injured or Dead Listed Species. If an injured or dead listed species is detected within or near the Project Disturbance Area the CPM, BLM, the Ontario Office of CDFG, and the Carlsbad Office of USFWS shall be notified immediately by phone. Notification shall occur no later than noon on the business day following the event if it occurs outside normal business hours so that the agencies can determine if further actions are required to protect listed species. Written follow-up notification via FAX or electronic communication shall be submitted to these agencies within two calendar days of the incident and include the following information as relevant: a. Injured Desert Tortoise. If a desert tortoise is injured as a result of Project-related activities during construction, the Designated Biologist or approved Biological Monitor shall immediately take it to a CDFG-approved wildlife rehabilitation and/or veterinarian clinic. Any veterinarian bills for such injured animals shall be paid by the Project owner. Following phone notification as required above, the CPM, CDFG, and USFWS shall determine the final disposition of the injured animal, if it recovers. Written notification shall include, at a minimum, the date, time, and location, circumstances of the incident, and the name of the facility where the animal was taken. b. Desert Tortoise Fatality. If a desert tortoise is killed by Project- related activities during construction or operation, a written report with the same information as an injury report shall be submitted to the CPM, BLM, the Ontario Office of CDFG, and the Carlsbad Office of USFWS. These desert tortoises shall be salvaged according to guidelines described in *Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoise* (Berry 2001). The Project owner shall pay to have the desert tortoises transported and necropsied. The report shall include the date and time of the finding or incident. 5. Final Listed Species Report. The Designated Biologist shall provide the CPM and BLM a Final Listed Species Mitigation Report that includes, at a minimum: 1) a copy of the table in the BRMIMP with notes showing when each of the	No later than 2 days following the above required notification of a sighting, injury, kill, or relocation of a listed species, the Project owner shall deliver to the CPM, BLM, CDFG, and USFWS via FAX or electronic communication the written report from the Designated Biologist describing all reported incidents of injury, kill, or relocation of a listed species, identifying who was notified, and explaining when the incidents occurred. In the case of a sighting in an active construction area, the Project owner shall, at the same time, submit a map (e.g., using Geographic Information Systems) depicting both the limits of construction and sighting location to the CPM, BLM, CDFG and USFWS. No later than 45 days after initiation of Project operation the Designated Biologist shall provide the CPM and BLM a Final Listed Species Mitigation Report. Beginning with the first month after clearing, grubbing and grading are completed and continuing every month until construction is complete the Project owner shall submit a report describing the results of Monthly Compliance Inspections to the CPM, BLM, USFWS and CDFG.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
mitigation measures was implemented; 2) all available information about Project-related incidental take of listed species; 3) information about other Project impacts on the listed species; 4) construction dates; 5) an assessment of the effectiveness of conditions of certification in minimizing and compensating for Project impacts; 6) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future Projects on the listed species; and 7) any other pertinent information, including the level of take of the listed species associated with the Project. 6. Stop Work Order. The CPM may issue the Project owner a written stop work order to suspend any activity related to the construction or operation of the Project to prevent or remedy a violation of one or more conditions of certification (including but not limited to failure to comply with reporting, monitoring, or habitat acquisition obligations) or to prevent the illegal take of an endangered, threatened, or candidate species. The Project owner shall comply with the stop work order immediately upon receipt thereof.		
BIO-12, Desert Tortoise Compensatory Mitigation: To fully mitigate for habitat loss and potential take of desert tortoise, the Project owner shall provide compensatory mitigation per **BIO-29** – Table 2, adjusted to reflect the final Project footprint. For purposes of this condition, the Project footprint means all lands disturbed in the construction and operation of the Palen Project, including all Project linears, as well as undeveloped areas inside the Project's boundaries that will no longer provide viable long-term habitat for the desert tortoise. To satisfy this condition, the Project owner shall acquire, protect and transfer 5 acres of desert tortoise habitat for every acre of habitat within critical habitat and within the final Project footprint, and 1 acre of desert tortoise habitat for every acre of habitat outside of critical habitat but within the final Project footprint, and provide associated funding for the acquired lands, as specified below. Condition **BIO-28** may provide the Project owner with another option for satisfying some or all of the requirements in this condition. In lieu of acquiring lands itself, the Project owner may satisfy the requirements of this condition by depositing funds into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as provided below in section 3.i. of this condition. The timing of the mitigation shall correspond with the timing of the site disturbance activities as stated in **BIO-29** (phasing). If compensation lands are acquired in fee title or in easement, the requirements for acquisition, initial improvement and long-term management of compensation lands include all of the following: 1. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition in fee title or in easement shall: a. be within the Colorado Desert Recovery Unit, with potential to contribute to desert tortoise habitat connectivity and build linkages between desert tortoise designated critical habitat, known populations of desert tortoise, and/or other preserve lands; b. provide habitat for desert tortoise with capacity to regenerate naturally when disturbances are removed; c. be prioritized near larger blocks of lands that are either already protected or planned for protection, such as DWMAs within the Colorado Desert Recovery Unit (Chuckwalla DWMA as first priority, Chemehuevi DMWA as the second) or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation;	If the mitigation actions required under this condition are not completed prior to the start of ground-disturbing activities, the Project owner shall provide the CPM and CDFG with an approved form of Security in accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. Actual Security shall be provided no later than 7 days prior to the beginning of Project ground-disturbing activities. If Security is provided, the Project owner, or an approved third party, shall complete and provide written verification to the CPM, CDFG, BLM and USFWS of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities. The Project owner may elect to fund the acquisition and initial improvement of compensation lands through NFWF or other approved third party by depositing funds for that purpose into NFWF's REAT Account. Initial deposits for this purpose must be made in the same amounts as the Security required in section 3.h. of this condition. Payment of the initial funds for acquisition and initial improvement must be made at least 30 days prior to the start of ground-disturbing activities. No fewer than 90 days prior to acquisition of the property, the Project owner shall submit a formal acquisition proposal to the CPM, CDFG, USFWS, and BLM describing the parcels intended for purchase and shall obtain approval from the CPM and CDFG prior to the acquisition.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
d. be connected to lands with desert tortoise habitat equal to or better quality than the Project Site, ideally with populations that are stable, recovering, or likely to recover; e. not have a history of intensive recreational use or other disturbance that does not have the capacity to regenerate naturally when disturbances are removed or might make habitat recovery and restoration infeasible; f. not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration; g. not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and h. have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with CDFG, BLM and USFWS, agrees in writing to the acceptability of the land. 2. Review and Approval of Compensation Lands Prior to Acquisition. The Project owner shall submit a formal acquisition proposal to the CPM, CDFG, USFWS, and BLM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for desert tortoise in relation to the criteria listed above. Approval from the CPM and CDFG, in consultation with BLM and the USFWS, shall be required for acquisition of all compensatory mitigation parcels. 3. Compensation Lands Acquisition Requirements. The Project owner shall comply with the following requirements relating to acquisition of the compensation lands after the CPM and CDFG, in consultation with BLM and the USFWS, have approved the proposed compensation lands: a. Preliminary Report. The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM and CDFG. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM and CDFG, in consultation with BLM and the USFWS. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board. b. Title/Conveyance. The Project owner shall transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM and CDFG. Transfer of either fee title or an approved conservation easement will usually be sufficient, but some situations, e.g., the donation of lands burdened by a conservation easement to BLM, will require that both types of transfers be completed. Any transfer of a conservation easement or fee title must be to CDFG, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to BLM under terms approved by the CPM and CDFG. If an approved non-profit organization holds title to the compensation lands, a conservation easement shall be recorded in favor of CDFG in a form approved by CDFG. If an approved non-profit holds a conservation easement, CDFG shall be named a third party beneficiary. c. Initial Habitat Improvement Fund. The Project owner shall fund the initial protection and habitat improvement of the compensation lands. Alternatively, a non-profit organization may hold the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code section 65965) and if it meets the	No fewer than 30 days after acquisition of the property the Project owner shall deposit the funds required by Section 3e above (long term management and maintenance fee) and provide proof of the deposit to the CPM. The Project owner, or an approved third party, shall provide the CPM, CDFG, BLM, and USFWS with a management plan for the compensation lands within180 days of the land or easement purchase, as determined by the date on the title. The CPM shall review and approve the management plan for the compensatory mitigation lands, in consultation with CDFG, BLM and the USFWS. Within 90 days after completion of all project related ground disturbance, the Project owner shall provide to the CPM, CDFG, BLM and USFWS an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction. This shall be the basis for the final number of acres required to be acquired.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
approval of CDFG and the CPM. If CDFG takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFG or its designee. d. Property Analysis Record. Upon identification of the compensation lands, the Project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate long-term maintenance and management fee to fund the in-perpetuity management of the acquired mitigation lands. e. Long-term Maintenance and Management Fund. In accordance with BIO-29 (phasing), the Project owner shall deposit in NFWF's REAT Account a capital long-term maintenance and management fee in the amount determined through the Property Analysis Record (PAR) or PAR-like analysis conducted for the compensation lands. The CPM, in consultation with CDFG, may designate another non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity. If CDFG takes fee title to the compensation lands, CDFG shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity to manage the long-term maintenance and management fee for CDFG and with CDFG supervision. f. Interest, Principal, and Pooling of Funds. The Project owner, the CPM and CDFG shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions: i. Interest. Interest generated from the initial capital long-term maintenance and management fee shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by CDFG designed to protect or improve the habitat values of the compensation lands. ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CDFG or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If CDFG takes fee title to the compensation lands, monies received by CDFG pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFG designates NFWF or another entity to manage the long-term maintenance and management fee for CDFG. iii. Pooling Long-Term Maintenance and Management Fee Funds. CDFG, or a CPM-and CDFG-approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the endowment with other endowments for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the CDFG and CPM. g. Other expenses. In addition to the costs listed above, the Project owner shall be responsible for all other costs related to acquisition of compensation lands and conservation easements, including but not limited to title and document review costs, expenses incurred from other state agency reviews, and overhead related to providing		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
compensation lands to CDFG or an approved third party; escrow fees or costs; environmental contaminants clearance; and other site cleanup measures. h. Mitigation Security. The Project owner shall provide financial assurances in accordance with **BIO-29** (phasing) to the CPM and CDFG with copies of the document(s) to BLM and the USFWS, to guarantee that an adequate level of funding is available to implement the mitigation measures described in this condition. These funds shall be used solely for implementation of the measures associated with the Project in the event the Project owner fails to comply with the requirements specified in this condition, or shall be returned to the Project owner upon successful compliance with the requirements in this condition. The CPM's or CDFG's use of the security to implement measures in this condition may not fully satisfy the Project owner's obligations under this condition. Financial assurance can be provided to the CPM and CDFG in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security"). Prior to submitting the Security to the CPM, the Project owner shall obtain the CPM's approval in consultation with CDFG. BLM and the USFWS, of the form of the Security. Security shall be provided as described in **BIO-29 – Table 3** and the beginning of the conditions of certification subsection. The actual costs to comply with this condition will vary depending on the final footprint of the Project and its two phases, and the actual costs of acquiring, improving and managing the compensation lands. i. NFWF REAT Account. The Project owner may elect to fund the acquisition and initial improvement of compensation lands through NFWF by depositing funds for that purpose into NFWF's REAT Account. Initial deposits for this purpose must be made in the same amounts as the security required in section 3.h., above, and may be provided in lieu of security. If this option is used for the acquisition and initial improvement, the Project owner shall make an additional deposit into the REAT Account if necessary to cover the actual acquisition costs and administrative costs and fees of the compensation land purchase once land is identified and the actual costs are known. If the actual costs for acquisition and administrative costs and fees are less than described in **Biological Resources Table 6b**, the excess money deposited in the REAT Account shall be returned to the Project owner. Money deposited for the initial protection and improvement of the compensation lands shall not be returned to the Project owner. The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the Energy Commission and CDFG. Such delegation shall be subject to approval by the CPM and CDFG, in consultation with BLM and USFWS, prior to land acquisition, initial protection or maintenance and management activities. Agreements to delegate land acquisition to an approved third party, or to manage compensation lands, shall be implemented with 18 months of the Energy Commission's approval.		
BIO-13, Raven Management Plan and Fee: The Project owner shall implement a Raven Monitoring, Management, and Control Plan (Raven Plan) that is consistent with the most current USFWS-approved raven management guidelines, and which meets the approval of the CMP, in consultation with USFWS and CDFG. The draft Common Raven Monitoring, Management, and Control Plan submitted by the Applicant (AECOM 2010a, Attachment DR-BIO-57) shall provide the basis for the final Raven Plan, subject to review, revisions and approval from the CPM, CDFG and USFWS. The Raven Plan shall include but not be limited to a program to monitor raven presence in the Project vicinity, determine if raven numbers are increasing, and to implement raven control measures as needed based on that monitoring. The purpose of	No less than 10 days prior to the start of any Project-related ground disturbance activities, the Project owner shall provide the CPM, USFWS, and CDFG with the final version of a Raven Plan. All modifications to the approved Raven Plan shall be made only with approval of the CPM in consultation with USFWS and CDFG.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
the plan is to avoid any Project- related increases in raven numbers during construction, operation, and decommissioning. In addition, the Project owner shall also provide funding for implementation of the USFWS Regional Raven Management Program, as described below. 1. The Raven Plan shall: a. Identify conditions associated with the Project that might provide raven subsidies or attractants; b. Describe management practices to avoid or minimize conditions that might increase raven numbers and predatory activities; c. Describe control practices for ravens; d. Establish thresholds that would trigger implementation of control practices; e. Address monitoring and nest removal during construction and for the life of the Project, and; f. Discuss reporting requirements. 2. USFWS Regional Raven Management Program. The Project owner shall submit payment to the project sub-account of the REAT Account held by the National Fish and Wildlife Foundation (NFWF) to support the USFWS Regional Raven Management Program. The one-time fee shall be as described by the USFWS in the *Renewable Energy Development and Common Raven Predation on the Desert Tortoise – Summary, dated May 2010* (USFWS 2010a) and the Cost Allocation Methodology for Implementation of the Regional Raven Management Plan, dated July 9, 2010) or more current guidance as provided by USFWS or CDFG (USFWS 2010b).	No less than 10 days prior to the start of any Project-related ground disturbance activities for each phase of Project construction as described in **BIO-29**, the Project owner shall provide documentation to the CPM, CDFG and USFWS that the one-time fee for the USFWS Regional Raven Management Program of has been deposited to the REAT-NFWS subaccount for the Project. Payment of the fees may be phased as described in **BIO-29 – Table 3**. Within 30 days after completion of Project construction, the Project owner shall provide to the CPM for review and approval, a written report identifying which items of the Raven Plan have been completed, a summary of all modifications to mitigation measures made during the Project's construction phase, and which items are still outstanding. As part of the annual compliance report, each year following construction the Designated Biologist shall provide a report to the CPM that includes: a summary of the results of raven management and control activities for the year; a discussion of whether raven control and management goals for the year were met; and recommendations for raven management activities for the upcoming year.	
BIO-14, Weed Management Plan: The Project owner shall implement a Weed Management Plan (Plan) that meets the approval of the CPM. The objective of the Plan shall be to prevent the introduction of any new weeds and the spread of existing weeds as a result of Project construction, operation, and decommissioning. The Draft Weed Management Plan, submitted by the Applicant (AECOM 2010a, Attachment DR-BIO-100), shall provide the basis for the final Plan, subject to review and revisions from the CPM. The Plan shall include the following: 1. **Weed Plan Requirements**. The Project owner shall provide a map to the CPM indicating the location of the Weed Management Area, which shall include all areas within 100 feet of the Project Disturbance Area, access roads, staging and laydown sites, and all other areas subject to temporary disturbance. The Project owner shall provide a Plan for the Weed Management Area includes at a minimum the following information: specific weed management objectives and measures for each target non-native weed species; baseline conditions; a map of the Weed Management Areas; map of existing populations of target weeds within 100 feet of the Project Disturbance Area and access roads; weed risk assessment; measures to prevent the introduction and spread of weeds; measures to minimize the risk of unintended harm to wildlife and other plants from weed control activities; monitoring and surveying methods; and reporting requirements. Weed control described in the Plan shall focus on prevention, early detection of new infestations, and early eradication for the life of the Project. Weed control along the Project linears shall be limited to the areas where soils were disturbed during construction. Weed monitoring shall occur a minimum of once per year during the early spring months (March-April) to detect seedlings before they set seed. The focus of the Plan shall be on avoiding the	No less than 10 days prior to start of any Project-related ground disturbance activities, the Project owner shall provide the CPM with the final version of a Weed Management Plan that has been reviewed by BLM and Energy Commission staff. Modifications to the approved Weed Control Plan shall be made only with approval from the CPM in consultation with BLM. Within 30 days after completion of Project construction, the Project owner shall provide to the CPM for review and approval, a written report identifying which items of the Weed Management Plan have been completed, a summary of all modifications to mitigation measures made during the Project's construction phase, and which items are still outstanding. As part of the Annual Compliance Report, each year following construction the Designated Biologist shall provide	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
introduction of new invasive weeds or the spread of highly invasive species, such as Sahara mustard. Non-native species with low ecological risk, or that are very widespread, such as Mediterranean grass, shall be noted but control shall not be required. When detected, infestations of high priority species shall be eradicated immediately. 2. **Avoidance and Treatment of Dense Weed Populations**. The Plan shall include a requirement to flag and avoid dense populations of the most invasive non-native weeds during any Project-related construction operation in or adjacent to infestations. If these areas cannot be avoided, they shall be pre-treated by one of the following methods: a) treating the infested areas in the season prior to construction by removing and properly disposing of seed heads by hand, prior to maturity, or spraying the new crop of plants that emerge in early spring, the season prior to construction, to reduce the viable seed contained in the soil, or b) removing and disposing the upper 2 inches of soil and disposing it offsite at a sanitary landfill or other site approved by the County Agricultural Commissioner, or burying the infested soil, e.g., under the solar facility or in a pit, and covering the infested soil with at least three feet of uncontaminated soil. 3. **Cleaning Vehicles and Equipment**. The Plan shall include specifications and requirements for the cleaning and removal of weed seed and weed plant parts from vehicles and equipment involved in Project-related construction and operation. Vehicles and equipment working in weed-infested areas (including previous job sites) shall be required to clean the equipment tires, tracks, and undercarriage *before* entering the Project area and before moving to infested areas of the Project Disturbance Area to uninfested areas. Cleaning shall be conducted on all track and bucket/blade components to adequately remove all visible dirt and plant debris. Cleaning using hand tools, such as brushes, brooms, rakes, or shovels, is preferred. If water must be used, the water/slurry shall be contained to prevent seeds and plant parts from washing into adjacent habitat. 4. **Safe Use of Herbicides**. The final Plan shall include detailed specifications for avoiding herbicide and soil stabilizer drift, and shall include a list of herbicides and soil stabilizers that will be used on the Project with manufacturer's guidance on appropriate use. The Plan shall indicate where the herbicides will be used, and what techniques will be used to avoid chemical drift or residual toxicity to special-status species and their pollinators, and consistent with the Nature Conservancy guidelines and the criteria under #2, below. Only weed control measures for target weeds with a demonstrated record of success shall be used, based on the best available information from sources such as The Nature Conservancy's The Global Invasive Species Team, California Invasive Plant Council: http://www.cal-ipc.org/ip/management/plant_profiles/index.php, and the California Department of Food & Agriculture Encycloweedia: http://www.cdfa.ca.gov/phpps/ipc/encycloweedia/encycloweedia_h p.htm. 5. The methods for weed control described in the final Plan shall meet the following criteria: a. Manual: Well-timed removal of plants or seed heads with hand tools; seed heads and plants must be disposed of in accordance with guidelines from the Riverside County Agricultural Commissioner. b. Chemical: Herbicides known to have residual toxicity, such as pre-emergents and pellets, shall not be used in natural areas or within the engineered channels. Only the following application methods may be used: wick (wiping onto leaves); inner bark injection; cut stump; frill or hack and squirt (into cuts in the trunk); basal bark girdling; foliar spot spraying with backpack sprayers or pump sprayers at low pressure or with a shield attachment to control drift, and only on windless days, or with a squeeze bottle for small infestations (see Nature Conservancy guidelines described above);	a report to the CPM and BLM that includes: a summary of the results of noxious weeds surveys and management activities for the year; a discussion of whether weed management goals for the year were met; and recommendations for weed management activities for the upcoming year.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
c. Biological: Biological methods may be used subject to review and approval by CDFG and USFWS and only if approved for such use by CDFA, and are either locally native species or have no demonstrated threat of naturalizing or hybridizing with native species; d. Mechanical: Disking, tilling, and mechanical mowers or other heavy equipment shall not be employed in natural areas but hand weed trimmers (electric or gas-powered) may be used. Mechanical trimmers shall not be used during periods of high fire risk and shall only be used with implementation of fire prevention measures.		
BIO-15, Pre-Construction Nest Surveys and Avoidance Measures: Pre-construction nest surveys shall be conducted if construction activities would occur from February 1 through July 31. The Designated Biologist or Biological Monitor conducting the surveys shall be experienced bird surveyors familiar with standard nest-locating techniques such as those described in Martin and Guepel (1993). The goal of the nesting surveys shall be to identify the general location of the nest sites, sufficient to establish a protective buffer zone around the potential nest site, and need not include identification of the precise nest locations. Surveyors performing nest surveys shall not concurrently be conducting desert tortoise surveys. The bird surveyors shall perform surveys in accordance with the following guidelines: 1. Surveys shall cover all potential nesting habitat in areas that could be disturbed by each phase of construction, as described in **BIO-29** (Phasing). Surveys shall also include areas within 500 feet of the boundaries of the active construction areas (including linear facilities); 2. At least two pre-construction surveys shall be conducted, separated by a minimum 10-day interval. One of the surveys shall be conducted within the 14-day period preceding initiation of construction activity. Additional follow-up surveys may be required if periods of construction inactivity exceed three weeks, an interval during which birds may establish a nesting territory and initiate egg laying and incubation; 3. If active nests or suspected active nests are detected during the survey, a buffer zone (protected area surrounding the nest, the size of which is to be determined by the Designated Biologist in consultation with CDFG) and monitoring plan shall be developed. Nest locations shall be mapped and submitted, along with a report stating the survey results, to the CPM; and 4. The Designated Biologist or Biological Monitor shall monitor the nest until he or she determines that nestlings have fledged and dispersed; activities that might, in the opinion of the Designated Biologist, disturb nesting activities, shall be prohibited within the buffer zone until such a determination is made.	At least 10 days prior to the start of any Project-related ground disturbance activities during the nesting season, the Project owner shall provide the CPM a letter-report describing the findings of the pre-construction nest surveys, including the time, date, and duration of the survey; identity and qualifications of the surveyor (s); and a list of species observed. If active or suspected active nests are detected during the survey, the report shall include a map or aerial photo identifying the location or suspected location of the nest and shall depict the boundaries of the no-disturbance buffer zone around the nest(s) that would be avoided during Project construction. Each year during construction as part of the annual compliance report a follow-up report shall be provided to the CPM, BLM, CDFG, and USFWS describing the success of the buffer zones in preventing disturbance to nesting activity and a brief description of the outcome of the nesting effort (for example, whether young were successfully fledged from the nest or if the nest failed).	CEC
BIO-16, Avian Protection Plan: The Project owner shall prepare and implement an Avian Protection Plan to monitor the death and injury of birds from collisions with facility features such as transmission lines, reflective mirror-like surfaces and from heat, and bright light from concentrating sunlight. The monitoring data shall be used to inform an adaptive management program that would avoid and minimize Project-related avian impacts. The study design shall be approved by the CPM in consultation with BLM, CDFG and USFWS, and shall be consistent with guidance from the USFWS on development of avian and bat protection plans (USFWS 2010c). The monitoring and adaptive management measures described in the Avian Protection Plan shall be incorporated into the Project's BRMIMP and implemented. The Avian	At least 30 days prior to the start of commercial operation of any of the power plant units the Project owner shall submit to the CPM, USFWS, and CDFG a final Avian Protection Plan. Modifications to the Avian Protection Plan shall be made only after approval from the CPM. For one year following the beginning of power plant operation the Designated Biologist shall submit quarterly	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
Protection Plan shall include detailed specifications on data and carcass collection protocol and a rationale justifying the proposed schedule of carcass searches. The plan shall also include seasonal trials to assess bias from carcass removal by scavengers as well as searcher bias.	reports to the CPM, BLM, CDFG, and USFWS describing the dates, durations, and results of monitoring. The quarterly reports shall provide a detailed description of any Project-related bird deaths or injuries detected during the monitoring study or at any other time, and describe adaptive management measures implemented to avoid or minimize deaths or injuries. Following the completion of the fourth quarter of monitoring the Designated Biologist shall prepare an Annual Report that summarizes the year's data, analyzes any Project-related bird fatalities or injuries detected, and provides recommendations for future monitoring and any adaptive management actions needed. The Annual Report shall be provided to the CPM, BLM, CDFG, and USFWS. Quarterly reporting shall continue until the CPM, in consultation with CDFG and USFWS determine whether more years of monitoring are needed, and whether mitigation and adaptive management measures are necessary.	
BIO-17, American Badger and Desert Kit Fox Impact Avoidance and Minimization Measures: To avoid direct impacts to American badgers and desert kit fox, pre- construction surveys shall be conducted for these species concurrent with the desert tortoise surveys to facilitate passive relocation. Surveys shall be conducted as described below: 1. Biological Monitors shall perform pre-construction surveys for badger and kit fox dens in the Project disturbance area and a 20- foot buffer beyond the Project disturbance area, including utility corridors and access roads. If dens are detected each den shall be classified as inactive, potentially active, or definitely active. Surveys may be concurrent with desert tortoise surveys. 2. Inactive dens that would be directly impacted by construction activities shall be excavated by hand and backfilled to prevent reuse by badgers or kit fox. 3. Potentially and definitely active dens that would be directly impacted by construction activities shall be monitored by the Biological Monitor for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance. 4. If not racks are observed in the tracking medium or no photos of the target species are captured after three nights, the den shall be excavated and backfilled by hand. 5. If tracks are observed, the den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage the badger or kit fox from continued use. After verification that the den is unoccupied it shall then be excavated and backfilled by hand to ensure that no badgers or kit fox are trapped in the den. BLM approval may be required prior to release of badgers on public lands.	The Project owner shall submit a report to the CPM, BLM and CDFG within 30 days of completion of badger and kit fox surveys. The report shall describe survey methods, results, impact avoidance and minimization measures implemented, and the results of those measures.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-18, Burrowing Owl Impact Avoidance, Minimization, and Compensation Measures: The Project owner shall implement the following measures to avoid, minimize and offset impacts to burrowing owls: 1. Pre-Construction Surveys. The Designated Biologist or Biological Monitor shall conduct pre-construction surveys for burrowing owls no more than 30 days prior to initiation of construction activities. Surveys shall be focused exclusively on detecting burrowing owls, and shall be conducted from two hours before sunset to 1 hour after or from 1 hour before to 2 hours after sunrise. The survey area shall include the Project Disturbance Area and surrounding 500 foot survey buffer for each phase of construction in accordance with **BIO-29** (phasing). 2. Implement Burrowing Owl Mitigation Plan. The Project owner shall implement measures described in the final Burrowing Owl Mitigation Plan. The final Burrowing Owl Mitigation Plan shall be approved by the CPM, in consultation with BLM, USFWS and CDFG, and shall: a. identify suitable sites within 1 mile of the Project Disturbance Areas for creation or enhancement of burrows prior to passive relocation efforts; b. provide guidelines for creation or enhancement of at least two natural or artificial burrows per relocated owl; c. provide detailed methods and guidance for passive relocation of burrowing owls occurring within the Project Disturbance Area; and d. describe monitoring and management of the passive relocation effort, including the created or enhanced burrow location and the project area where burrowing owls were relocated from, and provide a reporting plan. 3. Implement Avoidance Measures. If an active burrowing owl burrow is detected within 500 feet from the Project Disturbance Area the following avoidance and minimization measures shall be implemented: a. Establish Non-Disturbance Buffer. Fencing shall be installed at a 250-foot radius from the occupied burrow to create a non- disturbance buffer around the burrow. The non-disturbance buffer and fence line may be reduced to 160 feet if all Project- related activities that might disturb burrowing owls would be conducted during the non-breeding season (September 1 through January 31). Signs shall be posted in English and Spanish at the fence line indicating no entry or disturbance is permitted within the fenced buffer. b. Monitoring: If construction activities would occur within 500 feet of the occupied burrow during the nesting season (February 1 – August 31) the Designated Biologist or Biological Monitor shall monitor to determine if these activities have potential to adversely affect nesting efforts, and shall make recommendations to minimize or avoid such disturbance. 4. Acquire Burrowing Owl Habitat. The Project owner shall acquire, in fee or in easement land suitable to support a resident population of burrowing owls and shall provide funding for the enhancement and long-term management of these compensation lands. The responsibilities for acquisition and management of the compensation lands may be delegated by written agreement to CDFG or to a third party, such as a non-governmental organization dedicated to habitat conservation, subject to approval by the CPM, in consultation with CDFG and USFWS prior to land acquisition or management activities. Additional funds shall be based on the adjusted market value of compensation lands at the time of construction to acquire and manage habitat.	If pre-construction surveys detect burrowing owls within the Project Disturbance Area and relocation of the owls is required, within 30 days of completion of the burrowing owl pre-construction surveys the Project owner shall submit to the CPM, BLM, CDFG, and USFWS a Burrowing Owl Mitigation Plan. The Burrowing Owl Mitigation Plan shall identify suitable areas for construction of burrows and the other passive relocation as described above. As part of the Annual Compliance Report each year following construction for a period of five years, the Designated Biologist shall provide a report to the CPM, BLM, USFWS and CDFG that describes the results of monitoring and management of the burrowing owl burrow creation or enhancement area(s). If pre-construction surveys detect burrowing owls within 500 feet of proposed construction activities, at least 10 days prior to the start of any Project-related site disturbance activities the Designated Biologist shall provide to the CPM, BLM, CDFG, and USFWS documentation indicating that non-disturbance buffer fencing has been installed as described above. The Project owner shall report monthly to the CPM, BLM, CDFG and USFWS for the duration of construction on the implementation of burrowing owl avoidance and minimization measures. Within 30 days after completion of construction the Project owner shall provide to the CPM and CDFG a written report identifying how mitigation measures described in the plan have been completed. No less than 30 days prior to the start of Project ground-disturbing activities the Project owner shall provide the CPM with an approved form of Security in accordance with this condition of certification. Actual Security for acquisition of 78 acres of burrowing owl habitat shall be provided no later than 7 days prior to the beginning of Project ground-disturbing activities. No fewer than 90 days prior to the land or easement purchase, as determined by the date on the title, the Project owner shall provide the CPM with a management plan for	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
a. Criteria for Burrowing Owl Mitigation Lands. The terms and conditions of this acquisition or easement shall be as described in **BIO-12** [Desert Tortoise Compensatory Mitigation], with the additional criteria to include: 1) mitigation land per **BIO-29 - Table 2** that must provide suitable habitat for burrowing owls, and 2) the acquisition lands must either currently support burrowing owls or be no farther than 5 miles from an active burrowing owl nesting territory. The burrowing owl mitigation lands may be included with the desert tortoise mitigation lands ONLY if these two burrowing owl criteria are met. If the burrowing owl mitigation land is separate from the acreage required for desert tortoise compensation lands, the Project owner shall fulfill the requirements described below in this condition. b. Security. If the burrowing owl mitigation land is separate from the acreage required for desert tortoise compensation lands the Project owner or an approved third party shall complete acquisition of the proposed compensation lands within the time period specified for this acquisition (see the verification section at the end of this condition). Alternatively, financial assurance can be provided by the Project owner to the CPM and CDFG, according to the measures outlined in **BIO-12**. The amount of the Security shall be as described in **BIO-29 – Table 3** for the proposed Project or any of the Project alternatives. These funds shall be used solely for implementation of the measures associated with the Project. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") prior to initiating ground-disturbing Project activities. Prior to submittal to the CPM, the Security shall be approved by the CPM, in consultation with CDFG and the USFWS to ensure funding. The final amount due will be determined by an updated appraisal and PAR analysis conducted as described in **BIO-12**.	review and approval, in consultation with CDFG, BLM, and USFWS, for the compensation lands and associated funds. No later than 18 months from initiation of construction, the Project owner shall provide written verification to the CPM that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient.	
BIO-19, Special-Status Plant Impact Avoidance, Minimization and Compensation: This condition contains the following four sections: **Section A: Special-Status Plant Impact Avoidance and Minimization Measures** contains the Best Management Practices and other measures designed to avoid accidental indirect impacts to plants during construction, operation, and closure. The measures are required for special-status plants located outside of the Project Disturbance Area and within 100 feet of the Project Disturbance Area. The same measures shall also be implemented for plants within the Project Disturbance Area that are avoided pursuant to Section C of this condition. **Section B: Conduct Late Season Botanical Surveys** describes guidelines for conducting summer-fall 2010 surveys to detect special-status plants that would have been missed during the spring 2010 surveys. **Section C: Avoidance Requirements for Special-Status Plants** Detected **in the Summer/Fall 2010 Surveys** outlines the level of on-site avoidance required for any special-status plants detected during the summer-fall surveys, and specifies when off-site mitigation is required. **Section D: Off-Site Compensatory Mitigation for Special-Status Plants** describes performance standards for off-site mitigation through acquisition or restoration/enhancement. "Project Disturbance Area" encompasses all areas to be temporarily and permanently disturbed by the Project, including the plant site, linear facilities, and areas disturbed by temporary access roads, fence installation, construction work lay-down and staging areas, parking, storage, or by any other activities resulting in disturbance to soil or vegetation. The term "Permanent Project Disturbance Area" refers only to the solar facility; "linears" includes transmission lines, laydown areas, pipelines, and access roads.	The Special-Status Plant Impact Avoidance and Minimization Measures shall be incorporated into the BRMIMP as required under Condition of Certification **BIO-7.** The Project owner shall notify the CPM and the BLM State Botanist no less than 14 days prior to the start of late-season surveys and provide a target list of late season special-status plants that will be considered. Concurrently, the Project owner shall coordinate with BLM to obtain a permit for seed collection. Seed collection is required for all special-status plants located within the Project Disturbance Area and shall be conducted according to the specifications in Section D.III.1 of this condition and with all terms and conditions of the BLM permit. Raw GPS data, metadata, and CNDDB field forms shall be submitted to the CPM within two weeks of the completion of each survey. A preliminary summary of results for the late summer/fall botanical surveys, prepared according to guidelines in Section B of this condition, shall also be submitted to the CPM and BLM's State Botanist within two weeks following the completion of the surveys. If surveys	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
The Project owner shall implement the following measures in Section A, B, C, and D to avoid, minimize, and compensate for direct, indirect, and cumulative impacts to special-status plant species: ***Section A: Special-Status Plant Impact Avoidance and Minimization Measures*** To protect all special-status plants56located outside of the Project Disturbance Area and within 100 feet of the permitted Project Disturbance Area from accidental and indirect impacts during construction, operation, and closure, the Project owner shall implement the following measures: 1. Designated Botanist. An experienced botanist who meets the qualifications described in Section **B-2** below shall oversee compliance with all special-status plant avoidance, minimization, and compensation measures described in this condition throughout construction and closure. The Designated Botanist shall oversee and train all other Biological Monitors tasked with conducting botanical survey and monitoring work. During operation of the Project, the Designated Biologist shall be responsible for protecting special-status plant occurrences within 100 feet of the Project boundaries. 2. Special-Status Plant Impact Avoidance and Minimization Measures. The Project owner shall incorporate all measures for protecting special-status plants in close proximity to the site into the BRMIMP (**BIO-7**). These measures shall include the following elements: a. Site Design Modifications: i) Incorporate s modifications to site design or construction techniques to minimize direct and indirect impacts to special-status plants along the Project linears to include: limiting the width of the work area; adjusting the location of staging areas, lay downs, spur roads and poles or towers; driving and crushing vegetation as an alternative to blading temporary roads to preserve the seed bank, and minor adjustments to the alignment of the roads and pipelines within the constraints of the ROW; ii)modify diffusers on engineered channel to ensure discharge into existing small channels that were deprived of flows from diversion into engineered channel to minimize impacts downstream and maintain the natural surface drainage patterns and sediment transport critical to wash-dependent special-status plants; iii) These modifications shall be clearly depicted on the grading and construction plans, and on report-sized maps in the BRMIMP. b. Establish Environmentally Sensitive Areas (ESAs). Prior to the start of any ground- or vegetation-disturbing activities, the Designated Botanist shall establish ESAs to protect avoided7 special-status plants located outside of the Project Disturbance Areas and within 100 feet of the boundary of construction. This includes plant occurrences identified during the spring 2009- 2010 surveys and the late season 2010 surveys. The locations of ESAs shall be clearly depicted on construction drawings, which shall also include all avoidance and minimization measures on the margins of the construction plans. The boundaries of the ESAs shall be placed a minimum of 20 feet from the uphill side of the occurrence and 10 feet from the downhill side. Where this is not possible due to construction constraints, other protection measures such as silt-fencing and sediment controls may be employed to protect the occurrences. Equipment and vehicle maintenance areas, and wash areas, shall be located 100 feet from the uphill side of any ESAs. ESAs shall be clearly delineated in the field with temporary construction fencing and signs prohibiting movement of the fencing or sediment controls under penalty of work stoppages and additional compensatory mitigation. ESAs shall also be clearly identified (with signage or by mapping on site plans) to ensure that avoided plants are not inadvertently harmed during construction, operation, or closure. c. Special-Status Plant Worker Environmental Awareness Program (WEAP). The WEAP (BIO-6) shall include training components specific to protection of special-status plants as outlined in this condition.	are split into more than one period, then a summary letter shall be submitted following each survey period. The Final Summer-Fall Botanical Survey Report, GIS shape files and metadata shall be submitted to the BLM State Botanist and the CPM no less than 30 days prior to the start of ground-disturbing activities. The Final Report shall include a detailed accounting of the acreage of Project impacts to special-status plant occurrences. For any special-status plant species located within the Project Disturbance Area, the Project owner shall submit to the CPM to less than 30 days prior to the start of ground-disturbing activities proof, in the form of a letter or receipt, of the seed or other propagules collected pursuant to Section D.III #1 of this Condition. The draft conceptual Special-Status Plant Mitigation Plan, as described under Section C.4 of this condition, shall be submitted to the CPM for review and approval no less than 30 days prior to the start of ground-disturbing activities. The Project owner shall immediately provide written notification to the CPM, CDFG, USFWS, and BLM State Botanist if it detects a State- or Federal-Listed Species, or BLM Sensitive Species at any time during its late summer/fall botanical surveys or at any time thereafter through the life of the Project, including conclusion of Project decommissioning. No less than 30 days prior to the start of ground-disturbing activities the Project owner shall submit grading plans and construction drawings to the CPM which depict the location of Environmentally Sensitive Areas and the Avoidance and Minimization Measures contained in Section A of this Condition, and under Section C.1-3. If compensatory mitigation is required, pursuant to Section C.1-3, no less than 30 days prior to the start of ground-disturbing activities the Project owner shall submit to the CPM the form of Security adequate to acquire compensatory mitigation lands and/or undertake habitat enhancement or restoration activities, as described in this condition. Actual Security shall be provided 7 days prior to start of ground-disturbing activities.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
d. Herbicide and Soil Stabilizer Drift Control Measures. Special- status plant occurrences within 100 feet of the Project Disturbance Area, and any occurrences avoided within the Project Disturbance Area3 shall be protected from herbicide and soil stabilizer drift. The Weed Control Program (BIO-14) shall include measures to avoid chemical drift or residual toxicity to special-status plants consistent with guidelines such as those provided by the Nature Conservancy's The Global Invasive Species Team8, the U.S. Environmental Protection Agency, and the Pesticide Action Network Database9. e. Erosion and Sediment Control Measures. Erosion and sediment control measures shall not inadvertently impact special-status plants by using invasive or non-native plants in seed mixes, introducing pest plants through contaminated seed or straw, accidental burial by mulches, etc. These specifications shall be incorporated in the Drainage, Erosion, and Sedimentation Control Plan required under **SOIL&WATER-1**. f. Locate Staging, Parking, Spoils, and Storage Areas Away from Special-Status Plant Occurrences. Areas for spoils, equipment, vehicles, and materials storage areas; parking; equipment and vehicle maintenance areas, and wash areas shall be placed at least 100 feet from any ESAs. These specifications shall be incorporated in the Drainage, Erosion, and Sedimentation Control Plan required under SOIL&WATER-1. g. Pre-Construction Seed Collection. For all significant impacts to special-status plants, mitigation shall include seed collection from the affected special-status plants population on-site prior to construction to conserve the germplasm and provide a seed source for restoration efforts. Seed collection shall follow the guidelines described in Section D.III.3 of this condition. h. Monitoring and Reporting Requirements. The Designated Botanist, or BM under supervision of the Designated Botanist, shall conduct weekly monitoring of the ESAs that protect special-status plant occurrences during construction and decommissioning activities. ***Section B: Conduct Late-Season Botanical Surveys*** The Project owner shall conduct late-summer/fall botanical surveys for late-season special-status plants prior to start of construction or by the end of 2010, as described below: 1. Survey Timing. Surveys shall be timed to detect: a) summer annuals triggered to germinate by the warm, tropical summer storms (which may occur any time between June and October), and b) fall-blooming perennials that respond to the cooler, later season storms (typically beginning in September or October). For those species that are identified by vegetative characteristics, surveys do not have to be timed for blooming or fruiting. The surveys shall not be timed to coincide with the statistical peak bloom period of the target species but shall instead, if possible, be based on plant phenology and the timing of a significant storm event (e. g., a 10mm or greater rain or multiple storm events of sufficient volume to trigger germination as determined by a qualified botanist.). If possible, surveys shall occur at the appropriate time to capture the characteristics necessary to identify the taxon. Construction is authorized to commence following a 2010 late season survey. 2. Surveyor Qualifications and Training. Surveys shall be conducted by a qualified botanist knowledgeable in the complex biology of the local flora, and consistent with CDFG (2009) and BLM (2009) guidelines for surveyor qualifications. Each surveyor shall be equipped with a GPS unit and record a complete tracklog; these data shall be compiled and	No fewer than 90 days prior to acquisition of compensatory mitigation lands, the Project owner shall submit a formal acquisition proposal and draft Management Plan for the proposed lands to the CPM, with copies to CDFG, USFWS, and BLM, describing the parcels intended for purchase and shall obtain approval from the CPM prior to the acquisition. No fewer than 90 days prior to acquisition of compensatory mitigation lands, the Project owner shall submit to the CPM and obtain CPM approval of any agreements to delegate land acquisition to an approved third party, or to manage compensation lands; such agreement shall be executed and implemented within 18 months of the start of ground disturbance. No fewer than 30 days after acquisition of the property the Project owner shall deposit the funds required by Section I e above (long term management and maintenance fee) and provide proof of the deposit to the CPM. The Project owner or an approved third party shall complete the acquisition and all required transfers of the compensation lands, and provide written verification to the CPM of such completion no later than 18 months after the start of Project ground-disturbing activities. If NFWF or another approved third party is being used for the acquisition, the Project owner shall ensure that funds needed to accomplish the acquisition are transferred in timely manner to facilitate the planned acquisition and to ensure the land can be acquired and transferred prior to the 18-month deadline. If habitat enhancement is proposed, no later than six months following the start of ground-disturbing activities, the Project owner shall obtain CPM approval of the final Habitat Enhancement/Restoration Plan, prepared in accordance with Section D, and submit to the CPM or a third party approved by the CPM Security adequate for long-term implementation and monitoring of the Habitat Enhancement/Restoration Plan. Enhancement/restoration activities shall be initiated no later than 12 months from the start of construction. The implementation phase of the enhancement project shall be completed within five years of initiation. Until completion of	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
submitted along with the Summer-Fall Survey Botanical Report (described below). Prior to the start of surveys, all crew members shall, at a minimum, visit reference sites (where available) and/or review herbarium specimens of all BLM Sensitive plants, CNPS List 1B or 2 (Nature Serve rank S1 and S2) or proposed List 1B or 2 taxa, and any new reported or documented taxa, to obtain a search image. Because the potential for range extensions is unknown, the list of potentially occurring special-status plants shall include all special-status taxa known to occur within the Sonoran Desert region and the eastern portion of the Mojave in California. The list shall also include taxa with bloom seasons that begin in fall and extend into the early spring as many of these are reported to be easier to detect in fall, following the start of the fall rains. 3. Survey Coverage. The survey coverage or intensity shall be in accordance with BLM Survey Protocols (issued July 2009)10, which specify that intuitive controlled surveys shall only be accomplished by botanists familiar with the habitats and species that may reasonably be expected to occur in the project area. 4. Pre-Construction Seed Collection. For all significant impacts to special-status plants, mitigation shall include seed collection from the affected special-status plants population on-site prior to construction to conserve the germplasm and provide a seed source for restoration efforts. Seed collection shall be conducted during the late-season surveys follow the guidelines described in Section D.III.3 of this condition. 5. Documenting Occurrences. If a special-status plant is detected, the full extent of the population onsite shall be recorded using GPS in accordance with BLM survey protocols. Additionally, the extent of the population within one mile of Project boundaries shall be assessed at least qualitatively to facilitate an accurate estimation of the proportion of the population affected by the Project. For populations that are very dense or very large, the population size may be estimated by simple sampling techniques. When populations are very extensive or locally abundant, the surveyor must provide some basis for this assertion and roughly map the extent on a topographic map. All but the smallest populations (e.g., a population occupying less than 100 square feet) shall be recorded as area polygons; the smallest populations may be recorded as point features. All GPS-recorded occurrences shall include: the number of plants, phenology, observed threats (e.g., OHV or invasive exotics), and habitat or community type. The map of occurrences submitted with the final botanical report shall be prepared to ensure consistency with definition of an occurrence by CNDDB, i.e., occurrences found within 0.25 miles of another occurrence of the same taxon, and not separated by significant habitat discontinuities, shall be combined into a single 'occurrence'. The Project owner shall also submit the raw GPS shape files and metadata, and completed CNDDB forms for each 'occurrence' (as defined by CNDDB). 6 Reporting. Raw GPS data, metadata, and CNDDB field forms shall be provided to the CPM and the BLM State Botanist within two weeks of the completion of each survey. If surveys are split into two or more periods (e.g., a late summer survey and a fall survey), then a summary letter shall be submitted following each survey period. The Final Summer-Fall Botanical Survey Report shall be prepared consistent with CDFG guidelines (CDFG 2009), and BLM 2009 guidelines and shall include all of the following components: a. the BLM designation, NatureServe Global and State Rank of each species or taxon found (or proposed rank, or CNPS List); b. the number or percent of the occurrence that will be directly affected, and indirectly affected by changes in drainage patterns or altered geomorphic processes;	the five-year implementation portion of the enhancement action, a report shall be prepared and submitted as part of the Annual Compliance Report. This report shall provide, at a minimum: a summary of activities for the preceding year and a summary of activities for the following year; quantitative measurements of the Project's progress in meeting the enhancement project success criteria; detailed description of remedial actions taken or proposed; and contact information for the responsible parties. If a contingency measure is required, as described in Section D.III of this condition, the Project owner shall submit commence no later than six months following the start of ground-disturbing activities. The draft study shall be submitted to the CPM and BLM State Botanist for review and approval no more than two years following the start of ground-disturbing activities. The final study shall be submitted no more than 30 months following the start of ground- disturbing activities. If a Distribution Study is implemented as contingency mitigation, the study shall be initiated no later than 6 months from the start of construction. The implementation phase of the study shall be completed within two years of the start of construction. Within 18 months of ground-disturbing activities, the Project owner shall transfer to the CPM or an approved third party the difference between the Security paid and the actual costs of (1) acquiring compensatory mitigation lands, completing initial protection and habitat improvement, and funding the long-term maintenance and management of compensatory mitigation lands; and/or (2) implementing and providing for the long-term protection and monitoring of habitat enhancement or restoration activities. Implementation of the special-status plant impact avoidance and minimization measures shall be reported in the Monthly Compliance Reports prepared by the Designated Botanist. Within 30 days after completion of Project construction, the Project owner shall provide to the CPM, for review and approval, in consultation with the BLM State Botanist, a written construction termination report identifying how measures have been completed.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
c. the habitat or plant community that supports the occurrence and the total acres of that habitat or community type that occurs in the Project Disturbance Area; d. an indication of whether the occurrence has any local or regional significance (e.g., if it exhibits any unusual morphology, occurs at the periphery of its range in California, represents a significant range extension or disjunct occurrence, or occurs in an atypical habitat or substrate); e. a completed CNDDB field form for every occurrence (occurrences of the same species within one-quarter mile or less of each other combined as one occurrence, consistent with CNDDB methodology), and f. two maps: one that depicts the raw GPS data (as collected in the field) on a topographic base map with Project features; and a second map that follows the CNDDB protocol for occurrence mapping. ***Section C: Avoidance Requirements for Special-Status*** *Plants Detected in the Summer/Fall 2010 Surveys* The Project owner shall apply the following avoidance and mitigation standards for impacts to late blooming special-status plants that might be detected during late summer/fall season surveys. The Project owner shall immediately notify the CDFG, USFWS, BLM State Botanist, and the CPM if any State- or Federal-listed species or BLM Sensitive species are detected. Avoidance and/or the off-site mitigation measures described in Section D below would reduce impacts to these special-status plant species to less-than-significant levels. Plants shall be considered impacted if they are within the Project footprint, or if they would be affected by Project-related hydrologic changes or changes to the local sand transport system Downstream/ downwind impacts from altered hydrology or geomorphic processes shall be considered direct impacts. 1. Mitigation for CNDDB Rank 1 Plants (Critically Imperiled). If late blooming species with a CNDDB rank of 111 are detected within the Project Disturbance Area, complete avoidance is mandatory along the linears and within construction laydown areas. The Project owner shall limit the width of the work area; adjusting the location of staging areas, lay downs, spur roads and poles or towers; driving and crushing vegetation as an alternative to blading temporary roads, and other construction or design modifications as necessary to achieve avoidance of any Rank 1 plants detected. If late-season Rank 1 plants are detected on the solar facility, the Project owner shall avoid all plants around the perimeter12 of the facility as necessary to achieve 75 percent avoidance of the local population of the affected species. The local population shall be measured by the number of individuals occurring on the Project Site and within the immediate watershed of the Project for wash dependent-species or species of unknown dispersal mechanism, or within the local sand transport corridor for wind dispersed species. Measurement of percent avoidance shall be based on population for perennials and on habitat for annuals (habitat containing the species' micro-habitat preferences, such as "fine silts and moist depressions"). Avoidance within the central portion of the solar facility is not recommended because it would create fragmented conditions that would not sustain persistence of the affected species. For all portions of the local population not avoided, the Project owner shall implement off-site mitigation at a ratio of 3:1. The off-site mitigation may include land acquisition or implementation of a restoration/enhancement program for the species, and shall meet the performance standards described in section D of this Condition. The Applicant must demonstrate, subject to review and approval by the CPM, that the impacts, after mitigation, will not cause a loss of viability13 for that species. The Project owner shall prepare and implement a Special-Status Plant Mitigation Plan (Plan). The content of the Plan and definitions shall be as described above in subsection C.3, below.	The Project owner shall submit a monitoring report every year for the life of the project to monitor effectiveness of protection measures for all avoided special- status plants to the CPM and BLM State Botanist. The monitoring report shall include: dates of worker awareness training sessions and attendees, completed CNDDB field forms for each avoided occurrence on-site and within 100 feet of the Project boundary off-site, and description of the remedial action, if warranted and planned for the upcoming year. The completed forms shall include an inventory of the special-status plant occurrences and description of the habitat conditions, an indication of population and habitat quality trends.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
2. Mitigation for CNDDB Rank 214 Plants (Imperiled). If late-season CNDDB Rank 2 species are detected within the Project Disturbance Area avoidance is mandatory along the linears and construction laydown areas. The Project owner shall limit the width of the work area, adjusting the location of staging areas, lay downs, spur roads and poles or towers; driving and crushing vegetation as an alternative to blading temporary roads, and other construction or design modifications as necessary to achieve avoidance of any Rank 2 plants detected15. If late-season Rank 2 plants are detected on the solar facility, the Project owner shall implement off-site mitigation, at a ratio of 2:1, for any impacts exceeding 25 percent of the local population. The off-site mitigation may include land acquisition or implementation of a restoration/enhancement program for the species, and shall meet the performance standards described in section D of this Condition. The Project owner must demonstrate, subject to review and approval by the CPM, that the impacts, after mitigation, will not cause a loss of viability for that species. The Project owner shall prepare and implement a Special-Status Plant Mitigation Plan (Plan). The content of the Plan and definitions shall be as described above in subsection C.3, below. 3. Mitigation for CNDDB Rank 316 Plants (Vulnerable). If CNDDB Rank 3 plants are detected (which constitutes most CNPS List 4 plants), mitigation is not required unless the occurrence has local or regional significance, in which case the plant occurrence shall be treated as a CNDDB Rank 2 plant; avoidance and mitigation would be as described above under C.2. A plant occurrence would be considered to have local or regional significance if: a. It occurs at the outermost periphery of its range in California; b. It occurs in an atypical habitat, region, or elevation for the taxon that suggests that the occurrence may have genetic significance (e.g., that may increase its ability to survive future threats), or; c. It exhibits any unusual morphology that is not clearly attributable to environmental factors that may indicate a potential new variety or sub-species. 4. Prepare Special-Status Plant Mitigation Plan. If the project will impact any CNDDB Rank 1 or Rank 2 plants, or Rank 3 plants of local or regional significance, or new taxa, the Project owner shall prepare and implement a Special-Status Plant Mitigation Plan (Plan). Compensatory mitigation, as described in Section D of this condition, and at a mitigation ratio of 3:1 for Rank 1 plants, and 2:1 for Rank 2 plants and Rank 1 plants of local or regional significance, and new taxa. The Plan shall include, at a minimum, the following components and definitions: a. A description of the occurrences of the affected special-status species, ecological characteristics such as soil, hydrology, and other micro-habitat requirements, ecosystem processes required for maintenance of the species or its habitat, reproduction and dispersal mechanisms, pollinators, local distribution, a description of the extent of the population off-site, the percentage of the local population affected, and a description of how these occurrences would be impacted by the Project, including direct and indirect effects. Occurrences shall be considered impacted if they are within the Project footprint, and if they would be affected by Project-related hydrologic changes or changes to the local sand transport system. b. A description of the avoidance and minimization measures that would achieve complete avoidance of occurrences on the Project linears and construction laydown areas. If avoidance is also required on the solar facility (Rank 1 species), provide a description of the measures that would be implemented to avoid or minimize impacts to		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
occurrences on the solar facility. "Avoidance" shall include protection of the ecosystem processes essential for maintenance of the protected plant occurrence, and protection of the seed bank. Isolated 'islands' of protected plants disconnected by the Project from natural fluvial, aeolian (wind), or other processes essential for maintenance of the species, shall not be considered avoidance. c. If off-site mitigation is also required, pursuant to C.1 –C.3 above, the Plan shall include a description of the proposed mitigation (acquisition or restoration/enhancement) and demonstrate how the mitigation will meet the performance standards described in Section D of this condition. For CNDDB Rank 1 plants that cannot be avoided (i.e., plants located in the central portion of the solar facility), the Plan must demonstrate that the impacts (after mitigation) will not cause a loss of viability for that species. The assessment of viability shall include: *i*) current literature compilation and review on the affected species, it's documented and reported occurrences, range and distribution, habitat, and the ecological conditions needed to support it; *ii)* consultation with scientists and others with expertise and local knowledge of the species to gather unpublished data and other information to supplement the literature review findings, and (if available) *iii*) information on species' habitat relationships, demographics, genetics, and risk factors. ***Section D: Off-Site Compensatory Mitigation for Special- Status Plants*** Where compensatory mitigation is required under the terms of Section C, above, the Project owner shall mitigate Project impacts to special- status plant occurrences with compensatory mitigation. Compensatory mitigation shall consist of acquisition of habitat supporting the target species, or restoration/enhancement of populations of the target species, and shall meet the performance standards for mitigation described below. In the event that no opportunities for acquisition or restoration/enhancement exist, the Project owner can fund a species distribution study designed to promote the future preservation, protection or recovery of the species. Compensatory mitigation shall be at a ratio of 3:1 for Rank 1 plants, with three acres of habitat acquired or restored/enhanced for every acre of habitat occupied by the special status plant that will be disturbed by the Project Disturbance Area (for example if the area occupied by the special status plant collectively measured is 1⁄4 acre than the compensatory mitigation will be 3⁄4 of an acre). The mitigation ratio for Rank 2 plants shall be 2:1. So, for the example above, the mitigation ratio would be one-half acre for the Rank 2 plants. The Project owner shall provide funding for the acquisition and/or restoration/enhancement, initial improvement, and long-term maintenance and management of the acquired or restored lands. The actual costs to comply with this condition will vary depending on the Project Disturbance Area, the actual costs of acquiring compensation habitat, the actual costs of initially improving the habitat, the actual costs of long-term management as determined by a Property Analysis Record (PAR) report, and other transactional costs related to the use of compensatory mitigation. The Project owner shall comply with other related requirements in this condition: **I. Compensatory Mitigation by Acquisition:** The requirements for the acquisition, initial protection and habitat improvement, and long- term maintenance and management of special-status plant compensation lands include all of the following: 1. Selection Criteria for Acquisition Lands. The compensation lands selected for acquisition may include any of the following three categories:		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
a. Occupied Habitat, No Habitat Threats. The compensation lands selected for acquisition shall be occupied by the target plant population and shall be characterized by site integrity and habitat quality that are required to support the target species, and shall be of equal or better habitat quality than that of the affected occurrence. The occurrence of the target special-status plant on the proposed acquisition lands should be viable, stable or increasing (in size and reproduction). b. Occupied Habitat, Habitat Threats. Occupied compensation lands characterized by habitat threats may also be acquired as long as the population could be reasonably expected to recover with habitat restoration efforts (e.g., OHV or grazing exclusion, or removal of invasive non-native plants) and is accompanied by a Habitat Enhancement/Restoration Plan as described in Section D.II, below. c. Unoccupied but Adjacent. The Project owner may also acquire habitat for which occupancy by the target species has not been documented, if the proposed acquisition lands are adjacent to occupied habitat. The Project owner shall provide evidence that acquisitions of such unoccupied lands would improve the defensibility and long-term sustainability of the occupied habitat by providing a protective buffer around the occurrence and by enhancing connectivity with undisturbed habitat. This acquisition may include habitat restoration efforts where appropriate, particularly when these restoration efforts will benefit adjacent habitat that is occupied by the target species. 2. Review and Approval of Compensation Lands Prior to Acquisition. The Project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for special-status plants in relation to the criteria listed above, and must be approved by the CPM. 3. Management Plan. The Project owner or approved third party shall prepare a management plan for the compensation lands in consultation with the entity that will be managing the lands. The goal of the management plan shall be to support and enhance the long-term viability of the target special-status plant occurrences. The Management Plan shall be submitted for review and approval to the CPM. 4. Integrating Special-Status Plant Mitigation with Other Mitigation lands. If all or any portion of the acquired Desert Tortoise, Waters of the State, or other required compensation lands meets the criteria above for special-status plant compensation lands, the portion of the other species' or habitat compensation lands that meets any of the criteria above may be used to fulfill that portion of the obligation for special-status plant mitigation. 5. Compensation Lands Acquisition Requirements. The Project owner shall comply with the following requirements relating to acquisition of the compensation lands after the CPM, has approved the proposed compensation lands: a Preliminary Report. The Project owner, or an approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
b. Title/Conveyance. The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement, as required by the CPM. Any transfer of a conservation easement or fee title must be to CDFG, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to BLM or other public agency approved by the CPM. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of CDFG or another entity approved by the CPM. If an entity other than CDFG holds a conservation easement over the compensation lands, the CPM may require that CDFG or another entity approved by the CPM, in consultation with CDFG, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM of the terms of any transfer of fee title or conservation easement to the compensation lands. c. Initial Protection and Habitat Improvement. The Project owner shall fund activities that the CPM requires for the initial protection and habitat improvement of the compensation lands. These activities will vary depending on the condition and location of the land acquired, but may include trash removal, construction and repair of fences, invasive plant removal, and similar measures to protect habitat and improve habitat quality on the compensation lands. The costs of these activities would use the estimated cost per acre for Desert Tortoise mitigation as a best available proxy, at the ratio of 3:1 for Rank 1 plants and 2:1 for Rank 2 plants, but actual costs will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFG or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code section 65965), if it meets the approval of the CPM in consultation with CDFG, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFG takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFG or its designee. d. Property Analysis Record. Upon identification of the compensation lands, the Project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate amount of the long-term maintenance and management fund to pay the in-perpetuity management of the compensation lands. The PAR or PAR-like analysis must be approved by the CPM before it can be used to establish funding levels or management activities for the compensation lands. e. Long-term Maintenance and Management Funding. The Project owner shall deposit in NFWF's REAT Account a capital long- term maintenance and management fee in the amount determined through the Property Analysis Record (PAR) or PAR-like analysis conducted for the compensation lands. The CPM, in consultation with CDFG, may designate another non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity. If CDFG takes fee title to the compensation lands, CDFG shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity to manage the long-term maintenance and management fee for CDFG and with CDFG supervision. Interest, Principal, and Pooling of Funds. The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fund (endowment) holder/manager to ensure the following requirements are met:		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
i. Interest. Interest generated from the initial capital long-term maintenance and management fund shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action that is approved by the CPM and is designed to protect or improve the habitat values of the compensation lands. ii. Withdrawal of Principal. The long-term maintenance and management fund principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM or by the approved third-party long-term maintenance and management fund manager, to ensure the continued viability of the species on the compensation lands. iii. Pooling Long-Term Maintenance and Management Funds. An entity approved to hold long-term maintenance and management funds for the Project may pool those funds with similar funds that it holds from other projects for long-term maintenance and management of compensation lands for special-status plants. However, for reporting purposes, the long-term maintenance and management funds for this Project must be tracked and reported individually to the CPM. f. Other Expenses. In addition to the costs listed above, the Project owner shall be responsible for all other costs related to acquisition of compensation lands and conservation easements, including but not limited to the title and document review costs incurred from other state agency reviews, overhead related to providing compensation lands to CDFG or an approved third party, escrow fees or costs, environmental contaminants clearance, and other site cleanup measures. g. Mitigation Security. The Project owner shall provide financial assurances to the CPM to guarantee that an adequate level of funding is available to implement any of the mitigation measures required by this condition that are not completed prior to the start of ground-disturbing Project activities. Financial assurances shall be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") approved by the CPM. The amount of the Security shall use the estimated cost per acre for Desert Tortoise mitigation as a best available proxy, at a ratio of 3:1 for Rank 1 plants and 2:1 for Rank 2 plants, for every acre of habitat supporting the target special-status plant species which is significantly impacted by the project. The actual costs to comply with this condition will vary depending on the actual costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a PAR report. Prior to submitting the Security to the CPM, the Project owner shall obtain the CPM's approval of the form of the Security. The CPM may draw on the Security if the CPM determines the Project owner has failed to comply with the requirements specified in this condition. The CPM may use money from the Security solely for implementation of the requirements of this condition. The CPM's use of the Security to implement measures in this condition may not fully satisfy the Project owner's obligations under this condition, and the Project owner remains responsible for satisfying the obligations under this condition if the Security is insufficient. The unused Security shall be returned to the Project owner in whole or in part upon successful completion of the associated requirements in this condition. h. NFWF REAT Account. The Project owner may elect to comply with the requirements in this condition for acquisition of compensation lands, initial protection and habitat improvement on the compensation lands, or long-term maintenance and management of the compensation lands by funding, or any combination of these three requirements, by providing funds to implement those measures into the Renewable Energy Action Team (REAT)		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
Account established with the National Fish and Wildlife Foundation (NFWF). To use this option, the Project owner must make an initial deposit to the REAT Account in an amount equal to the estimated costs (as set forth in the Security section of this condition) of implementing the requirement. If the actual cost of the acquisition, initial protection and habitat improvements, or long-term funding is more than the estimated amount initially paid by the Project owner, the Project owner shall make an additional deposit into the REAT Account sufficient to cover the actual acquisition costs, the actual costs of initial protection and habitat improvement on the compensation lands, and the long-term funding requirements as established in an approved PAR or PAR-like analysis. If those actual costs or PAR projections are less than the amount initially transferred by the Applicant, the remaining balance shall be returned to the Project owner. The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the Energy Commission. Such delegation shall be subject to approval by the CPM, in consultation with CDFG, BLM and USFWS, prior to land acquisition, enhancement or management activities. Agreements to delegate land acquisition to an approved third party, or to manage compensation lands, shall be executed and implemented within 18 months of the start of ground disturbance. **II. Compensatory Mitigation by Habitat Enhancement/Restoration:** As an alternative or adjunct to land acquisition for compensatory mitigation the Project owner may undertake habitat enhancement or restoration for the target special-status plant species. Habitat enhancement or restoration activities must achieve protection at a 3:1 ratio for Rank 1 plants and 2:1 for Rank 2 plants, with improvements applied to three acres, or two acres, respectively, of habitat for every acre special-status plant habitat directly or indirectly disturbed by the Project Disturbance Area (for example if the area occupied by the special status plant collectively measured is 1/4 acre than the improvements would be applied to an area equal to 3/4 of an acre at a 3:1 ratio, or one-half acre at a 2:1 ratio). Examples of suitable enhancement projects include but are not limited to the following: i) control unauthorized vehicle use into an occurrence (or pedestrian use if clearly damaging to the species); ii) control of invasive non-native plants that infest or pose an immediate threat to an occurrence; iii) exclude grazing by wild burros or livestock from an occurrence; or iv) restore lost or degraded hydrologic or geomorphic functions critical to the species by restoring previously diverted flows, removing obstructions to the wind sand transport corridor above an occurrence, or increasing groundwater availability for dependent species. If the Project owner elects to undertake a habitat enhancement project for mitigation, the project must meet the following performance standards: The proposed enhancement project shall achieve rescue of an off-site occurrence that is currently assessed, based on the NatureServe threat ranking system17 with one of the following threat ranks: a) long-term decline >30%; b) an immediate threat that affects >30% of the population, or c) has an overall threat impact that is High to Very High. “Rescue” would be considered successful if it achieves an improvement in the occurrence trend to “stable” or “increasing” status, or downgrading of the overall threat rank to slight or low (from “High” to “Very High”). If the Project owner elects to undertake a habitat enhancement project for mitigation, they shall submit a Habitat Enhancement/Restoration Plan to the CPM for review and approval, and shall provide sufficient funding for implementation and monitoring of the Plan. The amount of the Security shall use the estimated cost per acre for Desert Tortoise mitigation as a best available proxy, at the ratio of 3:1 for Rank 1 plants and 2:1 for Rank 2 plants, for every acre of habitat supporting the target special-status plant species which is directly or indirectly impacted by the project. The amount of the security may be adjusted based on the actual costs of implementing the enhancement, restoration and monitoring. The		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
implementation and monitoring of the enhancement/restoration may be undertaken by an appropriate third party such as NFWF, subject to approval by the CPM. The Habitat Enhancement/Restoration Plan shall include each of the following: 1. Goals and Objectives. Define the goals of the restoration or enhancement project and a measurable course of action developed to achieve those goals. The objective of the proposed habitat enhancement plan shall include restoration of a target special- status plant occurrence that is currently threatened with a long-term decline. The proposed enhancement plan shall achieve an improvement in the occurrence trend to "stable" or "increasing" status, or downgrading of the overall threat rank to slight or low (from "High" to "Very High"). 2. Historical Conditions. Provide a description of the pre-impact or historical conditions (before the site was degraded by weeds or grazing or ORV, etc.), and the desired conditions. 3. Site Characteristics. Describe other site characteristics relevant to the restoration or enhancement project (e.g., composition of native and pest plants, topography and drainage patterns, soil types, geomorphic and hydrologic processes important to the site or species. 4. Ecological Factors. Describe other important ecological factors of the species being protected, restored, or enhanced such as total population, reproduction, distribution, pollinators, etc. 5. Methods. Describe the restoration methods that will be used (e.g., invasive exotics control, site protection, seedling protection, propagation techniques, etc.) and the long-term maintenance required. The implementation phase of the enhancement must be completed within five years. 6. Budget. Provide a detailed budget and time-line, and develop clear, measurable, objective-driven annual success criteria. 7. Monitoring. Develop clear, measurable monitoring methods that can be used to evaluate the effectiveness of the restoration and the benefit to the affected species. The Plan shall include a minimum of five years of quarterly monitoring, and then annual monitoring for the remainder of the enhancement project, and until the performance standards for rescue of a threatened occurrence are met. At a minimum the progress reports shall include: quantitative measurements of the projects progress in meeting the enhancement project success criteria, detailed description of remedial actions taken or proposed, and contact information for the responsible parties. 8. Reporting Program. The Plan shall ensure accountability with a reporting program that includes progress toward goals and success criteria. Include names of responsible parties. 9. Contingency Plan. Describe the contingency plan for failure to meet annual goals. 10. Long-term Protection. Include proof of long-term protection for the restoration site. For private lands this would include conservations easements or other deed restrictions; projects on public lands must be contained in a Desert Wildlife Management Area, Wildlife Habitat Management Area, or other land use protections that will protect the mitigation site and target species. **III. Contingency Measures:** 1. Preservation of the Germplasm of Affected Special-Status Plants. For all significant impacts to special-status plants, mitigation shall also include seed collection from the affected special-status plants population on-site prior to		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
construction to conserve the germplasm and provide a seed source for restoration efforts. The seed shall be collected under the supervision or guidance of a reputable seed storage facility such as the Rancho Santa Ana Botanical Garden Seed Conservation Program, San Diego Natural History Museum, or the Missouri Botanical Garden. The costs associated with the long-term storage of the seed shall be the responsibility of the Project owner. Any efforts to propagate and reintroduce special- status plants from seeds in the wild shall be carried out under the direct supervision of specialists such as those listed above and as part of a Habitat Restoration/Enhancement Plan approved by the CPM. 2. Compensatory Mitigation by Conducting or Contributing to a Management Plan for the Affected Species. Subject to approval of the CPM, as a contingency measure in the event there are no opportunities for mitigation through acquisition or restoration/enhancement to meet the obligations for off-site mitigation as described in Section C.1-3 of this condition, a Management Plan for the affected special-status plant species may be conducted or funded. The goal of the Management Plan is to devise a science-based, region-wide strategy to ensure the long- term viability of the affected species, and to acquire, protect, and restore existing populations and the habitat that supports them. The information gathered shall be used to develop conservation approaches to address the identified risk factors. These approaches include land allocations, restoration needs, identifying and preserving important refugia to facilitate species dispersal and maintain biodiversity in the face of climate change, recommending Best Management Practices or other measures that could be used to minimize threats, and identifying planning needs at the regional level. The results of the study would also be provided to the resource agencies, conservation organizations, and academic institutions, as well as the state's Natural Diversity Database and Consortium of California Herbaria. 3. Under this contingency measure, the Project owner shall acquire all available information on the distribution, status or health of known occurrences, ecological requirements, and ownership and management opportunities of the affected special-status plant species and other special status plants known to occur in the Chuckwalla Valley. Some of these late blooming species are only known from a few viable occurrences in California, and historic occurrences that have not been re-located or surveyed since they were first documented. At a minimum, the study shall include the following: a. Occurrence and Life History Review. The Study shall include an evaluation of all documented, historical and reported localities for the affected species, and a review of current information on the species life history. This would include a review of the CNDDB database, records from regional and national herbaria, literature review, consultation with U.C. Riverside, San Diego Natural History Museum, and other educational institutions or natural heritage organizations in California, Arizona, and Nevada, etc.), other biotechnical survey reports from the region, and information from regional botanical experts. b. Conduct Site Visits to Documented and Reported Localities. Documented and reported occurrences would be evaluated in the field during the appropriate time of the year for each late blooming species. If located, these occurrences would be evaluated for population size (area and quantity), population trend, ecological characteristics, soils, habitat quality, potential threats, degree and immediacy of threats, ownership and management opportunities. GPS location data would also be collected during these site visits. c. Survey Surrounding Areas. Areas surrounding the occurrences that contain habitat suitable to support the affected species shall be surveyed to determine the full extent of its range and distribution. If additional populations are found, collect data (GPS and assessment) on these additional populations consistent with III.2 above.		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
d. Prepare Report on Status, Distribution, and Management Needs. A report shall be prepared that contains the results of the surveys and assessment. The report shall contain the following components: a) Range and Distribution (including maps and GPS data); b) Abundance and Population Trends; c) Life History; d) Habitat Necessary for Survival; d) Factors Affecting Ability to Survive and Reproduce; e) Degree and Immediacy of Threat; f) Ownership and Management Opportunities for Protection or Recovery; g) Sources of Information, and g) Conclusions. The conclusions shall contain an explanation of whether the species' survival is threatened by any of the following factors: i) present or threatened modification or destruction of its habitat; ii) competition; iii) disease; iv) other natural occurrences (such as climate change) or human-related activities. This valuable information will provide a better understanding of the ecological factors driving the distribution of these species, and will identify opportunities for mitigation and management opportunities for recovery. All data from this study will be submitted for incorporation into the CNDDB system and the study report will be made available to resource agencies, and conservation groups, and other interested parties. e. The cost to implement or fund the study shall be no greater than the cost for acquisition, enhancement, and long-term management of compensatory mitigation lands based on the specifications and standards for acquisition or restoration/enhancement described above under D.I and D.II.		
BIO-20, Sand Dune/Mojave Fringe-Toed Lizard Mitigation: To mitigate for habitat loss and direct impacts to Mojave fringe-toed lizards the Project owner shall provide compensatory mitigation, which may include compensation lands purchased in fee or in easement in whole or in part, at the following ratios: 3:1 mitigation for direct impacts to stabilized and partially stabilized sand dunes (per BIO-29 – Table 2 or final acreage impacted by the Project footprint); 1:1 mitigation for direct impacts non-dune Mojave fringe-toed lizard habitat (per BIO-29 – Table 2 or final acreage impacted by the Project footprint); and 0.5:1 mitigation for indirect impacts to stabilized and partially stabilized sand dunes (per BIO-29 – Table 2 or final acreage impacted by the Project footprint). If compensation lands are acquired, the Project owner shall provide funding for the acquisition in fee title or in easement, initial habitat improvements, and long-term maintenance and management of the compensation lands. In addition, the compensation lands must include, at a minimum, the number acres of stabilized and partially stabilized sand dune habitat shown in **BIO-29 Table 2**. 1. Criteria for Compensation Lands: The compensation lands selected for acquisition shall: a. Provide suitable habitat for Mojave fringe-toed lizards, and, aside from the minimum amount of stabilized and partially stabilized sand dunes, may include stabilized and partially stabilized desert dunes, sand drifts over playas, or Sonoran creosote bush scrub; b. Be within the Palen or Chuckwalla valleys with potential to contribute to Mojave fringe-toed lizard habitat connectivity and build linkages between known populations of Mojave fringe-toed lizards and preserve lands with suitable habitat;	No later than 30 days prior to beginning Project ground-disturbing activities, the Project owner shall provide written verification of an approved form of Security in accordance with this condition of certification. Actual Security shall be provided no later than 7 days prior to the beginning of Project ground- disturbing activities for each Project phase as described in **BIO-29**. The Project owner, or an approved third party, shall complete and provide written verification of the proposed compensation lands acquisition within 18 months of the start of Project ground-disturbing activities for each Project phase. No less than 90 days prior to acquisition of the property, the Project owner shall submit a formal acquisition proposal to the CPM, CDFG, and USFWS describing the parcels intended for purchase. The Project owner, or an approved third party, shall provide the CPM, BLM, and CDFG, with a management plan for the compensation lands and associated funds within 180 days of the land or easement purchase, as determined by the date on the title. The CPM shall review and approve the management plan, in consultation with BLM and CDFG.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
c. Be prioritized near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non- governmental organization dedicated to habitat preservation; d. Provide quality habitat for Mojave fringe-toed lizard that has the capacity to regenerate naturally when disturbances are removed; e. Not have a history of intensive recreational use or other disturbance that might make habitat recovery and restoration infeasible; f. Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration; g. Not contain hazardous wastes that cannot be removed to the extent the site is suitable for habitat; h. Have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with CDFG, BLM and USFWS, agrees in writing to the acceptability of the land; and i. Be on land for which long-term management is feasible. 2. Security for Implementation of Mitigation: The Project owner shall provide financial assurances to the CPM to guarantee that an adequate level of funding is available to implement the acquisitions and enhancement of Mojave fringe-toed lizard habitat as described in this condition. These funds shall be used solely for implementation of the measures associated with the Project. Financial assurance can be provided to the CPM according to the measures outlined in **BIO-12**, and within the time period specified for this assurance (see the verification section at the end of this condition). The final amount due will be determined by an updated appraisal and a PAR analysis conducted as described in **BIO-12**, but current estimates are included in **Biological Resources Tables 22** and **23** located at the beginning of the conditions of certification subsection. 3. Preparation of Management Plan: The Project owner shall submit to the CPM, BLM, and CDFG a draft Management Plan that reflects site-specific enhancement measures for the Mojave fringe-toed lizard habitat on the acquired compensation lands. The objective of the Management Plan shall be to enhance the value of the compensation lands for Mojave fringe-toed lizards, and may include enhancement actions such as weed control, fencing to exclude livestock, erosion control, or protection of sand sources or sand transport corridors.	Within 90 days after completion of Project construction, the Project owner shall provide to the CPM and CDFG an analysis with the final accounting of the amount (detailed by habitat type) of Mojave fringe-toed lizard habitat disturbed during Project construction. The Project owner shall provide written verification to the CPM, and CDFG that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient no later than 18 months from the start of ground-disturbing activities.	
BIO-21, Mitigation for Impacts to State Waters: The Project owner shall implement the following measures to avoid, minimize and mitigate for direct and indirect impacts to waters of the state and to satisfy requirements of California Fish and Game Code sections 1600 and 1607. 1. Acquire Off-Site State Waters: The Project owner shall acquire, in fee or in easement, a parcel or parcels of land that includes state jurisdictional waters per **BIO-29 – Table 2**, or the area of state waters directly or indirectly impacted by the final Project footprint. The Project footprint means all lands disturbed by construction and operation of the Palen Project, including all linears. The parcel or parcels comprising the ephemeral washes shall include desert dry wash woodland per **BIO-29 – Table 2**, or the acreage of desert dry was woodland impacted by the final Project footprint at a	No less than 30 days prior to the start of construction-related ground disturbance activities potentially affecting waters of the state, the Project owner shall provide written verification (i.e., through incorporation into the BRMIMP) to the CPM that the above best management practices will be implemented. The Project owner shall also provide a discussion of work in waters of the state in Annual Compliance Reports for the duration of the Project.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
3:1 ratio. The terms and conditions of this acquisition or easement shall be as described in Condition of Certification **BIO 12**, and the timing associated with **BIO-29** (phasing). The current estimated costs are included in **BIO-29 – Table 3** located at the beginning of the Conditions of Certification subsection. Mitigation for impacts to state waters shall occur within the Chuckwalla, East Salton Sea, Hayfield, Rice, or portion of Whitewater within the NECO, Hydrologic Units (HUs) or the Palo Verde Watershed and be prioritized within the Chuckwalla HU in the Palen or adjacent watersheds. 2. Security for Implementation of Mitigation: The Project owner shall provide financial assurances to the CPM and CDFG to guarantee that an adequate level of funding is available to implement the acquisitions and enhancement of state waters as described in this condition. These funds shall be used solely for implementation of the measures associated with the Project. Financial assurance can be provided to the CPM and CDFG in the form of an irrevocable letter of credit, a pledged savings account or Security prior to initiating ground-disturbing Project activities. Prior to submittal to the CPM, the Security shall be approved by the CPM, in consultation with CDFG, to ensure funding. The final amount due shall be determined by updated appraisals and the PAR analysis conducted pursuant to **BIO-12**. 3. Preparation of Management Plan: The Project owner shall submit to the CPM and CDFG a draft Management Plan that reflects site- specific enhancement measures for the drainages on the acquired compensation lands. The objective of the Management Plan shall be to enhance the wildlife value of the drainages, and may include enhancement actions such as weed control, fencing to exclude livestock, or erosion control. 4. Code of Regulations: The Project owner shall provide a copy of this condition (Condition of Certification **BIO-21**) from the Energy Commission Decision to all contractors, subcontractors, and the Applicant's Project supervisors. Copies shall be readily available at work sites at all times during periods of active work and must be presented to any CDFG personnel upon demand. The CPM reserves the right to issue a stop work order or allow CDFG to issue a stop work order after giving notice to the Project owner and the CPM, if the CPM in consultation with CDFG, determines that the Project owner has breached any of the terms or conditions or for other reasons, including but not limited to the following: a. The information provided by the Applicant regarding impacts to waters of the state is incomplete or inaccurate; b. New information becomes available that was not known in preparing the terms and conditions; or c. The Project or Project activities as described in the Revised Staff Assessment have changed. 5. Road Crossings at Streams. The Project owner shall preserve pre- development downstream flows and sediment transport in washes crossed by permanent roads by incorporating culverts and Arizona crossings at stream crossings. Arizona crossings are the preferred option and shall be employed wherever such crossings do not present a safety hazard and where the roadbed elevation allows the construction of such crossings. Drainages that have been graded for temporary construction access shall be restored to original contours and surface drainage patterns and shall be revegetated according to specifications in **BIO-8**. 6. Diffuser Design. The Project owner shall maintain pre-project flow patterns (location and volume of flows) downstream of the Project boundaries. Flows shall not be discharged indiscriminately as sheet flow across the entire length of the diffusers, irrespective of the natural surface drainage patterns, but rather shall be designed to discharge into existing natural washes downslope of the Project.	No less than 30 days prior to beginning Project ground-disturbing activities for each project phase as described in **BIO-29**, the Project owner shall provide to the CPM design drawings of drainage diffusers depicting how these structures restore pre-development drainage patterns (location and volume of flows) to drainages downstream of the Project boundaries. At the same time the Project owner shall provide design drawings for temporary and permanent stream crossings. No less than 30 days prior to beginning Project ground-disturbing activities, the Project owner shall provide the form of Security in accordance with this condition of certification. No later than 7 days prior to beginning Project ground-disturbing activities, the Project owner shall provide written verification of the actual Security. The Project owner, or an approved third party, shall complete and provide written verification of the proposed compensation lands acquisition within 18 months of the start of Project ground-disturbing activities. The Project owner, or an approved third party, shall provide the CPM, BLM, CDFG, and USFWS with a management plan for the compensation lands and associated funds within 180 days of the land or easement purchase, as determined by the date on the title. The CPM shall review and approve the management plan, in consultation with CDFG and the USFWS. Within 90 days after completion of Project construction, the Project owner shall provide to the CPM, BLM, USFWS, and CDFG an analysis with the final accounting of the amount of jurisdictional state waters disturbed during Project construction. The Project owner shall provide written verification to the CPM, BLM, USFWS and CDFG that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient no later than 18 months of the start of Project ground-disturbing activities.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
7. Best Management Practices: The Project owner shall also comply with the following conditions to protect drainages near the Project Disturbance Area: a. The Project owner shall minimize road building, construction activities and vegetation clearing within ephemeral drainages to the extent feasible. b. The Project owner shall not allow water containing mud, silt, or other pollutants from grading, aggregate washing, or other activities to enter ephemeral drainages or be placed in locations that may be subjected to high storm flows. c. The Project owner shall comply with all litter and pollution laws. All contractors, subcontractors, and employees shall also obey these laws, and it shall be the responsibility of the Project owner to ensure compliance. d. Spoil sites shall be located at least 30 feet from the boundaries and drainages or in locations that may be subjected to high storm flows, where spoils might be washed back into drainages. e. Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources, resulting from Project-related activities, shall be prevented from contaminating the soil and/or entering waters of the state. These materials, placed within or where they may enter a drainage, shall be removed immediately. f. No broken concrete, debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into, or placed where it may be washed by rainfall or runoff into, waters of the state. g. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any drainage. h. No equipment maintenance shall occur within 150 feet of any ephemeral drainage where petroleum products or other pollutants from the equipment may enter these areas under any flow. 8. Changes of Conditions. A notifying report shall be provided to the CPM and CDFG if a change of conditions is identified. As used here, change of condition refers to the process, procedures, and methods of operation of a Project; the biological and physical characteristics of a Project area; or the laws or regulations pertinent to the Project as defined below. A copy of the notifying change of conditions report shall be included in the annual reports or until it is deemed unnecessary by the CPM, in consultation with CDFG. a. Biological Conditions: a change in biological conditions includes, but is not limited to, the following: 1) the presence of biological resources within or adjacent to the Project area, whether native or non-native, not previously known to occur in the area; or 2) the presence of biological resources within or adjacent to the Project area, whether native or non-native, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations. b. Physical Conditions: a change in physical conditions includes, but is not limited to, the following: 1) a change in the morphology of a river, stream, or lake, such as the lowering of a bed or scouring of a bank, or substantial changes in	The Project owner shall notify the CPM and CDFG, in writing, at least five days prior to initiation of Project ground-disturbing activities in jurisdictional state waters and at least five days prior to completion of Project activities in jurisdictional areas. The Project owner shall notify the CPM and CDFG of any change of conditions to the Project, impacts to state waters, or the mitigation efforts.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
stream form and configuration caused by storm events; 2) the movement of a river or stream channel to a different location; 3) a reduction of or other change in vegetation on the bed, channel, or bank of a drainage, or 4) changes to the hydrologic regime such as fluctuations in the timing or volume of water flows in a river or stream. c. Legal Conditions: a change in legal conditions includes, but is not limited to, a change in Regulations, Statutory Law, a Judicial or Court decision, or the listing of a species, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations.		
BIO-22, Decommissioning and Reclamation Plan: Upon Project closure the Project owner shall implement a final Decommissioning and Reclamation Plan. The Decommissioning and Reclamation Plan shall include a cost estimate for implementing the proposed decommissioning and reclamation activities, and shall be consistent with the guidelines in BLM's 43 CFR 3809.550 et seq.	No fewer than 30 days prior to the start of Project-related ground disturbing activities or alternate date as agreed to with the BLM, the Project owner shall provide to the CPM (for review) and BLM (for review and approval) a draft Decommissioning and Reclamation Plan. The plan shall be finalized prior to the start of commercial operation and reviewed every five years thereafter and submitted to the CPM for review and to the BLM for approval. Modifications to the approved Decommissioning and Reclamation Plan shall be made only after approval from the BLM. The Project owner shall provide a copy of the approved Decommissioning and Reclamation Plan and any BLM approved revisions to the CPM.	CEC
BIO-23, Groundwater-Dependent Vegetation Monitoring: The Project owner shall prepare a Groundwater-Dependent Vegetation Monitoring Plan for monitoring the Project effects of groundwater pumping on groundwater dependent vegetation. The monitoring shall encompass the area depicted in *Figure Soil and Water-3 (Project Only Revised Operational Water Supply End of 30 Years)* within the 0.1-foot drawdown polygon of the Model Predicted Drawdown (Galati & Blek 2010i). The vegetation and groundwater data collected as part of the Plan shall be used to determine if remedial action is required, as described in **BIO-24.** The Project owner may forgo development of a Groundwater Dependent Vegetation Monitoring Plan, or may cease implementation of such a plan, by providing evidence to the CPM that the source of water for the GDEs is a shallow perched water-bearing zone rather than the regional groundwater system and that the shallow perched water-bearing zone is unrelated and not influenced by the regional groundwater system that the Project owner proposes to use for water as described below under15a – 15d. The Project owner shall develop and implement a Groundwater- Dependent Vegetation Monitoring Plan (Plan) that meets the performance standards described below and includes the following components: 1. Monitoring Objectives and Performance Standards. The objectives of the Plan shall be to monitor the Project effects of groundwater pumping on vegetation and groundwater-dependent ecosystems (GDEs) and, in conjunction with the remedial action described in **BIO-24**, to ensure that the Project groundwater pumping has a less than significant effect on biological resources. Monitoring shall be conducted at a level of detail adequate for detecting adverse effects, as	At least 30 days prior to operation of project pumping wells, the Project owner shall submit to the CPM and BLM for review and approval a draft Groundwater-Dependent Vegetation Monitoring Plan (Plan). The final plan shall incorporate recommendations from the peer review and shall be submitted to the CPM and BLM no less than 15 days prior to the start of groundwater pumping. No less than 15 days prior to the start of groundwater pumping the Project owner shall submit as-built drawings indicating the location and depth of piezometers, and shall provide evidence that the piezometers are operational. Baseline groundwater and groundwater-dependent vegetation monitoring shall begin 15 days prior to construction and shall occur every year during the same one to two week time period in early spring (March) and post-monsoon (September).	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
reflected in vegetation attributes and groundwater levels in the shallow (alluvial) aquifer. The baseline for groundwater levels shall be the lowest baseline water level as measured at the Project site prior to the start of groundwater pumping. 2. Location of Monitoring Plots. The monitoring plots shall be established within the area depicted in *Figure Soil and Water -3 (Project Only Revised Operational Water Supply End of 30 Years)* within the Model Predicted Drawdown showing the 0.1-foot drawdown polygon (Galati & Blek 2010i). The majority of the plots shall be in the area north and east of the Project site, where groundwater-dependent ecosystems (GDEs) and the intersection of the ground surface and shallow groundwater are located, in the topographic lows in the valley. 3. Monitoring Plots and Controls. Because of the variation in vegetation types and depth to groundwater within the predicted groundwater drawdown zone, the study design shall treat the monitoring plot with a corresponding control plot as a pair (versus comparing the mean of all treatment plots to the mean of all control plots). The "control" plots shall consist of the data collected at the same plot during the baseline (pre-disturbance) monitoring for a pre-disturbance vs. post-disturbance comparison. Appropriate statistical methods shall be used to analyze the differences between the control and monitoring plots (for example, a one-tailed paired-sample statistical test (Manly 2008)18). 4. Off-Site Reference Plots: Off-site monitoring plots shall be established as reference sites to distinguish changes in plant vigor seen at the site from the effects of a region-wide drought. The off- site reference plots can be located within Chuckwalla Valley but shall be within areas that would not be affected hydrologically by groundwater pumping for the Project or other projects or agricultural operations. Off-site monitoring reference plots shall be located in the same general hydrologic and geologic setting (i.e., playa margins), in the same climatic region (Sonoran Desert region of California), and contain the same natural communities or vegetation alliances as those to which they are being compared. Impacts from pests and diseases, if present, must also be considered and excluded or adjusted for as part of the analysis. Data on climate and surface runoff in the study area shall be collected to identify "drought" conditions and correlate groundwater changes and weather changes. 5. Sample Size and Design The number of monitoring sites shall be established using appropriate statistical methods (for example, by a "priori power analysis" (Elzinga et al. 1998)) and shall be sufficient to achieve adequate (90%) statistical power. Following collection of the baseline data a statistical analysis shall be conducted to refine the power analysis and evaluate the adequacy of the sampling design. If the analysis of baseline data indicates that the sampling design is insufficient to achieve adequate statistical power, the design shall be modified (for example, by adding additional monitoring sites). 6. Water Table Monitoring. The Project owner shall install piezometers at each of the dominant vegetation community types within or near the monitoring plots. The number, location, depth and monitoring frequency of the piezometers shall be sufficient to establish the effect of Project groundwater pumping on the shallow aquifer water levels. At a minimum, each piezometer shall be monitored twice per year, in early spring (March) and post-monsoon (September). The piezometers shall be designed to monitor the maximum expected fluctuation in the water table and to last the duration of the Project. Data collected from the Project wells and piezometers for **SOIL &WATER-4** (Groundwater Level Monitoring, Mitigation, and Reporting) and S&W-6 (groundwater monitoring for the evaporation ponds and land treatment unit) shall be used to refine the modeling of the predicted groundwater drawdown and zone of influence after two years of data collection following the start of groundwater production. The Project owner shall submit to the CPM,	The First Annual Monitoring Report shall be provided to the CPM and BLM no later than January 31 following the first year of data collection, and shall include an assessment of whether the sampling design would provide statistically adequate monitoring data and whether modifications to the monitoring design would be needed. If the first Annual Monitoring Report recommends a revised sampling design, the Project owner shall submit the revised Plan to the CPM and BLM no later than March 1. Thereafter the Project owner shall submit a Groundwater-Dependent Vegetation Annual Monitoring Report to the CPM and BLM no later than January 31 of each year for the duration of Project operation. If the project owner elects to prepare a geologic and groundwater investigation (as described in Subsection 15 a-d of this condition) to determine if the source of water for the GDEs is a shallow perched water-bearing zone rather than the regional groundwater system, and that the shallow perched water-bearing zone is not hydraulically connected to the regional groundwater system that the Project owner proposes to use for water supply, the project owner shall submit the resumes of at least two independent, qualified peer reviewers 45 days prior to submittal of the report to the CPM and BLM for review and approval. The Project owner must submit the results of their investigation, subject to review and approval by the CPM, prior to the start of construction or Project groundwater use. If the refined modeling conducted according subsection 6 of this condition indicates that the drawdown and zone of influence is greater than the effect predicted in the GRI, and the GDE are found to be drawing groundwater that is hydraulically connected to the regional groundwater system, then the Project owner shall submit a revised monitoring plan for GDE areas outside of the original monitoring area. The Revised Monitoring Plan shall be submitted no later than January 31 in the third year following the start of groundwater pumping and well monitoring.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
for review and approval, a report on the results of the refined modeling. The report shall include all calculations and assumptions made in development of report data and interpretations, and all well monitoring data and piezometer data collected and used in the calculations. If the results indicate that the drawdown and zone of influence is greater than the effect predicted in the GRI, and the GDE are found to be drawing groundwater that is hydraulically connected to the regional groundwater system, then the project owner will submit a revised monitoring plan for GDE areas outside of the original monitoring area.		
7. Soil Monitoring. Soil salinity and pH shall be monitored annually at every monitoring plot. The Plan shall describe the monitoring devices and techniques used to collect and interpret this data, relative to ecosystem function. One soil core sample per community type shall be collected as part of the baseline data to establish the approximate rooting depth of the phreatophytes, and thereafter shall be repeated every five years. The coring method must provide a continuous core that will provide visual examination of roots and root nodules, soil profile, and soil moisture.		
8. Baseline and Long-term Data Collection. At a minimum, baseline data shall be collected at all monitoring sites prior to the start of pumping; however, vegetation data collected from sites farther from the nearest wells will allow for the collection of multiple years of "pre-disturbance" data. Although the Project proposes to begin construction (and pumping) by December 2010, it appears that the effects of pumping would not reach the areas supporting the GDEs or phreatophytic plants for several years (see C.9 **Soil and Water Resources**). Because the proposed well in the northeast portion of the Project (Soil & Water Figure 1, Galati & Blek 2010i) is located in very close proximity to known phreatophytes, this well shall not be used within the first 3 years of the Project in order to allow an adequate period for baseline data collection in the area northeast of the Project. Subject to approval by the CPM, if groundwater pumping ceases or is replaced by other water sources, groundwater and vegetation monitoring shall continue for a period of 5 years or until refined modeling indicates that the groundwater levels have returned to baseline levels and the decline in plant vigor has been restored to pre-disturbance conditions.		
9. Target Vegetation Population. The monitoring sites shall include GDEs and other vegetation potentially affected by the drawdown that occur within the zone of influence. The following phreatophytes have been documented to occur around Palen Lake: honey mesquite (*Prosopis glandulosa*); iodine bush (*Allenrolfea occidentalis*), bush seep-weed (*Suaeda moquinii*), jackass clover (*Wislizenia refracta*), four-wing saltbush (*Atriplex canescens*), allscale (*A. polycarpa*), spinescale (*A. spinifera*), a potentially new taxon of saltbush (*Atriplex* sp. nov. Andre), ironwood (*Olneya tesota*), palo verde (*Cercidium microphyllum*), cat's claw (*Acacia greggii*), and smoke tree (*Psorothamnus spinosus).*The final number of each community type sample needed shall be based on the *priori* power test conducted after the first year of baseline data collection.		
10. Fine-Scale Vegetation Mapping. Within the monitoring sites vegetation shall be mapped to the alliance level, consistent with classification protocol in the *Manual of California, 2nd edition* (Sawyer et al. 2009) but any important associations shall also be mapped. Mapping shall be done using minimum 1 meter resolution color orthophotos or higher resolution infrared imagery. The mapping shall also be used to determine the acreages of GDEs and establish the amount of security to be deposited in the event that adverse effects are detected during the monitoring. Boundaries of the permanent plots and any off-site reference sites shall be recorded using GPS technology and depicted on the geo- referenced aerials. GIS shapefiles and metadata shall be submitted along with the draft Plan and any subsequent revisions to the Plan (i.e., following the collection of baseline data and subsequent power analysis).		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
11. Guidelines for the Monitoring Plan. The Groundwater-Dependent Vegetation Monitoring Plan (Plan) shall be prepared with guidance from *Measuring and Monitoring Plant Populations* (Elzinga et al. 1998). The Plan shall provide a detailed description of each of the following components: a. Sampling Design. The sampling design shall include a description of: a) the populations (vegetation types) sampled; b) number, size, and shape of the sampling units; c) layout of the sampling units; d) methods for permanently marking plots in the field; e) monitoring schedule/frequency; f) vegetation and other attributes sampled; and g) sampling objectives (target/threshold, change/trend-based) for each attribute. b. Habitat Function and Values. The Plan shall describe the hydrologic, geologic/geomorphic, geochemical, biological and ecological characteristics of the GDEs, and shall also describe whether species are obligate or facultative; root growth and water acquisition characteristics; morphological adaptations to the desert environment; reproduction and germination characteristics; general and micro-habitat preferences; obligate or facultative halophytes and phreatophytes; role in the morphology of dunes; and importance to wildlife, etc. c. Field techniques for measuring vegetation. This will include the vegetation (or other) attributes selected based on a demonstrated knowledge of the biology and morphology of the species, and include a discussion of the limitations involved in each measurement. Examples of appropriate field techniques for measuring drought response include: percent dieback; live crown density; crown height and width, percent cover of live (versus dead or residual) vegetation, percent cover/frequency of associated species; percent composition of native versus non- native species; and percent cover based on wetland status codes (OBL, FACW, FAC, FACU, UPL19) and status as phreatophytes or halophytes. Photo monitoring shall not be considered an acceptable monitoring method but may be useful to conduct periodically (e.g., every 3 to 5 years). d. Data Management. Including how the data will be recorded in the field (e.g., using a GPS data dictionary), processed and stored. e. Training of personnel. Describe minimum standards for training and monitoring personnel. f. Statistical analysis. Describe statistical methods used to analyze the monitoring data (incorporating the minimum standards for statistical power and error rate described above). 12. Peer Review of the Plan. The draft Plan shall undergo a peer review by recognized experts, which shall include one or more scientists with expertise in: the preparation of monitoring plans for plant populations; the physiological responses of desert phreatophytes to drought stress; assessing the effects of groundwater withdrawal on vegetation in the desert region; and biostatistics. The Project owner shall provide the resumes of suggested peer reviewers to the CPM for review and approval. 13. Annual Monitoring Report. Annual Monitoring Reports shall be submitted to the CPM and BLM and shall include, at a minimum: a) names and contact information for the responsible parties and monitoring personnel; b) summaries of the results of the monitoring as required in **Soil&Water-4 and Soil&Water-6**; c) piezometer monitoring results**,** and a comparison of predicted versus actual water table declines; d) summary of the results of vegetation, groundwater, and soil monitoring data compared to the baseline data for each plot (pre- versus post-disturbance comparison); e) description of sampling and monitoring techniques used for each attribute; f) description of the data management and		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
statistical analysis; g) photos; h) conclusions and recommendations for remedial action, if the monitoring data indicates that the threshold described below has been met. The first Annual Monitoring Report shall include an appropriate statistical analysis using the first year baseline monitoring data to assess whether the sampling design was adequate to provide statistically meaningful data, as described above. If warranted, the first year Annual Monitoring Report shall include recommendations for revisions to the Plan based on this analysis. 14. Threshold for Remedial Action: The Project owner shall implement remedial action, as described in Condition of Certification **BIO-24,** if the monitoring described in **BIO-23** detects a decline in plant vigor of 20 percent or more compared to the same plots pre-disturbance AND also detects a decline in the alluvial (shallow) aquifer confirmed by two consecutive annual water monitoring events in any amount greater than the lowest baseline water level as measured prior to groundwater pumping. If regional drought, off-site pumping or other activities unrelated to the Project are also contributing to the decline in water table, the Project owner shall only be responsible for the portion of the effect that can be statistically demonstrated to be the result of Project pumping. To determine whether declines in plant vigor are related to Project pumping as opposed to regionwide drought or offsite pumping conditions the Project owner shall install a network background monitoring piezometers and incorporate these data in the assessment of Project-related effects on GDEs. 15. To understand the source of the water for the GDEs, the Project owner shall prepare a groundwater investigation work plan for submittal to the CPM that will outline steps to determine if the source of water for the GDEs is a shallow perched water-bearing zone rather than the regional groundwater system, and that the shallow perched water-bearing zone is not hydraulically connected to the regional groundwater system. The groundwater investigation will be comprised of the following components: a. A continuous soil coring program at five locations to be identified based on field mapping of GDEs in the area shown on the Figure *Soil and Water-3 (Project Only Revised Operational Water Supply End of 30 Years)* within the 0.1-foot drawdown polygon of the Model Predicted Drawdown (Galati & Blek 2010i). One of the five borings will be drilled adjacent to a GDE containing mesquite, and the other four located to provide an assessment of the range of plant communities within GDEs in the area of interest (i.e., to assess the variability of GDE plant type water requirements and root zone depth). b. The soil cores shall extend a minimum of 20 feet below the deepest root zones of the GDEs investigated to demonstrate separation between the shallow and regional water zones. At a minimum the soil cores shall show that 20 feet of unsaturated conditions are present below the deepest root zones of the plant communities investigated. The soil cores will be logged by a professional geologist in the State of California, and the coring program will be overseen by a qualified biologist with experienced in the plant communities identified within each GDE. c. A sampling plan for selective analysis of soil moisture content and saturation will also be conducted for each soil core advanced adjacent to a GDE. The number and frequency of soil samples shall be established to confirm field observations of soil moisture content in the shallow water-bearing zone, through the root zone and in the deeper sediments below the root zone above the regional water table. Soil samples shall be analyzed for moisture content after ASTM Method D2216.		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
d. Depending on the results of the soil coring program, piezometers may be installed as monitoring points for the regional water table and to monitoring changes in the shallow water-bearing zone from Project pumping. In the report of results from the soil coring program, a water-level monitoring program shall be proposed if it is shown that the regional water table is in direct hydraulic connection to the source of water to the GDE's. If the field data clearly shows an unsaturated zone of 20 feet or more below the deepest root zones of the GDEs, then piezometers will not be installed. If the results of the pre-construction field observations and soil sampling demonstrate 20 feet or more of unsaturated sediments between the deepest root zones of the GDEs and the regional water table, there will be no requirements to implement any of the underlying conditions as provided for in **BIO-23** and **BIO-24**, as sufficient evidence will have been provided to demonstrate that the groundwater is not the source for the GDE's. If the refined modeling of the predicted groundwater drawdown and zone of influence after two years of data collection (following the start of groundwater production), as described in Subsection 6 of this condition and in **SOIL&WATER-4** and **SOIL&WATER-6**, indicates the drawdown or zone of influence would be greater than predicted in the Project owner's Groundwater Resources Investigation (GRI), and the GDE are found to be drawing groundwater that is hydraulically connected to the regional groundwater system, then the project owner will submit a revised monitoring plan for GDE areas outside of the original monitoring area.		
BIO-24, Remedial Action and Compensation for Adverse Effects to Groundwater-Dependent Biological Resources: If monitoring detects Project-related adverse impacts to groundwater dependent ecosystems (GDEs), as described in **BIO-23** and the impacts are shown to be the result of a decline in the regional groundwater table due to Project pumping, the Project owner shall determine which well(s) are the source of the adverse impacts and shall implement remedial measures as outlined below. If regional drought, off-site pumping or other activities unrelated to the Project are also contributing to the decline in water table, the Project owner shall only be responsible for the portion of the effect that can be demonstrated to be the result of Project pumping. The remedial measures shall be implemented with the objective of restoring the groundwater levels to the baseline described in **BIO-23**, and shall compensate for impacts to GDEs with off-site habitat acquisition or restoration. The Project owner shall do all of the following: 1. Modification and/or Cessation of Pumping: The Project owner shall provide to the CPM evidence based on groundwater monitoring and modeling indicating which wells are likely to be causing adverse impacts to GDEs. The Project owner shall initially modify operation of those wells to reduce the offsite drawdown in the areas of the GDEs. Remedial Action Plan: The objective of remedial action shall be restoration of the spring groundwater table in the alluvial (shallow) aquifer to baseline levels, as described in **BIO-23**. The Remedial Action Plan shall include one or more of the following measures: 1) Begin rotational operation of the site water supply wells reducing pumping in wells that are the most proximal to the GDEs, 2) reducing the pumping rate in the wells that have been identified as the cause of the drawdown in the area of the GDEs, 3) focus pumping on wells on the southern portion of the project site away from the GDEs 4) cease operation of the well(s) that are the cause of the drawdown. Groundwater water level monitoring shall increase to a frequency necessary to document change and recovery in the drawdown from the changes in the pumping program.	No more than 30 days following submission of the Groundwater Dependent Vegetation Annual Monitoring Report the Project owner shall submit to the CPM for review and approval a draft Remedial Action Plan if that report indicates that the threshold for remedial action as described in **BIO-23** has been met. At the same time the Project owner shall submit written evidence that the Project wells responsible for impacts to groundwater levels and GDEs have modified their operation or ceased operation. A final Remedial Action Plan shall be submitted to the CPM within 30 days of receipt of the CPM's comments on the draft plan. No later than 6 months following approval of the final Remedial Action Plan, the Project owner shall provide to the CPM written documentation of the effectiveness of the completed remedial action. No more than 30 days following submission of the Groundwater-Dependent Vegetation Annual Monitoring Report**,** the Project owner shall provide to the CPM a final accounting of the amount of GDE habitat affected by Project groundwater pumping.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
The Remedial Action Plan shall include a water level monitoring program of sufficient frequency to document changes in operation of the water supply wells, and demonstrate that the water table has been restored to baseline levels. The Project owner shall use the following guidelines for determining if an ecosystem (or species) is phreatophytic (Brown et al 2007; LeMaite et al 1999; Froend & Loomes 2004): a. It is not known or documented to depend on groundwater, based on scientific literature or expert opinion (local knowledge can be useful in making a determination as some species' dependence varies by setting); b. The species are not known to have roots extending over a meter in depth; c. The community does not occur in an area where the water table is known to be 'near' the surface (relative to the documented rooting depths of the species); d. The herbaceous or shrub vegetation is not still green and/or does not have a high leaf area late in the dry season (compared to other dry areas in the same watershed that do not have access to groundwater). 2. Compensate for Loss of Ecosystem Function. If the decline in the water table in the alluvial (shallow) aquifer is accompanied by a corresponding decline in plant vigor greater than 20 percent (as described in BIO-23), the Project owner shall compensate for the loss of habitat functions and values in the affected groundwater- dependent ecosystems. The amount of compensation shall be at a 3:1 ratio based on area of affected area, using mapping as described in **BIO-23**. The Project owner shall acquire, in fee or in easement, a parcel or parcels of land that include an amount of groundwater-dependent vegetation that is of the same habitat-type as the community affected (e.g., mesquite woodland, alkali sink scrubs, or microphyll woodland) and of an equal or greater habitat quality. The compensation lands shall be located within the watersheds encompassing the Chuckwalla or Palen valleys. As an alternative to habitat compensation, the Project owner may submit a plan that achieves restoration of lost habitat function and value at another location within the Chuckwalla Groundwater Basin that contains the same habitats as those affected. a. Review and Approval of Compensation Lands Prior to Acquisition or Restoration. The Project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands in relation to the criteria listed above. Approval from the CPM shall be required for acquisition of all compensatory mitigation parcels. b. Preparation of Management Plan: The Project owner shall submit to the CPM and CDFG a draft Management Plan that reflects site-specific enhancement measures for the acquired compensation lands. The objective of the Management Plan shall be to maintain the functions and values of the acquired GDE plant communities and may include enhancement actions such as weed control, fencing to exclude livestock, or erosion control. c. Delegation of Acquisition. The responsibility for acquisition of compensation lands may be delegated to NFWF or another third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the Energy Commission. Such delegation shall be subject to approval by the CPM prior to land acquisition, enhancement or management activities.	No more than 6 months following submission of the Groundwater-Dependent Vegetation Annual Monitoring Report the Project owner shall submit a formal acquisition or restoration proposal to the CPM, describing the mitigation parcels intended for purchase or restoration. The acquisition/restoration proposal shall describe how the proposed parcels meet the acquisition or restoration criteria described in this condition. No fewer than 90 days prior to compensatory acquisition or restoration, the Project owner shall submit to the CPM and obtain CPM approval of any agreements to delegate land acquisition to an approved third party, or to manage compensation lands; such agreement shall be executed and implemented no more than months following approval of the acquisition proposal. The Project owner shall provide written verification to the CPM that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient no later than 18 months from submission of the Groundwater-Dependent Vegetation Annual Monitoring Report.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-25, Golden Eagle Inventory and Monitoring: The Project owner shall implement the following measures to avoid or minimize Project-related construction impacts to golden eagles. 1. Annual Inventory During Construction. For each calendar year during which construction will occur an inventory shall be conducted to determine if golden eagle territories occur within one mile of the Project boundaries. Survey methods for the inventory shall be as described in the Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations (Pagel et al. 2010) or more current guidance from the USFWS. 2. Inventory Data: Data collected during the inventory shall include at least the following: territory status (unknown, vacant, occupied, breeding successful, breeding unsuccessful); nest location, nest elevation; age class of golden eagles observed; nesting chronology; number of young at each visit; digital photographs; and substrate upon which nest is placed. 3. Determination of Unoccupied Territory Status: A nesting territory or inventoried habitat shall be considered unoccupied by golden eagles ONLY after completing at least 2 full surveys in a single breeding season. In circumstances where ground observation occurs rather than aerial surveys, at least 2 ground observation periods lasting at least 4 hours or more are necessary to designate an inventoried habitat or territory as unoccupied as long as all potential nest sites and alternate nests are visible and monitored. These observation periods shall be at least 30 days apart for an inventory, and at least 30 days apart for monitoring of known territories. 4. Monitoring and Adaptive Management Plan: If an occupied20 nest is detected within one mile of the Project boundaries, the Project owner shall prepare and implement a Golden Eagle Monitoring and Adaptive Management Plan for the duration of construction to ensure that Project construction activities do not result in injury or disturbance to golden eagles. The monitoring methods shall be consistent with those described in the Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations (Pagel et al. 2010) or more current guidance from the USFWS. The Monitoring and Management Plan shall be prepared in consultation with the USFWS. Triggers for adaptive management shall include any evidence of Project-related disturbance to nesting golden eagles, including but not limited to: agitation behavior (displacement, avoidance, and defense); increased vigilance behavior at nest sites; changes in foraging and feeding behavior, or nest site abandonment. The Monitoring and Adaptive Management Plan shall include a description of adaptive management actions, which shall include, but not be limited to, cessation of construction activities that are deemed by the Designated Biologist to be the source of golden eagle disturbance.	No fewer than 30 days from completion of the golden eagle inventory the project owner shall submit a report to the CPM, BLM, CDFG, and USFWS documenting the results of the inventory. If an occupied nest is detected within one mile of the Project boundary during the inventory the Project owner shall contact staff at the USFWS Carlsbad Office and CDFG within one working day of detection of the nest for interim guidance on monitoring and nest protection. The project owner shall provide the CPM, CDFG, and USFWS with the final version of the Golden Eagle Monitoring and Management Plan within 30 days after detection of the nest. This final Plan shall have been reviewed and approved by the CPM in consultation with USFWS and CDFG.	CEC
BIO-26, Evaporation Pond Netting and Monitoring: The Project owner shall cover the evaporation ponds prior to any discharge with 1.5-inch mesh netting designed to exclude birds and other wildlife from drinking or landing on the water of the ponds. Netting with mesh sizes other than 1.5-inches may be installed if approved by the CPM in consultation with CDFG and USFWS. The netted ponds shall be monitored regularly to verify that the netting remains intact, is fulfilling its function in excluding birds and other wildlife from the ponds, and does not pose an entanglement threat to birds and other wildlife. The ponds shall include a visual deterrent in addition to the netting, and the pond shall be designed such that the netting shall never contact the water. Monitoring of the evaporation ponds shall include the following: 1. Monthly Monitoring. The Designated Biologist or Biological Monitor shall regularly survey the ponds at least once per month starting with the first month of operation of the evaporation ponds. The purpose of the surveys shall be to	No less than 30 days prior to operation of the evaporation ponds the project owner shall provide to the CPM as-built drawings and photographs of the ponds indicating that the bird exclusion netting has been installed. For the first year of operation the Designated Biologist shall submit quarterly reports to the CPM, BLM, CDFG, and USFWS describing the dates, durations and results of site visits conducted at the evaporation ponds. Thereafter the Designated Biologist shall submit annual monitoring reports with this information. The quarterly and annual reports shall fully describe any	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
determine if the netted ponds are effective in excluding birds, if the nets pose an entrapment hazard to birds and wildlife, and to assess the structural integrity of the nets. The monthly survey shall be conducted in 1 day for a minimum of 2 hours following sunrise (i.e., dawn), a minimum of 1 hour mid-day (i.e., 1100 to 1300), and a minimum of 2 hours preceding sunset (i.e., dusk) in order to provide an accurate assessment of bird and wildlife use of the ponds during all seasons. Surveyors shall be experienced with bird identification and survey techniques. Operations staff at the Project site shall also report finding any dead birds or other wildlife at the evaporation ponds to the Designated Biologist within 1 day of the detection of the carcass. The Designated Biologists shall report any bird or other wildlife deaths or entanglements within 2 days of the discovery to the CPM, CDFG, and USFWS. 2. Dead or Entangled Birds. If dead or entangled birds are detected, the Designated Biologist shall take immediate action to correct the source of mortality or entanglement. The Designated Biologist shall make immediate efforts to contact and consult the CPM, CDFG, and USFWS by phone and electronic communications prior to taking remedial action upon detection of the problem, but the inability to reach these parties shall not delay taking action that would, in the judgment of the Designated Biologist, prevent further mortality of birds or other wildlife at the evaporation ponds. 3. Quarterly Monitoring. If after 12 consecutive monthly site visits no bird or wildlife deaths or entanglements are detected at the evaporation ponds by or reported to the Designated Biologist, monitoring, as described in paragraph 1, can be conducted on a quarterly basis. 4. Biannual Monitoring. If after 12 consecutive quarterly site visits no bird or wildlife deaths or entanglements are detected by or reported to the Designated Biologist and with approval from the CPM, USFWS, and CDFG, future surveys may be reduced to 2 surveys per year, during the spring nesting season and during fall migration. If approved by the CPM, USFWS, and CDFG, monitoring outside the nesting season may be conducted by the Environmental Compliance Manager. 5. Modification of Monitoring Program. CDFG or USFWS may submit a request for modifications to the evaporation pond monitoring program based on information acquired during monitoring, and may also suggest adaptive management measures to remedy any problems that are detected during monitoring or modifications if bird impacts are not observed. Modifications to the evaporation pond monitoring described above and implementation of adaptive management measures shall be made only after approval from the CPM, in consultation with USFWS and CDFG.	bird or wildlife death or entanglements detected during the site visits or at any other time, and shall describe actions taken to remedy these problems. The annual report shall be submitted to the CPM, BLM, CDFG, and USFWS no later than January 31 of every year for the life of the project.	
BIO-27: *Staff and the Applicant have agreed to delete this condition.*		CEC
BIO-28, In-Lieu Fee Mitigation Option: The Project owner may choose to satisfy its mitigation obligations by paying an in-lieu fee instead of acquiring compensation lands, pursuant to Fish and Game code sections 2069 and 2099 or any other applicable in-lieu fee provision, provided that the Project's in-lieu fee proposal is found by the Commission to the mitigate the impacts identified herein. If the in-lieu fee proposal is found by the Commission to be in compliance, and the Project Owner chooses to satisfy its mitigation obligations through the in-lieu fee, the Project Owner shall provide proof of the in-lieu fee payment to the CPM prior to construction related ground disturbance.	If electing to use this provision, the Project owner shall notify the Commission and all parties to the proceeding that it would like a determination that the Project's in-lieu fee proposal would mitigate for the impacts identified herein. Prior to construction related ground disturbance the Project Owner shall provide proof of the in lieu fee payment to the CPM.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-29, Project Construction Phasing Plan: The Project Owner shall provide compensatory mitigation for the total Project Disturbance Area and may provide such mitigation in two phases for Units 1 and 2 as described in Figures BIO-5 and BIO-6 in the July 19, 2010 Response to Data Request (AECOM 2010u). For purposes of this condition, the Project Disturbance Area means all lands disturbed in the construction and operation of the Palen Project or its phases, including all linears and ancillary facilities, as well as undeveloped areas inside the Project's boundaries that would no longer provide viable long-term habitat. The disturbance area for each project Phase and resource type is provided in **BIO-29** Table 1 below. Mitigation is shown in **BIO-29** Table 2, and mitigation security is shown in **BIO-29 Table 3,** below**.** This table shall be refined prior to the start of each construction phase with the disturbance area adjusted to reflect the final Project footprint for each phase. Prior to initiating each phase of construction the Project owner shall submit the actual construction schedule, a figure depicting the locations of proposed construction and amount of acres to be disturbed. Mitigation acres are calculated based on the compensation requirements for each resource type as described in the above Conditions of Certification – **BIO-12** (Desert Tortoise), **BIO-20** (Mojave Fringe-toed Lizard), **BIO-18** (Western Burrowing Owl), and **BIO-22** (State Waters). Compensatory mitigation for each phase shall be implemented according to the timing required by each condition. (See BIO-29 Table 1, Table 2, and Table 3 in the CEC Final Decision)	The Project owner shall not disturb any area outside of the area that has been approved for that phase of construction and for the previously approved phases of construction. No less than 30 days prior to the start of desert tortoise clearance surveys for each phase, the Project owner shall submit a description of the proposed construction activities for that phase to CDFG, USFWS and BLM for review and to the CPM for review and approval. The description for each phase shall include the proposed construction schedule, a figure depicting the locations of proposed construction, and amount of acres of each habitat type to be disturbed. No less than 30 days prior to beginning Project ground-disturbing activities for each phase, the Project owner shall provide the form of Security in accordance with this Condition of Certification in the amounts described in **BIO-29 Table 3.** No later than 7 days prior to beginning Project ground-disturbing activities for each phase, the Project owner shall provide written verification of the actual Security. The Project owner, or an approved third party, shall complete and provide written verification of the proposed compensation lands acquisition within 18 months of the start of Project ground-disturbing activities for each phase.	CEC
CULTURAL RESOURCES		
CUL-1, Prehistoric Trails Network Cultural Landscape (PTNCL) Documentation and NRHP Nomination: The project owner shall contribute to a special fund set up by the Energy Commission and/or BLM to finance the completion of the PTNCL Documentation and Possible NRHP Nomination program presented in the Palen Solar Power Project (PSPP) Revised Staff Assessment (RSA). The amount of the contribution shall be $35 per acre that the project encloses or otherwise disturbs. Any additional contingency contribution is not to exceed an amount totaling 20 percent of the original contribution. The contribution to the special fund may be made in installments at the approval of the CPM, with the first installment to constitute one-third of the total original contribution amount. If a project is not certified, or if a project owner does not build the project, or, if for some other reason deemed acceptable by the CPM, a project owner does not participate in funding the PTNCL documentation and possible NRHP nomination program, the other project owner(s) may consult with the CPM to adjust the scale of the PTNCL documentation and possible NRHP nomination program research activities to match available funding. A project owner that funds the PTNCL documentation and possible NRHP nomination program, then withdraws, will be able to reclaim their monetary contribution, to be refunded on a prorated basis.	No later than 10 days after receiving notice of the successful transfer of funds for any installment to the Energy Commission's and/or BLM's special PTNCL fund, the project owner shall submit a copy of the notice to the Energy Commission's Compliance Project Manager (CPM).	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
CUL-2, Desert Training Center California-Arizona Maneuver Area Cultural Landscape (DTCCL) Documentation and Possible NRHP Nomination: The project owner shall contribute to a special fund set up by the Energy Commission and/or BLM to finance the completion of the Documentation and Possible NRHP Nomination program presented in the PSPP RSA. The amount of the contribution shall be $25 per acre that the project encloses or otherwise disturbs. Any additional contingency contribution is not to exceed an amount totaling 20 percent of the original contribution. The contribution to the special fund may be made in installments at the approval of the CPM, with the first installment to constitute one-third of the total original contribution amount. If a project is not certified, or if a project owner does not build the project, or, if for some other reason deemed acceptable by the CPM, a project owner does not participate in funding the DTCCL documentation and possible NRHP nomination program, the other project owner(s) may consult with the CPM to adjust the scale of the DTCCL documentation and possible NRHP nomination program research activities to match available funding. A project owner that funds the DTCCL documentation and possible NRHP nomination program, then withdraws, will be able to reclaim their monetary contribution, to be refunded on a prorated basis.	No later than 10 days after receiving notice of the successful transfer of funds for any installment to the Energy Commission's and/or BLM's special DTCCL fund, the project owner shall submit a copy of the notice to the CPM.	CEC
CUL-3, Cultural Resources Personnel: Prior to the start of ground disturbance (includes "preconstruction site mobilization," "construction-related ground disturbance," and "construction-related grading, boring, and trenching," as defined in the General Conditions for this project), the project owner shall obtain the services of a Cultural Resources Specialist (CRS) and one or more alternate CRSs, if alternates are needed. The CRS shall manage all monitoring, mitigation, curation, and reporting activities in accordance with the Conditions of Certification (Conditions). The CRS shall have a primarily administrative and coordination role for the PSPP. The CRS may obtain the services of Cultural Resources Monitors (CRMs), if needed, to assist in monitoring, mitigation, and curation activities. The project owner shall ensure that the CRS implements the **Cultural Resources** Conditions providing for data recovery from known historical resources and ensure that the CRS makes recommendations regarding the eligibility for listing in the California Register of Historical Resources (CRHR) of any cultural resources that are newly discovered or that may be affected in an unanticipated manner. No ground disturbance shall occur prior to Compliance Project Manager (CPM) approval of the CRS and alternates, unless such activities are specifically approved by the CPM. Approval of a CRS may be denied or revoked for reasons including but not limited to noncompliance on this or other Energy Commission projects. ***Cultural Resources Specialist*:** The resumés for the CRS and alternate(s) shall include information demonstrating to the satisfaction of the CPM that their training and backgrounds conform to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61. In addition, the CRS shall have the following qualifications: 1. A background in anthropology and prehistoric archaeology; 2. At least 10 years of archaeological resource mitigation and field experience, with at least three of those years in California; and 3. At least three years of experience in a decision-making capacity on cultural resources projects, with at least one of those years in California, and the appropriate training and experience to knowledgably make recommendations regarding the significance of cultural resources.	**Verification:** 1. Preferably at least 120 days, but in any event no less than 75 days prior to the start of ground disturbance, the project owner shall submit the résumés for the CRS, the alternate CRS(s) if desired, the PPA, and the PHA to the CPM for review and approval. 2. At least 65 days prior to the start of data recovery on known archaeological sites, the project owner shall confirm in writing to the CPM that the approved CRS, the PPA, and the PHA will be available for on-site work and are prepared to implement the **Cultural Resources** Conditions **CUL-11** through **CUL-15**. 3. At least 10 days prior to a termination or release of the CRS, or within 10 days after the resignation of a CRS, the project owner shall submit the résumé of the proposed new CRS to the CPM for review and approval. At the same time, the project owner shall also provide to the proposed new CRS the AFC and all cultural resources documents, field notes, photographs, and other cultural resources materials generated by the project. If no alternate CRS is available to assume the duties of the CRS, a monitor may serve in place of a CRS so that ground disturbance may continue up to a maximum of three days without a CRS. If cultural resources are discovered then ground disturbance will	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
***Required Cultural Resources Technical Specialists*:** The project owner shall ensure that the CRS obtains the services of a qualified prehistoric archaeologist to conduct the research specified in **CUL-11** and **CUL-12**. The Project Prehistoric Archaeologist's (PPA) training and background must meet the U.S. Secretary of the Interior's Professional Qualifications Standards for prehistoric archaeology, as published in Title 36, Code of Federal Regulations, part 61, and the résumé of the PPA must demonstrate familiarity with similar artifacts and environmental modifications (deliberate and incidental) to those associated with the prehistoric and protohistoric use of the Chuckwalla Valley. The PPA must meet OSHA standards as a "Competent Person" in trench safety. The project owner shall ensure that the CRS obtains the services of a qualified historical archaeologist to conduct the research specified in **CUL-13** and **CUL-14**. The Project Historical Archaeologist's (PHA) training and background must meet the U.S. Secretary of Interior's Professional Qualifications Standards for historical archaeology, as published in Title 36, Code of Federal Regulations, part 61. The résumés of the CRS, alternate CRS, the PPA, and the PHA shall include the names and telephone numbers of contacts familiar with the work of these persons on projects referenced in the résumés and demonstrate to the satisfaction of the CPM that these persons have the appropriate training and experience to undertake the required research. The project owner may name and hire the CRS, alternate CRS, the PPA, and the PHA prior to certification. ***Field Crew Members and Cultural Resources Monitors*:** CRMs and field crew members shall have the following qualifications: 1. A B.S. or B.A. degree in anthropology, archaeology, historical archaeology, or a related field, and one year experience monitoring in California; or 2. An A.S. or A.A. degree in anthropology, archaeology, historical archaeology, or a related field, and four years experience monitoring in California; or 3. Enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historical archaeology, or a related field, and two years of monitoring experience in California.	remain halted until there is a CRS or alternate CRS to make a recommendation regarding significance. 4. At least 20 days prior to data recovery on known archaeological sites, the CRS shall provide a letter naming anticipated field crew members for the project and attesting that the identified field crew members meet the minimum qualifications for cultural resources data recovery required by this Condition. 5. At least 20 days prior to ground disturbance, the CRS shall provide a letter naming anticipated CRMs for the project and attesting that the identified CRMs meet the minimum qualifications for cultural resources monitoring required by this Condition. 6. At least five days prior to additional CRMs beginning on-site duties during the project, the CRS shall provide letters to the CPM identifying the new CRMs and attesting to their qualifications.	
CUL-4, Project Documentation for Cultural Resources Personnel: Prior to the start of ground disturbance, the project owner shall provide the CRS, the PPA, and the PHA with copies of the AFC, data responses, confidential cultural resources documents, the Revised Staff Assessment (RSA), RSA Errata, and the Commission Decision for the project. The project owner shall also provide the CRS, the PPA, the PHA, and the CPM with maps and drawings showing the footprints of the power plant, all linear facility routes, all access roads, and all laydown areas. Maps shall include the appropriate USGS quadrangles and maps at an appropriate scale (e.g., 1:2400 or 1" = 200') for plotting cultural features or materials. If the CRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM. The CPM shall review map submittals and, in consultation with the CRS, approve those that are appropriate for use in cultural resources planning activities. No ground disturbance shall occur prior to CPM approval of maps and drawings, unless such activities are specifically approved by the CPM. If construction of the project would proceed in phases, maps and drawings not previously provided shall be provided to the CRS, the PPA, the PHA, and CPM prior to the start of each phase. Written notice identifying the proposed schedule of each project phase shall be provided to the CRS and CPM. Weekly, until ground disturbance is completed, the project construction manager shall provide to the CRS and CPM a schedule of project activities for the following week, including the identification of area(s) where ground disturbance will occur during that week. The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.	1. Preferably at least 115 days, but in any event no less than 60 days prior to the start of ground disturbance, the project owner shall provide the AFC, data responses, confidential cultural resources documents, the Revised Staff Assessment (RSA), RSA Errata, and the Commission Decision for the project to the CRS, if needed, and to the PPA, and the PHA. The project owner shall also provide the subject maps and drawings to the CRS, PPA, PHA, and CPM. Staff, in consultation with the CRS, PPA, and PHA, will review and approve maps and drawings suitable for cultural resources monitoring and data recovery activities. 2. At least 15 days prior to the start of ground disturbance, if there are changes to any project-related footprint, the	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
	project owner shall provide revised maps and drawings for the changes to the CRS, PPA, PHA, and CPM. 3. At least 15 days prior to the start of each phase of a phased project, the project owner shall submit the appropriate maps and drawings, if not previously provided, to the CRS, PPA, PHA, and CPM. 4. Weekly, during ground disturbance, a current schedule of anticipated project activity shall be provided to the CRS and CPM by letter, e-mail, or fax. 5. Within five days of changing the scheduling of phases of a phased project, the project owner shall provide written notice of the changes to the CRS and CPM.	
CUL-5, Cultural Resources Monitoring and Mitigation Plan: Prior to the start of ground disturbance, the project owner shall submit to the CPM for review and approval the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by or under the direction of the CRS, with the contributions of the PPA, and the PHA. The authors' name(s) shall appear on the title page of the CRMMP. The CRMMP shall specify the impact mitigation protocols for all known cultural resources and identify general and specific measures to minimize potential impacts to all other cultural resources, including those discovered during construction. Implementation of the CRMMP shall be the responsibility of the CRS and the project owner. Copies of the CRMMP shall reside with the CRS, alternate CRS, the PPA, and the PHA, each CRM, and the project owner's on-site construction manager. No ground disturbance shall occur prior to CPM approval of the CRMMP, unless such activities are specifically approved by the CPM. Prior to certification, the project owner may have the CRS, alternate CRS, the PPA, and the PHA complete and submit to CEC for review the CRMMP, except for the portions to be contributed by the PTNCL and the DTCCL programs. The CRMMP shall include, but not be limited to, the elements and measures listed below. 1. The following statement shall be included in the Introduction: "Any discussion, summary, or paraphrasing of the Conditions of Certification in this CRMMP is intended as general guidance and as an aid to the user in understanding the Conditions and their implementation. The Conditions, as written in the Commission Decision, shall supersede any summarization, description, or interpretation of the conditions in the CRMMP. The **Cultural Resources** Conditions of Certification from the Commission Decision are contained in **Appendix A**." 2. The duties of the CRS shall be fully discussed, including coordination duties with respect to the completion of the Prehistoric Trails Network Cultural Landscape (PTNCL) documentation and possible NRHP nomination program and the Desert Training Center California-Arizona Maneuver Area Cultural Landscape (DTCCL) documentation and possible NRHP nomination program, and oversight/management duties with respect to site evaluation, data collection, monitoring, and reporting at both known prehistoric and historic-period archaeological sites and any CRHR-eligible (as determined by the CPM) prehistoric and historic-period archaeological sites discovered during construction.	1. Preferably at least 45 days, but in any event no less than 30 days prior to the start of ground disturbance, the project owner shall submit the CRMMP to the CPM for review and approval. 2. At least 20 days prior to the start of ground disturbance, in a letter to the CPM, the project owner shall agree to pay curation fees for any materials generated or collected as a result of the archaeological investigations (survey, testing, data recovery). 3. At least 30 days prior to the start of ground disturbance, the project owner shall provide to the CPM a copy of a letter from a curation facility that meets the standards stated in the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, stating the facility's willingness and ability to receive the materials generated by PSPP cultural resources activities and requiring curation. Any agreements concerning curation will be retained and available for audit for the life of the project.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
3. A general research design shall be developed that: a. Charts a timeline of all research activities, including those coordinated under the PTNCL and DTCCL documentation and possible NRHP nomination programs; b. Recapitulates the existing paleoenvironmental, prehistoric, ethnohistoric, ethnographic, and historic contexts developed in the PTNCL and DTCCL historic context and adds to these the additional context of the non-military, historic-period occupation and use of the Chuckwalla Valley, to create a comprehensive historic context for the PSPP vicinity; c. Poses archaeological research questions and testable hypotheses specifically applicable to the archaeological resource types known for the Chuckwalla Valley, based on the research questions developed under the PTNCL and DTCCL research and on the archaeological and historical literature pertinent to the Chuckwalla Valley; and d. Clearly articulates why it is in the public interest to address the research questions that it poses. 4. Protocols, reflecting the guidance provided in CUL-10 through CUL-15 shall be specified for the treatment of known and newly discovered prehistoric and historic-period archaeological resource types. 5. Artifact collection, retention/disposal, and curation policies shall be discussed, as related to the research questions formulated in the research design. These policies shall apply to cultural resources materials and documentation resulting from evaluation and data recovery at both known prehistoric and historic-period archaeological sites and any CRHR-eligible (as determined by the CPM) prehistoric and historic-period archaeological sites discovered during construction. A prescriptive treatment plan may be included in the CRMMP for limited data types. 6. The implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the ground disturbance and post-ground–disturbance analysis phases of the project shall be specified. 7. Person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team shall be identified. 8. The manner in which Native American observers or monitors will be included, in addition to their roles in the activities required undeCUL-1, the procedures to be used to select them, and their roles and responsibilities shall be described. 9. All impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Any areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts. 10. The commitment to record on Department of Parks and Recreation (DPR) 523 forms, to map, and to photograph all encountered cultural resources over 50 years of age shall be stated. In addition, the commitment to curate all archaeological materials retained as a result of the archaeological investigations (survey, testing, data recovery), in accordance with the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, into a retrievable storage collection in a public repository or museum shall be stated.		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
11. The commitment of the project owner to pay all curation fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project shall be stated. The project owner shall identify a curation facility that could accept cultural resources materials resulting from PSPP cultural resources investigations. 12. The CRS shall attest to having access to equipment and supplies necessary for site mapping, photography, and recovery of all cultural resource materials (that cannot be treated prescriptively) from known CRHR-eligible archaeological sites and from CRHR eligible sites that are encountered during ground disturbance. 13. The contents, format, and review and approval process of the final Cultural Resource Report (CRR) shall be described.		
CUL-6, Cultural Resources Report (CRR): The project owner shall submit the final Cultural Resources Report (CRR) to the CPM for review and approval and to the BLM Palm Springs archaeologist for review and comment. The final CRR shall be written by or under the direction of the CRS. The final CRR shall report on all field activities including dates, times and locations, results, samplings, and analyses. All survey reports, revised and final Department of Parks and Recreation (DPR) 523 forms, data recovery reports, and any additional research reports not previously submitted to the California Historical Resource Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as appendices to the final CRR. If the project owner requests a suspension of ground disturbance and/or construction activities, then a draft CRR that covers all cultural resources activities associated with the project shall be prepared by the CRS and submitted to the CPM and to the BLM Palm Springs archaeologist for review and approval on the same day as the suspension/extension request. The draft CRR shall be retained at the project site in a secure facility until ground disturbance and/or construction resumes or the project is withdrawn. If the project is withdrawn, then a final CRR shall be submitted to the CPM for review and approval at the same time as the withdrawal request.	1. Within 30 days after requesting a suspension of construction activities, the project owner shall submit a draft CRR to the CPM for review and approval. 2. Within 180 days after completion of ground disturbance (including landscaping), the project owner shall submit the final CRR to the CPM for review and approval and to the BLM Palm Springs archaeologist for review and comment. If any reports have previously been sent to the CHRIS, then receipt letters from the CHRIS or other verification of receipt shall be included in an appendix. 3. Within 10 days after the CPM and the BLM Palm Springs archaeologist approve the CRR, the project owner shall provide documentation to the CPM confirming that copies of the final CRR have been provided to the SHPO, the CHRIS, the curating institution, if archaeological materials were collected, and to the Tribal Chairpersons of any Native American groups requesting copies of project-related reports.	CEC
CUL-7, Worker Environmental Awareness Program (WEAP): Prior to and for the duration of ground disturbance, the project owner shall provide Worker Environmental Awareness Program (WEAP) training to all new workers within their first week of employment at the project site, along the linear facilities routes, and at laydown areas, roads, and other ancillary areas. The training shall be prepared by the CRS, may be conducted by any member of the archaeological team, and may be presented in the form of a video. The CRS shall be available (by telephone or in person) to answer questions posed by employees. The training may be discontinued when ground disturbance is completed or suspended, but must be resumed when ground disturbance, such as landscaping, resumes. The training shall include:	1. At least 30 days prior to the start of ground disturbance, the CRS shall provide the training program draft text and graphics and the informational brochure to the CPM for review and approval. 2. At least 15 days prior to the start of ground disturbance, the CPM will provide to the project owner a WEAP Training Acknowledgement form for each WEAP trained worker to sign.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
1. A discussion of applicable laws and penalties under the law; 2. Samples or visuals of artifacts that might be found in the project vicinity; 3. A discussion of what such artifacts may look like when partially buried, or wholly buried and then freshly exposed; 4. A discussion of what prehistoric and historical archaeological deposits look like at the surface and when exposed during construction, and the range of variation in the appearance of such deposits; 5. Instruction that the CRS, alternate CRS, and CRMs have the authority to halt ground disturbance in the area of a discovery to an extent sufficient to ensure that the resource is protected from further impacts, as determined by the CRS; 6. Instruction that employees are to halt work on their own in the vicinity of a potential cultural resources discovery and shall contact their supervisor and the CRS or CRM, and that redirection of work would be determined by the construction supervisor and the CRS; 7. An informational brochure that identifies reporting procedures in the event of a discovery; 8. An acknowledgement form signed by each worker indicating that they have received the training; and 9. A sticker that shall be placed on hard hats indicating that environmental training has been completed. 10. No ground disturbance shall occur prior to implementation of the WEAP program, unless such activities are specifically approved by the CPM.	3. Monthly, until ground disturbance is completed, the project owner shall provide in the Monthly Compliance Report (MCR) the WEAP Training Acknowledgement forms of workers who have completed the training in the prior month and a running total of all persons who have completed training to date.	
CUL-8, Construction Monitoring Program: The project owner shall ensure that the CRS, alternate CRS, or CRMs, to prevent construction impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner, monitor full time all ground disturbance. Full-time archaeological monitoring for this project shall be the archaeological monitoring of the earth-removing activities in the areas specified in the previous paragraph, for as long as the activities are ongoing. Where excavation equipment is actively removing dirt and hauling the excavated material farther than 50 feet from the location of active excavation, full-time archaeological monitoring shall require at least two monitors per excavation area. In this circumstance, one monitor shall observe the location of active excavation and a second monitor shall inspect the dumped material. For excavation areas where the excavated material is dumped no farther than 50 feet from the location of active excavation, one monitor shall both observe the location of active excavation and inspect the dumped material. A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts may be discovered. Contact lists of interested Native Americans and guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that shall be monitored. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM. The CPM will either identify potential monitors or will allow ground disturbance to proceed without a Native American monitor. The research design in the CRMMP shall govern the collection, treatment, retention/disposal, and curation of any archaeological materials encountered.	1. At least 30 days prior to the start of ground disturbance, the CPM will provide to the CRS an electronic copy of a form to be used as a daily monitoring log. 2. Monthly, while monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring prepared by the CRS and shall attach any new DPR 523A forms completed for finds treated prescriptively, as specified in the CRMMP. 3. At least 24 hours prior to implementing a proposed change in monitoring level, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for changing the monitoring level.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
On forms provided by the CPM, CRMs shall keep a daily log of any monitoring and other cultural resources activities and any instances of noncompliance with the Conditions and/or applicable LORS. Copies of the daily monitoring logs shall be provided by the CRS to the CPM, if requested by the CPM. From these logs, the CRS shall compile a monthly monitoring summary report to be included in the MCR. If there are no monitoring activities, the summary report shall specify why monitoring has been suspended. The CRS or alternate CRS shall report daily to the CPM on the status of the project's cultural resources-related activities, unless reducing or ending daily reporting is requested by the CRS and approved by the CPM. In the event that the CRS believes that the current level of monitoring is not appropriate in certain locations, a letter or e-mail detailing the justification for changing the level of monitoring shall be provided to the CPM for review and approval prior to any change in the level of monitoring. The CRS, at his or her discretion, or at the request of the CPM, may informally discuss cultural resources monitoring and mitigation activities with Energy Commission technical staff. Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from duties assigned by the CRS, or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these Conditions. Upon becoming aware of any incidents of non-compliance with the Conditions and/or applicable LORS, the CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the Conditions. When the issue is resolved, the CRS shall write a report describing the issue, the resolution of the issue, and the effectiveness of the resolution measures. This report shall be provided in the next MCR for the review of the CPM.	4. Daily, as long as no cultural resources are found, the CRS shall provide a statement that "no cultural resources over 50 years of age were discovered" to the CPM as an e-mail or in some other form of communication acceptable to the CPM. 5. At least 24 hours prior to reducing or ending daily reporting, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for reducing or ending daily reporting. 6. No later than 30 days following the discovery of any Native American cultural materials, the project owner shall submit to the CPM copies of the information transmittal letters sent to the Chairpersons of the Native American tribes or groups who requested the information. Additionally, the project owner shall submit to the CPM copies of letters of transmittal for all subsequent responses to Native American requests for notification, consultation, and reports and records. 7. Within 15 days of receiving them, the project owner shall submit to the CPM copies of any comments or information provided by Native Americans in response to the project owner's transmittals of information.	
CUL-9, Authority to Halt Construction; Treatment of Discoveries: The project owner shall grant authority to halt ground disturbance to the CRS, alternate CRS, PPA, PHA, and the CRMs in the event of a discovery. Redirection of ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the CRS. In the event that a cultural resource over 50 years of age is found (or if younger, determined exceptionally significant by the CPM), or impacts to such a resource can be anticipated, ground disturbance shall be halted or redirected in the immediate vicinity of the discovery sufficient to ensure that the resource is protected from further impacts. Monitoring and daily reporting, as provided in other Conditions, shall continue during the project's ground-disturbing activities elsewhere. The halting or redirection of ground disturbance shall remain in effect until the CRS has visited the discovery, and all of the following have occurred: 1. The CRS has notified the project owner, and the CPM has been notified within 24 hours of the discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning, including a description of the discovery (or changes in character or attributes), the action taken (i.e., work stoppage or redirection), a recommendation of CRHR eligibility, and recommendations for data recovery from any cultural resources discoveries, whether or not a determination of CRHR eligibility has been made.	1. At least 30 days prior to the start of ground disturbance, the project owner shall provide the CPM and CRS with a letter confirming that the CRS, alternate CRS, PPA, PHA, and CRMs have the authority to halt ground disturbance in the vicinity of a cultural resources discovery, and that the project owner shall ensure that the CRS notifies the CPM within 24 hours of a discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning. 2. Within 48 hours of the discovery of a resource of interest to Native Americans, the project owner shall ensure that the CRS notifies all Native American groups that expressed a desire to be notified in the event of such a discovery.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
2. If the discovery would be of interest to Native Americans, the CRS has notified all Native American groups that expressed a desire to be notified in the event of such a discovery. 3. The CRS has completed field notes, measurements, and photography for a DPR 523 "Primary" form. Unless the find can be treated prescriptively, as specified in the CRMMP, the "Description" entry of the DPR 523 "Primary" form shall include a recommendation on the CRHR eligibility of the discovery. The project owner shall submit completed forms to the CPM. 4. The CRS, the project owner, and the CPM have conferred, and the CPM has concurred with the recommended eligibility of the discovery and approved the CRS's proposed data recovery plan, if any, including the curation of the artifacts, or other appropriate mitigation; and any necessary data recovery and mitigation have been completed.	3. Unless the discovery can be treated prescriptively, as specified in the CRMMP, completed DPR 523 forms for resources newly discovered during ground disturbance shall be submitted to the CPM for review and approval no later than 24 hours following the notification of the CPM, or 48 hours following the completion of data recordation/recovery, whichever the CRS decides is more appropriate for the subject cultural resource.	
CUL-10, Flag and Avoid: If resources within the transmission line corridor can be spanned rather than impacted, or in the event that new resources are discovered during construction where impacts can be reduced or avoided, the project owner shall: 1. Ensure that a CRS, alternate CRS, PPA, or CRM re-establish the boundary of each site, add a 10-meter-wide buffer around the periphery of each site boundary, and flag the resulting space in a conspicuous manner; 2. Ensure that a CRM enforces avoidance of the flagged areas during PSPP construction; and 3. Ensure, after completion of construction, boundary markings around each site and buffer are removed so as not to attract vandals.	Within 90 days of the completion of Project construction, the project owner shall submit for CPM review and approval a letter, with photograph and maps, evidencing the removal of boundary markings.	CEC
CUL-11, Data Recovery for Simple Prehistoric Sites: (Sparse Lithic Scatters, Cairns, and Pot Drops) The project owner shall ensure the CRMMP includes a data recovery plan for the resource type "simple prehistoric sites," consisting of sites SMP-P-1015, SMP-P-1016, SMP-P-2014, SMP-P-2015, and SMP-P- 001. This site list may be revised only with the agreement of the CRS and the CPM. The data recovery plan shall include the use of the CARIDAP protocol on sites that qualify, how to proceed if features or other buried deposits are encountered, and the materials analyses] and laboratory artifact analyses that will be used. The plan shall also specify in detail the location recordation equipment and methods used and describe any post-processing of the data. If allowed by the BLM, prior to the start of ground disturbance within 30 meters of the site boundaries of each of these sites, the project owner shall ensure that the CRS, the PPA, and/or archaeological team members implement the plan, which, for sites where CARIDAP does not apply, shall include, but is not limited to the following tasks: 1. Use location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers) to add to the original site maps the following features: seasonal drainages, site boundaries, location of each individual artifact, and the boundaries around individual artifact concentrations; 2. Request the PTNCL PG, or equivalent qualified person approved by the CPM and hired by the project owner should the PTNCL geoarchaeologist not be available, to identify the specific landform for each site and its relationship to specific ancient lakeshores of Palen Dry Lake; if a lakeshore is present within 100 meters of the site boundary, include it on the site map;	1. At least 45 days prior to ground disturbance, the project owner shall notify the CPM that data recovery for small sites has ensued. 2. After the completion of the excavation of the first 1-meter-by-1-meter excavation unit at each of the subject sites, the CRS shall notify the CPM regarding the presence or absence of subsurface deposits and shall make a recommendation on the site's CRHR eligibility. 3. Within one week of the completion of data recovery at a site, the project owner shall submit a letter report written by the PPA or CRS for review and approval of the CPM. When the CPM approves the letter report, ground disturbance may begin at this site location.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
3. Map and field-record all lithic artifacts (numbers of flakes, the reduction sequence stage each represents, cores, tool blanks, finished tools, hammerstones, and concentrations, and the material types of each) and the other types of prehistoric artifacts present. 4. Map any differential distribution of artifacts and suggest explanations for the distribution 5. Assess the integrity of the site and provide the evidence substantiating that assessment; 6. Collect for dating and source analyses any obsidian artifacts; 7. Field record the surface location of all other artifacts and collect all ceramic artifacts and botanical and faunal remains for laboratory analysis and curation; 8. Surface scrape to a depth of 5 centimeters a 5-meter-by-5-meter area centered on the artifact concentration, field-record the lithic artifacts as to location, material type, and the reduction sequence stage each represents, record the location of all other artifacts, and retain the obsidian and ceramic artifacts and botanical and faunal remains for laboratory analysis and curation; 9. Excavate one 1-meter-by-1-meter unit in 10-centimeter levels until the unit reaches a depth of 20 centimeters below any anthropogenic materials, placing the unit in the part of the site with the highest artifact density and recording its locations on the site map; 10. Place one 1-meter-by-1-meter excavation unit, as described above, in the center of each concentration if multiple artifact concentrations have been identified; 11. Notify the CPM by telephone or e-mail that subsurface deposits were or were not encountered and make a recommendation on the site's CRHR eligibility; 12. If no subsurface deposits were encountered, and the CPM agrees the site is not eligible for the CRHR, data recovery is complete; 13. If subsurface deposits are encountered, test the horizontal limits of the site by excavating additional 1-meter-by-1-meter excavation units in 10-centimeter levels until the unit reaches a depth of 20 centimeters below any anthropogenic materials, using a shovel or hand auger, or other similar technique, at four spots equally spread around the exterior edge of each site, recording the locations of these units on the site map; 14. Sample the encountered features or deposits, using the methods described in the CRMMP, record their locations on the site map, retain samples, such as flotation, pollen, and charcoal, for analysis, and retain all artifacts for professionally appropriate laboratory analyses and curation, until data recovery is complete; 15. Present the results of the **CUL-11** data recovery in a letter report by the PPA or CRS, which shall serve as a preliminary report. Letter reports may address one site, or multiple sites depending on the needs of the CRS. The letter report shall be a concise document the provides description of the schedule and methods used in the field effort, a preliminary tally of the numbers and types of features and deposits that were found, a discussion of the potential range of error for that tally, a map showing the location of excavation units including topographic contours and the site landforms, and a discussion of the CRHR eligibility of each site and the justification for that determination;		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
16. Update the existing Department of Parks and Recreation (DPR) 523 site form for these sites, including new data on seasonal drainages, site boundaries, location of each individual artifact, the boundaries around individual artifact concentrations, the landform, and the eligibility determination; 17. Provide the recovered data to the PTNCL PI-Prehistoric Archaeologist; and 18. Present the final results of data recovery at these prehistoric sites in the CRR, as described in **CUL-6**.		
CUL-12, Data Recovery for Complex Prehistoric Sites: The project owner shall ensure the CRMMP includes a data recovery plan for the resource type "complex prehistoric sites," consisting of SMP-P-1017, SMP-P-1018, SMP-P-2018, and SMP-P-2023. This site list may be revised only with the agreement of the CRS and the CPM. The data recovery plan shall include how to proceed if buried deposits are encountered and shall also include the materials analyses and laboratory artifact analyses that will be used. The plan shall also specify in detail the location recordation equipment and methods used and describe any post-processing of the data. If allowed by the BLM, prior to the start of ground disturbance within 30 meters of the site boundaries of each of these sites, the project owner shall then ensure that the CRS, the PPA, and/or archaeological team members implement the plan, which shall include, but is not limited to, the following tasks: 1. Use location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers) to add to the original site maps the following features: seasonal drainages, site boundaries, location of each individual artifact, and the boundaries around individual artifact concentrations; 2. Request the PTNCL PG, or equivalent qualified person approved by the CPM and hired by the project owner should the PG not be available, to identify the specific landform for each site and its relationship to specific ancient lakeshores of Palen Dry Lake. If a lakeshore is present within 100 meters of the site boundary, include it on the site map; 3. Map any differential distribution of artifacts and suggest an explanation for this distribution; 4. Assess the integrity of the site and state the evidence substantiating that opinion; 5. Collect all artifacts after their locations are marked and submit them for laboratory analysis; 6. Excavate one 1-meter-by-1-meter unit in 10-centimeter levels until three sterile levels are encountered, or until the unit reaches maximum depth of planned impact, placing this unit in the part of the site with the highest artifact density; or, if multiple artifact concentrations were identified, place one 1-meter-by-1-meter excavation unit in the center of each concentration and excavate as just described; retain any artifacts for laboratory analysis; 7. Determine the vertical and horizontal limits of the each site by placing test units at four locations equally spread around the surface exterior edge and excavating or probing down to the Holocene basement, using a shovel, hand auger, or similar technique; continue exploration in all directions until the horizontal limits of the site are reached; retain any artifacts for laboratory analysis; 8. Excavate the surface feature or features, using the methods described in the CRMMP; record their locations on the site map, retain samples, such as flotation, pollen, and charcoal, for analysis, and retain all artifacts for professionally appropriate laboratory analyses and curation, until data recovery is complete;	1. At least 45 days prior to ground disturbance, the project owner shall notify the CPM that data recovery for large complex sites has ensued. 2. Within one week of the completion of data recovery at a site, the project owner shall verify this by submitting a letter report written by the PPA or CRS for review and approval of the CPM. When the CPM approves the letter report, ground disturbance may begin at these site locations.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
9. Notify the CPM by telephone or e-mail that subsurface deposits were or were not encountered and make a recommendation on the site's CRHR eligibility; 10. If no subsurface deposits were encountered, and the CPM agrees the site is not eligible for the CRHR, data recovery is complete; 11. If subsurface deposits were found, develop a sampling design for additional data recovery in consultation with the CRS; plans for this contingency shall be described in detail in the CRMMP; 12. Present the results of the **CUL-12** data recovery in a letter report by the PPA or CRS that shall serve as a preliminary report. Letter reports may address one site, or multiple sites depending on the needs of the CRS. The letter report shall be a concise document that provides description of the schedule and methods used in the field effort, a preliminary tally of the numbers and types of features and deposits that were found, a discussion of the potential range of error for that tally, and a map showing the location of excavation units including topographic contours and the site landforms; 13. Update the existing Department of Parks and Recreation (DPR) 523 site form for these sites, including new data on seasonal drainages, site boundaries, location of each individual artifact, the boundaries around individual artifact concentrations, and the landform; 14. Provide the recovered data to the PTNCL PI-Prehistoric Archaeologist; and 15. Present the final results of data recovery for the complex prehistoric sites in the CRR, as described in **CUL-6**.		
CUL-13, Data Recovery for Historic-Period Refuse Scatters: Prior to the start of ground disturbance, the project owner shall ensure that a recovery plan is included in the CRMMP for upgrading the recordation of historic-period refuse scatter sites located on the proposed plant site. For Reconfigured Alternative # 3, these consist of sites SMP-H-1003, SMP-H-1004, SMP-H-1006, SMP-H-1008, SMP-H-1009, SMP-H-1010, SMP-H-1011, SMP-H-1012, SMP-H- 1013, SMP-H-1020, SMP-H-1021, SMP-H 1022, SMP-H-1023, SMPH- 2002, SMP-H-2003, SMP-H-2004, SMP-H-2006, SMP-H-2007, SMP-H-2008, SMP-H-2010, SMP-H-2011/12, SMP-H-2017, SMP-H- 2019, SMP-H-2021; JR-101, JR-102, JR-104, JR-109, JR-110; TC- 008, TC-009, TC-020, and TC-032. For Reconfigured Alternative #2, the sites requiring upgraded recordation consist of the same sites as Reconfigured Alternative #3 plus site JR-107. These site lists may be revised only with the agreement of the CRS and the CPM. The focus of the recordation upgrade is to determine if these sites can be attributed to the DTC/C-AMA use of the region and are therefore contributors to the DTCCL. The plan shall specify in detail the location recordation equipment and methods to be used and describe any anticipated post-processing of the data. The project owner shall then ensure that the CRS, the PHA, and/or archaeological team members implement the plan, if allowed by the BLM, which shall include, but is not limited to the following tasks: 1. The project owner shall hire a PHA with the qualifications described in CUL-3 to supervise the field work. 2. The project owner shall ensure that, prior to beginning the field work, the PHA and crew chief are trained by the DTCCL Historical Archaeologist, or equivalent qualified person approved by the CPM and hired by the project owner should the DTCCL Historical Archaeologist not be available, to identify the specific landform for each site; in the identification, analysis and interpretation of the artifacts, environmental modifications, and trash disposal patterns associated with the	1. At least 45 days prior to ground disturbance, the project owner shall notify the CPM that mapping and upgraded in-field artifact analysis has ensued on the historic-period refuse scatter sites. 2. Within one week of completing data recovery at a site, the project owner shall submit to the CPM for review and approval a letter report written by the CRS, evidencing that the field portion of data recovery at each site has been completed. When the CPM approves the letter report, ground disturbance may begin at the site location(s) that are the subject of the letter report.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
early phases of WWII land-based U.S. army activities, as researched and detailed by the DTCCL PI-Historian and the DTCCL Historical Archaeologist. 3. The project owner shall ensure that, prior to beginning the field work, the field crew members are also trained in the consistent and accurate identification of the full range of late nineteenth and earlyto- mid-twentieth-century can, bottle, and ceramic diagnostic traits. 4. The project owner shall ensure that the original site map shall be updated to include at minimum: landform features such as small drainages, any man-made features, the limits of any artifact concentrations and features, using location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers). 5. The project owner shall ensure that a detailed in-field analysis of all artifacts shall be completed, documenting the measurements and the types of seams and closures for each bottle, and the measurements, seams, closure, and opening method for all cans. Photographs shall be taken of maker's marks on bottles, any text or designs on bottles and cans, and of decorative patterns and maker's marks on ceramics. Artifacts shall not be collected. 6. The project owner shall ensure that the details of what is found at each site shall be presented in a letter report from the CRS or PHA, which shall serve as a preliminary report, that details what was found at each site, as follows: a. Letter reports may address one site, or multiple sites depending on the needs of the CRS; and b. The letter report shall be a concise document that provides a description of the schedule and methods used in the field effort, a preliminary tally of the numbers and types of features and deposits that were found, a discussion of the potential range of error for that tally, and a map showing the location of collection and/or excavation units, including topographic contours and the site landforms. c. The letter report shall make a recommendation on whether each site is a contributor to the DTTCL. 7. The project owner shall ensure that the data collected from the field work shall be provided to the DTCCL Historical Archaeologist to assist in the determination of which, if any, of the historic-period sites are contributing elements to the DTCCL. 8. The project owner shall ensure that the PHA analyzes all recovered data and writes, or supervisors the writing of a comprehensive final report. This report shall be included in the CRR (CUL-6). Relevant portions of the information gathered shall be included in the possible NRHP nomination for the DTCCL (funded by CUL-2).		
CUL-14, Data Recovery for Historic-Period Sites with Features: Prior to the start of ground disturbance, the project owner shall ensure that a data recovery plan is included in the CRMMP for evaluation and data recovery from historic-period archaeological sites with features. For Reconfigured Alternative #3, these sites consist of sites SMP-H- 1005, SMP-H-1007, SMP-H-2016. For Reconfigured Alternative #2, these sites consist of the same sites as Reconfigured Alternative #3, plus site JR-108. These site lists may be revised only with the agreement of the CRS and the CPM. The plan shall specify in detail the location recordation equipment and methods to be used and describe any anticipated post-processing of the data. The project owner shall then ensure that the CRS, the PHA, and/or archaeological team members implement the plan, if allowed by the BLM, which shall include, but is not limited to the following tasks:	1. At least 45 days prior to ground disturbance, the project owner shall notify the CPM that mapping and in-field artifact analysis has ensued on historic-period sites with features. 2. Within one week of completing data recovery at a site, the project owner shall submit to the CPM for review and approval a letter report written by the CRS, evidencing	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
1. The project owner shall hire a PHA with the qualifications described in CUL-3 to supervise the field work. 2. The project owner shall ensure that, prior to beginning the field work, the PHA and crew chief are trained by the DTCCL Historical Archaeologist, or equivalent qualified person approved by the CPM and hired by the project owner should the DTCCL Historical Archaeologist not be available, in the identification, analysis and interpretation of the artifacts, environmental modifications, and trash disposal patterns associated with the early phases of WWII land-based U.S. army activities, as researched and detailed by the DTCCL PI-Historian and the DTCCL Historical Archaeologist. 3. The project owner shall ensure that, prior to beginning the field work, the field crew members are also trained in the consistent and accurate identification of the full range of late nineteenth and early-to-mid-twentieth-century can, bottle, and ceramic diagnostic traits. 4. The project owner shall ensure that the original site map shall be updated to include at minimum: landform features such as small drainages, any man-made features, the limits of any artifact concentrations and features (previously known and newly found in the metal detector survey), using location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers). 5. The project owner shall ensure that a detailed in-field analysis of all artifacts shall be completed, if not done previously. Types of seams and closures for each bottle and all cans shall be documented. Photographs shall be taken of any text or designs. Unusual or unidentifiable artifacts may be collected for further analysis, but otherwise artifacts shall not be collected. 6. The project owner shall ensure a systematic metal detector survey be completed at each site, and that each “hit” is investigated. All artifacts and features thus found must be mapped, measured, photographed, and fully described in writing. 7. The project owner shall ensure that all features are recorded, and that any features having subsurface elements are excavated by a qualified historical archaeologist. All features and contents must be mapped, measured, photographed, and fully described in writing. 8. The project owner shall ensure that the details of what is found at each site shall be presented in a letter report from the CRS or PHA which shall serve as a preliminary report, that details what was found at each site, as follows: a. Letter reports may address one site, or multiple sites depending on the needs of the CRS; and b. The letter report shall be a concise document that provides a description of the schedule and methods used in the field effort, a preliminary tally of the numbers and types of features and deposits that were found, a discussion of the potential range of error for that tally, and a map showing the location of collection and/or excavation units, including topographic contours and the site landforms. c. The letter report shall make a recommendation on whether each site is a contributor to the DTCCL. 9. The project owner shall ensure that the data collected from the field work shall be provided to the DTCCL Historical Archaeologist to assist in the determination of which, if any, of the historic-period sites are contributing elements to the DTCCL.	that the field portion of data recovery at each site has been completed. When the CPM approves the letter report, ground disturbance may begin at the site location(s) that are the subject of the letter report.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
10. The project owner shall ensure that the PHA analyzes all recovered data and writes or supervises the writing of a comprehensive final report. This report shall be included in the CRR **(CUL-6**). Relevant portions of the information gathered shall be included in the possible NRHP nomination for the DTCCL (funded by **CUL-2**).		
CUL-15, Data Recovery on Historic-Period Roads: The project owner shall ensure that a qualified architectural historian (must meet the U.S. Secretary of the Interior's Professional Qualifications Standards for historian, as published in Title 36, Code of Federal Regulations, part 61) conducts research and writes a report on the age and use of SMP-H-1032. The project owner shall provide the historian's report to the DTCCL PI-Historian for possible use in the DTCCL NRHP nomination, if appropriate. The project owner may undertake this task prior to Energy Commission certification of the project.	1. At least 15 days prior to ground disturbance, the project owner shall submit to the CPM the historian's report documenting the age and historical use of the road. 2. Within 15 days after the CPM approves the report, the project owner shall forward it to the DTCCL PI-Historian.	CEC
CUL-16, Compliance with BLM Programmatic Agreement: If provisions in the BLM PSPP Programmatic Agreement and associated implementation and monitoring programs conflict with or duplicate these Conditions of Certification, the BLM provisions shall take precedence. Provisions in these Conditions that are additional to or exceed BLM provisions and represent requirements under the Energy Commission's CEQA responsibilities shall continue to apply to the project's activities, contingent on BLM's approval as authorized by federal law.		CEC
HAZARDOUS MATERIALS MANAGEMENT		
HAZ-1, Hazardous Material Requirements: The project owner shall not use any hazardous material not listed in Appendix A, below, or in greater quantities or strengths than those identified by chemical name in Appendix A unless approved in advance by the Compliance Project Manager (CPM).	The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials contained at the facility.	CEC
HAZ-2, Hazardous Materials Business Plan (HMBP): The project owner shall concurrently provide a Hazardous Materials Business Plan (HMBP), and Spill Prevention, Control, and Countermeasure Plan (SPCC), and a Process Safety Management Plan (PSMP) to the Riverside County Environmental Health Department (RCEHD) and the CPM for review. After receiving comments from the RCEHD and the CPM, the project owner shall reflect all recommendations in the final documents. Copies of the final HMBP, SPCC Plan, and PSMP shall then be provided to the RCEHD for information and to the CPM for approval.	At least 30 days prior to receiving any hazardous material on the site for commissioning or operations, the project owner shall provide a copy of a final Hazardous Materials Business Plan, Spill Prevention, Control, and Countermeasures Plan, and the Process Safety Management Plan to the CPM for approval.	CEC
HAZ-3, Safety Management Plan: The project owner shall develop and implement a Safety Management Plan for the delivery and handling of liquid and gaseous hazardous materials. The plan shall include procedures, protective equipment requirements, training and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of incompatible hazardous materials. This plan shall be applicable during construction, commissioning, and operation of the power plant.	At least 30 days prior to the delivery of any liquid or gaseous hazardous material to the facility, the project owner shall provide a Safety Management Plan as described above to the CPM for review and approval.	CEC
HAZ-4, Isolation Valves: The project owner shall place an adequate number of isolation valves in the Heat Transfer Fluid (HTF) pipe loops so as to be able to isolate a solar panel loop in the event of a leak of fluid such that the volume of a total loss of HTF from that isolated loop will not exceed 1,250 gallons. These valves shall be actuated manually, remotely, or automatically. The engineering design drawings showing the number, location, and type of isolation valves shall be provided to the CPM for review and approval prior to the commencement of the solar array piping construction.	At least 30 days prior to the commencement of solar array piping construction, the project owner shall provide the design drawings as described above to the CPM for review and approval.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
HAZARDOUS MATERIALS MANAGEMENT (cont.)		
HAZ-5, Construction Site Security Plan: Prior to commencing construction, a site-specific Construction Site Security Plan for the construction phase shall be prepared and made available to the CPM for review and approval. The Construction Security Plan shall include the following: 1. perimeter security consisting of fencing enclosing the construction area; 2. security guards; 3. site access control consisting of a check-in procedure or tag system for construction personnel and visitors; 4. written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on site or off site; 5. protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and 6. evacuation procedures.	At least 30 days prior to commencing construction, the project owner shall notify the CPM that a site-specific Construction Security Plan is available for review and approval.	CEC
HAZ-6, Operation Security Plan: The project owner shall also prepare a site-specific security plan for the commissioning and operational phases that will be available to the CPM for review and approval. The project owner shall implement site security measures that address physical site security and hazardous materials storage. The level of security to be implemented shall not be less than that described below (as per NERC 2002). The Operation Security Plan shall include the following: 1. permanent full perimeter fence or wall, at least eight feet high and topped with barbed wire or the equivalent; 2. main entrance security gate, either hand operated or motorized; 3. evacuation procedures; 4. protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; 5. written standard procedures for employees, contractors, and vendors when encountering suspicious objects or packages on site or off site; 6. A. a statement (refer to sample, **ATTACHMENT A**), signed by the project owner certifying that background investigations have been conducted on all project personnel. Background investigations shall be restricted to determine the accuracy of employee identity and employment history and shall be conducted in accordance with state and federal laws regarding security and privacy; 1. B. a statement(s) (refer to sample, **ATTACHMENT B**), signed by the contractor or authorized representative(s) for any permanent contractors or other technical contractors (as determined by the CPM after consultation with the project owner), that are present at any time on the site to repair, maintain, investigate, or conduct any other technical duties involving critical components (as determined by the CPM after consultation with the project owner) certifying that background investigations have been conducted on contractors who visit the project site; 7. site access controls for employees, contractors, vendors, and visitors;	At least 30 days prior to the initial receipt of HTF or propane/LPG on site, the project owner shall notify the CPM that a site-specific operations site security plan is available for review and approval. In the annual compliance report, the project owner shall include a statement that all current project employee and appropriate contractor background investigations have been performed, and that updated certification statements have been appended to the operations security plan. In the annual compliance report, the project owner shall include a statement that the operations security plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
HAZARDOUS MATERIALS MANAGEMENT (cont.)		
8. a statement(s) (refer to sample, **ATTACHMENT C**), signed by the owners or authorized representative of propane transport vendors, certifying that they have prepared and implemented security plans in compliance with 49 CFR 172.802, and that they have conducted employee background investigations in accordance with 49 CFR Part 1572, subparts A and B; 9. closed circuit TV (CCTV) monitoring system, recordable, and viewable in the power plant control room and security station (if separate from the control room) with cameras able to pan, tilt, and zoom, have low-light capability, and are able to view the outside entrance to the control room, the propane/LPG tank, and the front gate; and 10. additional measures to ensure adequate perimeter security consisting of either: A. security guard(s) present 24 hours per day, 7 days per week; **or** B. power plant personnel on site 24 hours per day, 7 days per week, and perimeter breach detectors **or** the CCTV able to view 100% of the entrance gates and the power block areas. The project owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to those security plans. The CPM may authorize modifications to these measures, or may require additional measures or cyber security depending upon circumstances unique to the facility or in response to industry-related standards, security concerns, or additional guidance provided by the U.S. Department of Homeland Security, the U.S. Department of Energy, or the North American Electrical Reliability Council, after consultation with both appropriate law enforcement agencies and the applicant.		
PUBLIC HEALTH AND SAFETY		
PUBLIC HEALTH-1, Cooling Water Management Plan: The Project owner shall develop and implement a Cooling Water Management Plan to ensure that the potential for bacterial growth in cooling water is kept to a minimum. The Plan shall be consistent with either staff's "Cooling Water Management Program Guidelines" or with the Cooling Technology Institute's "Best Practices for Control of Legionella" guidelines but in either case, the Plan must include sampling and testing for the presence of Legionella bacteria at least every 6 months. After 2 years of power plant operations, the Project owner may ask the CPM to re-evaluate and revise the Legionella bacteria testing requirement.	At least 60 days prior to the commencement of cooling tower operations, the Cooling Water Management Plan shall be provided to the CPM for review and approval.	CEC
LAND USE, RECREATION, AND WILDERNESS		
LAND-1, Submittals to the CPM Prior to Construction: Prior to the start of construction, the Applicant shall provide to the Compliance Project Manager (CPM) documentation of the U.S. Bureau of Land Management (BLM) Right-of-Way grant and the BLM-approved project-specific amendment to the California Desert Conservation Area Plan (CDCA) permitting the construction/operation of the proposed Palen Solar Power Project.	Prior to the start of construction, the Applicant shall submit to the CPM a copy of the BLM approved project specific amendment to the CDCA Plan permitting the Palen Solar Power Project.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
NOISE		
NOISE-1, Public Notification Process: At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within one mile of the project site and the linear facilities, by mail or by other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project. If the telephone is not staffed 24 hours a day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction where it is visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.	Prior to ground disturbance, the project owner shall transmit to the compliance project manager (CPM) a statement, signed by the project owner's project manager, stating that the above notification has been performed, and describing the method of that notification. This communication shall also verify that the telephone number has been established and posted at the site, and shall provide that telephone number.	CEC
NOISE-2, Noise Complaint Process: Throughout the construction and operation of the project, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent shall: 1. use the Noise Complaint Resolution Form (below), or a functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint; 2. attempt to contact the person(s) making the noise complaint within 24 hours; 3. conduct an investigation to determine the source of noise in the complaint; 4. if the noise is project related, take all feasible measures to reduce the source of the noise; and 5. submit a report documenting the complaint and actions taken. The report shall include: a complaint summary, including the final results of noise reduction efforts and, if obtainable, a signed statement by the complainant stating that the noise problem has been resolved to the complainant's satisfaction.	Within five days of receiving a noise complaint, the project owner shall file a Noise Complaint Resolution Form, shown below, with both the local jurisdiction and the CPM, that documents the resolution of the complaint. If mitigation is required to resolve the complaint, and the complaint is not resolved within a 3-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is performed and complete.	CEC
NOISE-3, Employee Noise Control Program: The project owner shall submit to the CPM for review and approval a noise control program. The noise control program shall be used to reduce employee exposure to high (above permissible) noise levels during construction in accordance to the applicable OSHA and Cal-OSHA standards.	At least 30 days prior to the start of ground disturbance, the project owner shall submit the noise control program to the CPM. The project owner shall make the program available to Cal-OSHA upon request.	CEC
NOISE-4, Noise Restrictions: The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that the operation of the project will not cause the noise levels due to plant operation alone, during the daytime hours of 7 a.m. to 10 p.m. to exceed an average of 42 dBA Leq measured at or near monitoring location LT1. No new pure-tone components shall be caused by the project. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. A. When the project first achieves a sustained output of 85% or greater of rated capacity, the project owner shall conduct a 25 hour community noise survey at monitoring location LT1, or at a closer location acceptable to the CPM. This survey shall also include measurement of one-third octave band sound pressure levels to ensure that no new pure-tone noise components have been caused by the project.	The survey shall take place within 30 days of the project first achieving a sustained output of 85% or greater of rated capacity. Within 15 days after completing the survey, the project owner shall submit a summary report of the survey to the CPM. Included in the survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limit, and a schedule, subject to CPM approval, for implementing these measures. When these measures are in place, the project owner shall repeat the noise survey.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
NOISE (cont.)		
The measurement of power plant noise for the purposes of demonstrating compliance with this condition of certification may alternatively be made at a location, acceptable to the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the affected residence. The character of the plant noise shall be evaluated at the affected receptor locations to determine the presence of pure tones or other dominant sources of plant noise. B. If the results from the noise survey indicate that the power plant noise at the affected receptor site exceeds the above value during the above time period, mitigation measures shall be implemented to reduce noise to a level of compliance with this limit. C. If the results from the noise survey indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.	Within 15 days of completion of the new survey, the project owner shall submit to the CPM a summary report of the new noise survey, performed as described above and showing compliance with this condition.	
NOISE 5, Occupational Noise Survey : Following the project's attainment of a sustained output of 85% or greater of its rated capacity, the project owner shall conduct an occupational noise survey to identify any noise hazardous areas in the facility. The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, sections 5095 5099 (Article 105) and Title 29, Code of Federal Regulations, section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure. The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures to be employed in order to comply with the applicable California and federal regulations.	Within 30 days after completing the survey, the project owner shall submit the noise survey report to the CPM. The project owner shall make the report available to OSHA and Cal-OSHA upon request.	CEC
NOISE-6, Construction Restrictions: Heavy equipment operation and noisy construction work relating to any project features shall be restricted to the times delineated below, unless a special permit has been issued by the County of Riverside: Mondays through Fridays: June through September: 6 a.m. to 7 p.m. October through May: 6 a.m. to 6 p.m. Saturdays: 9 a.m. to 5 p.m. Sundays and Federal holidays: No Construction Allowed Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.	Prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project.	CEC
NOISE-7, High-Pressure Steam Blow Requirements: If a traditional, high-pressure steam blow process is used the project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 89 dBA measured at a distance of 100 feet. The steam blows shall be conducted between 8:00 a.m. and 5:00 p.m. unless arranged with the CPM such that offsite impacts would not cause annoyance to receptors. If a low-pressure,	At least 15 days prior to the first steam blow, the project owner shall notify all residents or business owners within one mile of the project site boundary. The notification may be in the form of letters, phone calls, fliers, or other effective	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
NOISE (cont.)		
continuous steam blow process is used, the project owner shall submit to the CPM a description of the process, with expected noise levels and planned hours of steam blow operation.	means as approved by the CPM. The notification shall include a description of the purpose and nature of the steam blow(s), the planned schedule, expected sound levels, and explanation that it is a one-time activity and not part of normal plant operation.	
SOIL AND WATER		
SOIL&WATER-1, Drainage Erosion and Sedimentation Control Plan (DESCP): Prior to site mobilization, the project owner shall obtain the Compliance Project Manager (CPM) approval of the Drainage Erosion and Sedimentation Control Plan (DESCP) for managing stormwater during Project construction and operations as normally administered by the County of Riverside. The DESCP must ensure proper protection of water quality and soil resources, demonstrate no increase in off-site flooding potential, include provisions for sediment and stormwater retention from both the power block, solar fields and transmission right of way to meet any Riverside County requirements, address exposed soil treatments in the solar fields for both road and non-road surfaces, and identify all monitoring and maintenance activities. The plan must also cover all linear project features such as offsite transmission mains. The DESCP shall contain, at minimum, the elements presented below that outline site management activities and erosion and sediment-control Best Management Practices (BMP) to be implemented during site mobilization, excavation, construction, and post construction (operating) activities. ***A. Vicinity Map*** – A map(s), at a minimum scale 1 inch to 500 feet, shall be provided indicating the location of all Project elements (construction sites, laydown area, pipelines) with depictions of all significant geographic features including swales, storm drains, and sensitive areas. ***B. Site Delineation*** – All areas subject to soil disturbance for the proposed Project (Project phases, laydown area, all linear facilities, landscaping areas, and any other Project elements) shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities. ***C. Watercourses and Critical Areas*** – The DESCP shall show the location of all nearby watercourses including swales, storm drains, and drainage ditches. It shall indicate the proximity of those features to the proposed Project construction, laydown, and landscape areas and all transmission and pipeline construction corridors. a. The DESCP shall describe how the project will avoid or minimize impacts to Palen-McCoy Valley sand corridor, b. All proposed linear features (with the exception of Power Pylons) shall be constructed flush with the surrounding ground surface and without ground level obstructions. ***D. Drainage Map*** – The DESCP shall provide a topographic site map(s), at a minimum scale of 1 inch to 200 feet, showing existing, interim, and proposed drainage swales and drainage systems and drainage-area boundaries. On the map, spot elevations are required where relatively flat conditions exist. The spot elevations and contours shall be extended off site for a minimum distance of 100 feet.	No later than 30 days prior to start of site mobilization, the Project owner shall submit a copy of the final DESCP to the County of Riverside, he CRBRWQCB, and the CPM for review and comment and to the County of Riverside and the CRBRWQCB if required. The CPM shall consider comments if received by the county and CRBRWQCB before approval of the DESCP. The DESCP shall be consistent with the grading and drainage plan and relevant portions of the DESCP shall clearly show approval by the chief building official. he DESCP shall be a separate plan from the SWPPP developed in conjunction with any National Pollutant Discharge Elimination System (NPDES) permit for construction Activity. The project owner shall provide in the monthly compliance report with a narrative on the effectiveness of the drainage, erosion, and sediment-control measures and the results of monitoring and maintenance activities. Once operational, the project owner shall update and maintain the ESCP for the life of the Project and shall provide in the annual compliance report information on the results of monitoring and maintenance activities.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
E. Drainage of Project Site Narrative – The DESCP shall include a narrative of the drainage measures necessary to protect the site and potentially affected soil and water resources within the drainage downstream of the site. The narrative shall include the summary pages from the hydraulic analysis prepared by a professional engineer and erosion control specialist. The narrative shall state the watershed size(s) in acres that was used in the calculation of drainage features. ***F. Clearing and Grading Plans*** – The DESCP shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross sections, or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography shall be illustrated by tying in proposed contours with existing topography. ***G. Clearing and Grading Narrative*** – The DESCP shall include a table with the estimated quantities of material excavated or filled for the site and all Project elements (Project site, laydown area, transmission and pipeline corridors, roadways, and bridges) whether such excavation or fill is temporary or permanent, and the amount of such material to be imported or exported. ***H. Soil Wind and Water Erosion Control –*** The plan shall address exposed soil treatments to be used during construction and operation of the proposed Project for both road and non-road surfaces including specifically identifying all chemical based dust palliatives, soil bonding, and weighting agents appropriate for use at the proposed Project site that would not cause adverse effects to vegetation. BMPs shall include measures designed to prevent wind and water erosion including application of chemical dust palliatives after rough grading to limit water use. All dust palliatives, soil binders, and weighting agents shall be approved by the CPM prior to use. ***I. Best Management Practices Plan –*** The DESCP shall identify on the topographic site map(s) the location of the site specific BMPs to be employed during each phase of construction (initial grading, Project element excavation and construction, and final grading/stabilization). BMPs shall include measures designed to control dust, stabilize construction access roads and entrances, and control stormwater runoff and sediment transport. ***J. Best Management Practices Narrative –*** The DESCP shall show the location (as identified in (I) above), timing, and maintenance schedule of all erosion- and sediment-control BMPs to be used prior to initial grading, during all Project element (site, pipelines) excavations and construction, final grading/stabilization, and operation. Separate BMP implementation schedules shall be provided for each Project element for each phase of construction. The maintenance schedule shall include post-construction maintenance of structural-control BMPs, or a statement provided about when such information would be available. ***K. Project Schedule –*** The DESCP shall identify on the topographic site map the location of the site-specific BMPs to be employed during each phase of construction (initial grading, Project element construction, and final grading/stabilization). Separate BMP implementation schedules shall be provided for each Project element for each phase of construction. ***L. Erosion Control Drawings –*** The erosion-control drawings and narrative shall be designed, stamped and sealed by a professional engineer or erosion control specialist. ***M. Agency Comments –*** The DESCP shall include copies of recommendations, conditions, and provisions from the County of Riverside, California Department of Fish and Game (CDFG), and Colorado River Basin Regional Water Quality Control Board (CRBRWQCB).		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
***N. Monitoring Plan*:** Monitoring activities shall include routine measurement of the volume of accumulated sediment in the onsite drainage ditches, and stormwater diversions. The monitoring plan shall be part of the Channel Monitoring and Maintenance Plan, **SOIL&WATER-12**.		
SOIL&WATER-2, Groundwater Wells, Pre-Well Installation: The project owner proposes to construct and operate up to ten (10) onsite groundwater water supply wells that produce water from the CVGB. The project owner shall ensure that the wells are completed in accordance with all applicable state and local water well construction permits and requirements. Prior to initiation of well construction activities, the project owner shall submit for review and comment a well construction packet to the County of Riverside and fees normally required for the county's well permit, with copies to the CPM. The Project shall not construct a well or extract and use groundwater until approval has been issued by the County and the CPM to construct and operate the well. Wells permitted and installed as part of preconstruction field investigations that subsequently are planned for use as project water supply wells require CPM approval prior to their use to supply water to the project. ***Post-Well Installation*.** The project owner shall provide documentation as required under County permit conditions to the CPM that the well has been properly completed. In accordance with California's Water Code section 13754, the driller of the well shall submit to the DWR a Well Completion Report for each well installed. The project owner shall ensure the Well Completion reports are submitted. The project owner shall ensure compliance with all county water well standards and the County requirements for the life of the wells, and shall provide the CPM with two (2) copies each of all monitoring or other reports required for compliance with the County of Riverside water well standards and operation requirements, as well as any changes made to the operation of the well.	The project owner shall do all of the following: a. No later than 60 days prior to the construction of the onsite groundwater production wells, the project owner shall submit to the CPM a copy of the water well construction packet submitted to the County of Riverside. b. No later than 30 days prior to the construction of the onsite groundwater production wells, the project owner shall submit a copy of written concurrence received from the County of Riverside that the proposed well construction activities comply with all county well requirements and meet the requirements established by the county's water well permit program. The CPM will provide approval to the project owner of the well location and operation within 10 days of receipt of the County of Riverside's concurrence with the proposed well construction activities. c. No later than 60 days after installation of each well at the Project site, the project owner shall ensure that the well driller submits a Well Completion Report to the DWR with a copy provided to the CPM. The project owner shall submit to the CPM together with the Well Completion Report a copy of well drilling logs, water quality analyses, and any inspection reports. Additionally no later than 60 days after installation of each well (including closure of any associated mud pits) the project owner shall submit documentation to the CPM and the CRBWQCB that well drilling activities were conducted in compliance with Title 23, California Code of Regulations, Chapter 15, Discharges of Hazardous Wastes to Land, (23 CCR, sections 2510 et seq.) and that any onsite drilling sumps used for Project drilling activities were removed in compliance with 23 CCR section 2511(c). d. During well construction and for the operational life of the well, the project owner shall submit two copies each to the CPM of any proposed well construction or operation changes.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
SOIL&WATER-3, Construction and Operation Water Use: The proposed Project's use of groundwater during construction shall not exceed 1,917 afy (total of 5,750 af during the 39 months) during construction and 300 afy during operation. Water quality used for project construction and operation shall be reported in accordance with Condition of Certification **SOIL&WATER-18** to ensure compliance with this condition. Prior to the use of groundwater for construction, the project owner shall install and maintain metering devices as part of the water supply and distribution system to document Project water use and to monitor and record in gallons per day the total volume(s) of water supplied to the Project from this water source. The metering devices shall be operational for the life of the Project.	At least 60 days prior to the start of construction of the proposed Project, the project owner shall submit to the CPM a copy of evidence that metering devices have been installed and are operational. Beginning six months after the start of construction, the project owner shall prepare a semi-annual summary of amount of water used for construction purposes. The summary shall include the monthly range and monthly average of daily water usage in gallons per day. The project owner shall prepare an annual summary, which shall include daily usage, monthly range and monthly average of daily water usage in gallons per day, and total water used on a monthly and annual basis in acre-feet. For years subsequent to the initial year of operation, the annual summary shall also include the yearly range and yearly average water use by source. For calculating the total water use, the term "year" shall correspond to the date established for the annual compliance report submittal.	CEC
SOIL&WATER-4, Groundwater Level Monitoring, Mitigation and Reporting: The project owner shall submit a Groundwater Level Monitoring, Mitigation, and Reporting Plan to the CPM for review and approval in advance of construction activities and prior to the operation of onsite groundwater supply wells. The Groundwater Level Monitoring, Mitigation, and Reporting Plan shall provide detailed methodology for monitoring background and site groundwater levels. Monitoring shall include pre-construction, construction, and Project operation water use. The plan shall establish pre-construction and Project related groundwater level and water quality trends that can be quantitatively compared against observed and simulated trends near the Project pumping wells and near potentially impacted existing wells. ***A. Prior to Project Construction*** 1. A well reconnaissance shall be conducted to investigate and document the condition of existing water supply wells located within 3 miles of the project site, provided that access is granted by the well owners. The reconnaissance shall include sending notices by registered mail to all property owners within a 3 mile radius of the project area. 2. Monitor to establish preconstruction conditions. The monitoring plan and network of monitoring wells shall make use of existing wells in the basin that would satisfy the requirements for the monitoring program. The monitoring network shall be defined by the groundwater model developed for the AFC as the area predicted to show a water level change of 1 feet or more at the end of construction and at the end of operation and any monitoring wells that are installed to comply with Waste Discharge Requirements issued by the Energy Commission for the evaporation ponds and land treatment unit associated with the Project. The projected area of groundwater drawdown shall be refined on an annual basis during project construction and every three (3) years during project operations using the data acquired as part of Condition of Certification SOIL&WATER-4 as well as the numerical groundwater model developed as part of the AFC and subsequent	The project owner shall do all of the following: At least 60 days prior to operation of the site groundwater supply wells, the project owner shall submit to the CPM, a comprehensive report presenting all the data and information required in item A above. The CPM will provide comments to the plan 15 days following submittal, and the final plan shall be approved 15 days prior to operation of the site groundwater supply wells. The project owner shall submit to the CPM all calculations and assumptions made in development of the report data and interpretations. During Project construction, the project owner shall submit to the CPM quarterly reports presenting all the data and information required in item B above. The quarterly reports shall be provided 30 days following the end of the quarter. The project owner shall also submit to the CPM all calculations and assumptions made in development of the report data and interpretations. No later than March 31 of each year of construction or 60 days prior to Project operation, the project owner shall	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
Data Responses by the applicant. If the area predicted to show a water level change of 1 feet increases, the project owner will be required to submit a revised monitoring plan with additional monitoring wells (if required). 3. Identified additional wells shall be located outside of this area to serve as background monitoring wells. Abandoned wells, or wells no longer in use, that are accessible and provide reliable water level data within the potentially impacted area shall also be included as part of the monitoring network. A site reconnaissance shall be performed to identify wells that could be accessible for monitoring. As access to these wells is available, historic water level, water quality, well construction and well performance information shall be obtained for both pumping and non-pumping conditions. 4. As access allows, measure groundwater levels from the off-site and on-site wells within the network and background wells to provide initial groundwater levels for pre-project trend analysis. 5. Construct water level maps within the CVGB within 5 miles of the site from the groundwater data collected prior to construction. Update trend plots and statistical analyses, as data is available. ***B. During Construction:*** 1. Collect water levels from wells within the monitoring network and flows from seeps and or springs on a quarterly basis throughout the construction period and at the end of the construction period. Perform statistical trend analysis for water levels. Assess the significance of an apparent trend and estimate the magnitude of that trend. ***C. During Operation:*** 1. On a quarterly basis for the first year of operation and semiannually thereafter for the following four years, collect water level measurements from any wells identified in the groundwater monitoring program to evaluate operational influence from the Project. Quarterly operational parameters (i.e., pumping rate) of the water supply wells shall be monitored. Additionally, quarterly groundwater-use in the CVGB shall be estimated based on available data. 2. On an annual basis, perform statistical trend analysis for water levels data and comparison to predicted water level declines due to project pumping. Analysis of the significance of an apparent trend shall be determined and the magnitude of that trend estimated. Based on the results of the statistical trend analyses and comparison to predicted water level declines due to Project pumping, the project owner shall determine the area where the Project pumping has induced a drawdown in the water supply at a level of 5 feet or more below the baseline trend. 3. If water levels have been lowered more than 5 feet below presite operational trends, and monitoring data provided by the project owner show these water level changes are different from background trends and are caused by Project pumping, then the project owner shall provide mitigation to the impacted well owner(s). Mitigation shall be provided to the impacted well owners that experience 5 feet or more of Project-induced drawdown if the CPM's inspection of the well monitoring data confirms changes to water levels and water level trends relative to measured pre-project water levels, and the well (private owners well in question) yield or performance has been significantly affected by Project pumping. The type and extent of mitigation shall be determined by the amount of water level decline induced by the Project, the type of impact, and site specific well construction and water use characteristics. If an impact is determined to be caused by drawdown from more than one source, the level of mitigation provided shall be proportional to the amount of drawdown induced by the Project relative to other sources. In order to be eligible, a well owner must provide	provide to the CPM for review and approval, documentation showing that any mitigation to private well owners during Project construction was satisfied, based on the requirements of the property owner as determined by the CPM. During Project operation, the project owner shall submit to the CPM, applicable quarterly, semi-annual and annual reports presenting all the data and information required in item C above. Quarterly reports shall be submitted to the CPM 30 days following the end of the quarter. The fourth quarter report shall serve as the annual report and shall be provided on January 31 in the following year. The project owner shall submit to the CPM all calculations and assumptions made in development of report data and interpretations, calculations, and assumptions used in development of any reports. After the first five year operational and monitoring period, the project owner shall submit a 5 year monitoring report to the CPM that includes all monitoring data collected and a summary of the findings. The CPM will determine if the water level measurements and water quality sampling frequencies should be revised or eliminated.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
documentation of the well location and construction, including pump intake depth, and that the well was constructed and usable before Project pumping was initiated. The mitigation of impacts shall be determined as follows: a. If Project pumping has lowered water levels by 5 feet or more and increased pumping lifts, increased energy costs shall be calculated. Payment or reimbursement for the increased costs shall be provided at the option of the affected well owner on an annual basis. In the absence of specific electrical use data supplied by the well owner, the project owner shall use **SOIL&WATER-5** to calculate increased energy costs. b. If groundwater monitoring data indicate Project pumping has lowered water levels below the top of the well screen, and the well yield is shown to have decreased by 10% or more of the pre-Project average seasonal yield, compensation shall be provided for the diagnosis and maintenance to treat and remove encrustation from the well screen. Reimbursement shall be provided at an amount equal to the customary local cost of performing the necessary diagnosis and maintenance for well screen encrustation. Should the well yield reductions be recurring, the project owner shall provide payment or reimbursement for periodic maintenance throughout the life of the Project. If with treatment the well yield is incapable of meeting 110% of the well owner's maximum daily demand, dry season demand, or annual demand the well owner should be compensated by reimbursement or well replacement as described under Condition 3.c. c. If Project pumping has lowered water levels to significantly impact well yield so that it can no longer meet its intended purpose, causes the well to go dry, or cause casing collapse, payment or reimbursement of an amount equal to the cost of deepening or replacing the well shall be provided to accommodate these effects. Payment or reimbursement shall be at an amount equal to the customary local cost of deepening the existing well or constructing a new well of comparable design and yield (only deeper). The demand for water, which determines the required well yield, shall be determined on a per well basis using well owner interviews and field verification of property conditions and water requirements compiled as part of the pre-project well reconnaissance. Well yield shall be considered significantly impacted if it is incapable of meeting 110% of the well owner's maximum daily demand, dry-season demand, or annual demand – assuming the pre-project well yield documented by the initial well reconnaissance met or exceeded these yield levels. d. The project owner shall notify any owners of the impacted wells within one month of the CPM approval of the compensation analysis for increased energy costs. e. Pump lowering – In the event that groundwater is lowered as a result of Project pumping to an extent where pumps are exposed but well screens remain submerged the pumps shall be lowered to maintain production in the well. The Project shall reimburse the impacted well owner for the costs associated with lowering pumps. f. Deepening of wells – If the groundwater is lowered enough as a result of Project pumping that well screens and/or pump intakes are exposed, and pump lowering is not an option, such affected wells shall be deepened or new wells constructed. The project owner shall reimburse the impacted well owner for all costs associated with deepening existing wells or constructing new wells shall be borne by the project owner. 4. After the first five-year operational and monitoring period the CPM shall evaluate the data and determine if the monitoring program for water level measurements should be revised or eliminated. Revision or elimination of any monitoring program elements shall be based on the consistency of the data collected. The determination of whether the monitoring program should be revised or eliminated shall be made by the CPM.		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
5. If mitigation includes monetary compensation, the project owner shall provide documentation to the CPM that compensation payments have been made by March 31 of each year of Project operation or, if lump-sum payments are made, payment is made by March 31 following the first year of operation only. Within 30 days after compensation is paid, the project owner shall submit to the CPM a compliance report describing compensation for increased energy costs necessary to comply with the provisions of this condition. 6. At the end of every subsequent five-year monitoring period, the collected data shall be evaluated by the CPM and they shall determine if the sampling frequency should be revised or eliminated. 7. During the life of the Project, the project owner shall provide to the CPM all monitoring reports, complaints, studies and other relevant data within 10 days of being received by the project owner.		
SOIL&WATER-5, Increased Energy Costs : Where it is determined that the project owner shall reimburse a private well owner for increased energy costs identified as a result of analysis performed in Condition of Certification **SOIL&WATER-4,** the project owner shall calculate the compensation owed to any owner of an impacted well as described below. Increased Cost for Energy = Change in lift/total system head x total energy consumption x costs/unit of energy Where: Change in lift (ft) = calculated change in water level in the well resulting from project total system head (ft) = elevation head + discharge pressure head elevation head (ft) = difference in elevation between wellhead discharge pressure gauge and water level in well during pumping. discharge pressure head (ft) = pressure at wellhead discharge gauge (psi) X 2.31 The project owner shall submit to the CPM for review and approval the documentation showing which well owners must be compensated for increased energy costs and that the proposed amount is sufficient compensation to comply with the provisions of this condition. 1. Any reimbursements (either lump sum or annual) to impacted well owners shall be only to those well owners whose wells were in service within six months of the Commission decision and within a 5-mile radius of the project site. 2. The project owner shall notify all owners of the impacted wells within one month of the CPM approval of the compensation analysis for increase energy costs. 3. Compensation shall be provided on either a one-time lump-sum basis, or on an annual basis, as described below. ***Annual Compensation*:** Compensation provided on an annual basis shall be calculated prospectively for each year by estimating energy costs that will be incurred to provide the additional lift required as a result of the project. With the permission of the impacted well owner, the project owner shall provide energy meters for each well or well field affected by the project. The impacted well owner to receive compensation must provide documentation of energy consumption I the form of meter readings or other verification of fuel consumption. For each year after the first year of operation, the project owner shall include an adjustment for any deviations between projected and actual energy costs for the previous calendar year.	The project owner shall do all of the following: 1. No later than 30 days after CPM approval of the well drawdown analysis, the project owner shall submit to the CPM for review and approval all documentation and calculations describing necessary compensation for energy costs associated with additional lift requirements. 2. The project owner shall submit to the CPM all calculations, along with any letters signed by the well owners indicating agreement with the calculations, and the name and phone numbers of those well owners that do not agree with the calculations. Compensation payments shall be made by March 31 of each year of project operation or, if lump-sum payment is selected, payment shall be made by March 31 of the first year of operation only. Within 30 days after compensation is paid, the project owner shall submit to the CPM a compliance report describing compensation for increased energy costs necessary to comply with the provisions of this condition.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
***One-Time Lump-Sum Compensation*:** Compensation provided on a one-time lump-sum basis shall be based on a well-interference analysis, assuming the maximum project-pumping rate of 300 afy. Compensation associated with increased pumping lift for the life of the project shall be estimated as a lump sum payment as follows: 4. The current cost of energy to the affected party considering time of use or tiers of energy cost applicable to the party's billing of electricity from the utility providing electric service, or a reasonable equivalent if the party independently generates their electricity; 5. An annual inflation factor for energy cost of 3%; and 6. A net present value determination assuming a term of 30 years and a discount rate of 9%;		
SOIL&WATER-6, Water Discharge Requirements: The project owner shall comply with the requirements specified in Appendix B, C, and D. These requirements relate to discharges, or potential discharges, of waste that could affect the quality of waters of the state, and were developed in consultation with staff of the State Water Resources Control Board and/or the applicable California Regional Water Quality Control Board (hereafter "Water Boards"). It is the Commission's intent that these requirements be enforceable by both the Commission and the Water Boards. In furtherance of that objective, the Commission hereby delegates the enforcement of these requirements, and associated monitoring, inspection and annual fee collection authority, to the Water Boards. Accordingly, the Commission and the Water Board shall confer with each other and coordinate, as needed, in the enforcement of the requirements. The project owner shall pay the annual waste discharge permit fee associated with this facility to the Water Boards. In addition, the Water Boards may "prescribe" these requirements as waste discharge requirements pursuant to Water Code Section 13263 solely for the purposes of enforcement, monitoring, inspection, and the assessment of annual fees, consistent with Public Resources Code Section 25531, subdivision (c).	The Project owner shall follow the groundwater quality monitoring requirements as provided in SOIL&WATER-18 by providing Groundwater Quality Monitoring and Reporting Plan 90 days prior to operation of water supply wells for construction activities. The plan shall provide methods and procedures for monitoring background water quality, and site groundwater quality related to operation of the waste management units. Well locations, groundwater sampling procedures and analytical methods shall be provided consistent with requirements stipulated in the Waste Discharge Requirements provided in Appendix B, C and D. No later than 60 days prior to any wastewater discharge or use of land treatment units, the project owner shall provide documentation to the CPM, with copies to the CRBRWQCB, demonstrating compliance with the WDRs established in Appendices B, C, and D. Any changes to the design, construction, or operation of the evaporation basins, treatment units, or storm water system shall be requested in writing to the CPM, with copies to the CRBRWQCB, and approved by the CPM, in consultation with the CRBRWQCB, prior to initiation of any PSPP Soil and Water Opening Testimony Page 5 changes. The project owner shall provide to the CPM, with copies to the CRBRWQCB, all monitoring reports required by the WDRs, and fully explain any violations, exceedances, enforcement actions, or corrective actions related to construction or operation of the evaporation basins or treatment units.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
SOIL&WATER-7, Septic System and Leach Field Requirements: The project owner shall comply with the requirements of the County of Riverside Ordinance Code Title 8, Chapter 8.124 and the California Plumbing Code (California Code of Regulations Title 24, Part 5) regarding sanitary waste disposal facilities such as septic systems and leach fields. The septic system and leach fields shall be designed, operated, and maintained in a manner that ensures no deleterious impact to groundwater or surface water. Compliance shall include an engineering report on the septic system and leach field design, operation, maintenance, and loading impact to groundwater.	The project owner shall submit all necessary information and the appropriate fee to the County of Riverside and the CRBRWQCB to ensure that the project has complied with county and state sanitary waste disposal facilities requirements. Written assessments prepared by the County of Imperial and the CRBRWQCB regarding the project's compliance with these requirements must be submitted to the AO and CPM for review and approval 30-days prior to the start of power plant operation.	CEC
SOIL&WATER-8, Revised Project Drainage Report and Plans: The Project owner shall provide a revised Drainage Report which includes the following additional information: A. Sizing of the Center Channel which considers the potential failure of the earthen berm located along the Corn Springs Wash crossing under I 10. B. Revised onsite hydrology calculations using CN values consistent with the Riverside County Hydrology Manual for graded areas. C. Detailed analysis and documentation of onsite swales and drainage channels demonstrating adequate capacity to ensure overtopping will not occur. This is of special concern for collector channels which are located at the top of terraces where there is a large drop (20 feet ±) from the outside of the channel to the lower terrace. It shall be demonstrated that seepage from these channels will not compromise the adjacent slope to the lower terrace. D. Detailed scour calculations to justify toe-down depths for all soil cement segments, drop structures, slope protection, and any other features where scour is an issue. E. Revised onsite hydrology map showing peak discharge values at locations where the onsite drainage system discharges into the West, Center, or East channels, or directly offsite. F. Hydraulic and scour analysis for proposed drainage modifications associated with the construction of linear features including culvert crossings, at-grade crossings, bank protection and other potential features. G. Digital copies of all HEC-HMS and HEC-RAS analysis. H. A specific discussion of how the proposed onsite drainage design will protect the facility from erosion and the possible failure of the facilities resulting in a release of HTF. The project owner shall also provide the 30% Grading and Drainage Plans which include the design based on information provided in the revised Drainage Report outlined above.	The project owner shall submit a Revised Project Drainage Report with the 30% Grading and Drainage Plans to the CPM for their review and comments 30 days prior to construction activities. The project owner shall address comments provided by the CPM until approval of the report is issued. All comments and concepts presented in the approved Revised Project Drainage Report with the 30%Grading and Drainage Plans shall be included in the final Grading and Drainage Plans. The Revised Project Drainage Report and 30% Grading and Drainage Plans shall be approved by the CPM.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
SOIL&WATER-9, Detailed FLO-2D Analysis: The Project owner shall provide a detailed hydraulic analysis utilizing FLO 2D which models pre- and post-development flood conditions for the 10-, 25- and 100 year storm events. The post-development model must include all proposed collector channels, end diffuser structures and berms. The methods and results of the analysis must be fully documented in a Technical Memorandum or in the revised Project Drainage Report required in SOIL&WATER 8. Graphical output must include depth and velocity mapping as well as mapping which graphically shows the changes in both of these parameters between the pre- and post development conditions. Color shading schemes used for the mapping must be consistent between all maps as well as clear and easily differentiated between designated intervals for hydraulic parameters. Intervals to be used in the mapping are as follows: Flow Depth: at 0.20 ft intervals up to 1 ft, and 0.40 ft intervals thereafter. Velocity: 0.5 ft/s intervals A set of figures shall be provided at a scale of no less than 1 inch = 200 feet which show the extent and depths of flows entering the North, South and West channels for the 100-year event. A figure at the same scale shall also be provided for depth, velocity and the relative change in these parameters at and downstream of the four end diffuser structures for the 10-, 25- and 100-year events. Digital input and output files associated with the FLO-2D analysis must be included with all submittals. The results of this analysis shall be used for design of the 30% project grading and drainage plans.	The Project owner shall submit a detailed FLO-2D analysis to both the AO and CPM for their review and comments with the 30% Grading and Drainage Plans and revised Project Drainage Report required in **Soil&Water-8**. The Project owner shall address comments provided by both the AO and CPM until approval of the analysis is issued.	CEC
SOIL&WATER-10, Drainage Channel Design: All collector and conveyance channels shall be constructed consistent with Riverside County Flood Control and Water Conservation District (RCFCWCD) guidelines where applicable. Grade control structures shall be utilized where needed to meet channel velocity and Froude number requirements. Channels shall be sized along discreet sections based on the results of the detailed FLO-2D analysis described in **SOIL&WATER-9**. All grade control and drop structures shall have adequate toe-down to account for the design drop plus two additional feet to account for potential downcutting of the channel over time. Channel confluence design must be given special consideration, especially as the preliminary Grading and Drainage Plans show 90 degree angles of confluence at nearly all locations. The issues of confluence hydraulics and potential scour shall be specifically addressed in the revised Drainage Report. Offsite flows shall discharge directly into collector channels following the natural drainage patterns. The proposed collector channel design must be fully documented in the Grading and Drainage plans and must include the following information: A. Detailed and accurate cut/fill lines demonstrating in plan view how the channel would tie into existing grade and the solar facility. B. Channel cross-sections at 100-foot intervals showing the channel geometry, existing grade, proposed grade at the facility and how the channel would tie in at on both sides. C. Detailed channel profiles showing existing and finished grades at channel flow line and left and right banks. All drop structures as well as the toe of soil cement profile must also be shown and fully annotated. The 100-year water surface elevation shall be provided on all profiles. D. Typical sections and design details for all discreet channel sections, drop structures, channel confluences, flow dispersion structures and other relevant drainage features.	The project owner shall prepare preliminary, 30% channel design drawings and submit two copies for the CPM review and comment. The preliminary design drawings shall be submitted at the same time as the **Revised Project Drainage Report** in **SOIL&WATER-8** and FLO 2D Analysis in **SOIL&WATER-9**. The project owner shall update and modify the design as necessary to obtain the CPM approval.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
E. Details of all drainage modifications associated with the construction of linear features such as culverts, at-grade crossings, bank protection and other potential features. F. Consistent nomenclature and stationing on all plans, sections, profiles and details.		
SOIL&WATER-11, Channel Erosion Protection: The project owner shall provide revised preliminary Grading and Drainage Plans which incorporate the items and information as listed below for the channels designated as North, West, South, Southeast and Central on the existing plans (AECOM 2010a). A. Soil cement bank protection must be provided such that the channels are protected from bank erosion and lateral headcutting. The extents of the proposed bank protection must be shown on the revised Grading and Drainage Plans. Typical sections for these channels must show the layout of the bank protection including thickness, width and toe-down location and depth consistent with the scour calculation provided in the revised Drainage Report. B. Soil cement bank protection shall be provided on both channel banks wherever 10-year channel flow velocity exceeds 5 ft/s. It shall be provided on the outer channel bank wherever offsite topography and a detailed FLO-2D analysis indicate surface flow would enter the collector channels. C. Soil cement bank protection shall be provided at all channel confluences of otherwise unlined channels where the result of the detailed hydraulic analysis presented in the revised Drainage Report indicate the increased potential for erosion due to adverse angles of confluence. Detailed plans for each confluence showing the extents of the soil cement based on specific hydraulic conditions shall be provided in the formal Grading and Drainage Plans. D. Other methods of channel stabilization, such as dumped riprap or gabions, will not be permitted. Bio-stabilization measures are not permitted. E. Earthen berms used on the outside of collector channels to guide flow to discreet points of discharge into a channel shall not be utilized in lieu of soil cement on the outside bank of collector channels. Offsite flows shall discharge directly into collector channels. F. Design and construction criteria for the use of soil cement on the site shall be prepared by the Owner/Developer's engineer in conjunction with the design methodology established by the Geotechnical Engineer of Record. The design and construction criteria shall be based on local and/or regional requirements and specifications. The design and construction criteria, the geotechnical design for the soil cement, the site specific specifications for the soil cement, the method of installation for the soil cement, and the local or regional standards being used for the design criteria shall be provided to the CPM for review and comment consistent with the verification requirements for this Condition of Certification. The slope requirements that are proposed for use (3:1 or 4:1), and the associated method of installation (i.e., 8 inch lift versus slope application) shall be fully documented for review and approval by the CPM prior to any field installation of soil cement. G. A soils report indicating the suitability of the Project soils for use in the production of soil cement to the Project specifications shall be submitted with the revised Grading and Drainage Plans.	The required information and criteria shall be incorporated into the Grading and Drainage Plans and with all subsequent submittals as required in **SOIL&WATER-8** and **SOIL&WATER-9**. The project owner shall address all comments by the CPM related to the channel erosion protection design through final plan approval.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
H. The bottom of engineered collector channels may be left earthen or fully lined at the discretion of the engineer. Fully lined channels will have higher allowable velocities and Froude numbers assuming hydraulic jumps are modeled and considered in the channel design. I. Modifications to the existing drainages to allow construction of and future access to linear facilities shall require stabilization of the channels in the vicinity of those modifications. Locations of disturbance to the existing drainages shall be stabilized consistent with sound engineering practice to eliminate future negative impacts upstream and downstream of the linear facility in the form of downcutting, erosion and headcutting. The use of "nonengineered" culvert crossings shall not be allowed. All structures to be utilized in existing drainages along linear facilities shall be documented in the project drainage report and reflected in the project improvement plans. Channel erosion mitigation measures along linear facilities shall be subject to all the requirements of this Condition of Certification where applicable.		
SOIL&WATER-12, Channel Maintenance Program: The project owner shall develop and implement a Channel Maintenance Program that provides long-term guidance to implement routine channel maintenance projects and comply with conditions of certification in a feasible and environmentally sensitive manner. The Channel Maintenance Program will be a process and policy document prepared by the project owner, reviewed and approved by the CPM. The Channel Maintenance Program shall include the following: ***A. Purpose and Objectives*** – Establishes the main goals of the Program, of indefinite length, to maintain the diversion channel to meet its original design to provide flood protection, support Project mitigation, protect wildlife habitat and movement/ migration, and maintain groundwater recharge. ***B. Application and Use*** - The channel maintenance work area is defined as the Project engineered channel, typically extending to the top of bank, include access roads, and any adjacent property that the Project owns or holds an easement for access and maintenance. The Program shall include all channel maintenance as needed to protect the Project facilities and downstream property owners. ***C. Channel Maintenance Activities*** *1. Sediment Removal* - sediment is removed when it: (1) reduces the diversion channel effective flood capacity, to less than the design discharge, (2) prevents appurtenant hydraulic structures from functioning as intended, and (3) becomes a permanent, non-erodible barrier to instream flows. *2. Vegetation Management* - manage vegetation in and adjacent to the diversion channel to maintain the biological functions and values proposed in the mitigation. Vegetation management shall include control of invasive or nonnative vegetation as prescribed in Condition of Certification **BIO-14**. *3. Bank Protection and Grade Control Repairs* – Bank protection and grade control structure repairs involve any action by the project owner to repair eroding banks, incising toes, scoured channel beds, as well as preventative erosion when the problem: (1) causes or could cause significant damage to the Project; adjacent property, or the structural elements of the diversion channel; (2) is a public safety concern; (3) negatively affects groundwater recharge; or (4) negatively affects the mitigation vegetation, habitat, or species of concern.	At least 60 days prior to the start of any project-related site disturbance activities (excluding linear construction), the project owner shall coordinate with the CPM to develop the Channel Maintenance Program. The project owner shall submit two copies of the programmatic documentation, describing the proposed Channel Maintenance Program, to the CPM (for review and approval). The project owner shall provide written notification that they plan to adopt and implement the measures identified in the approved Channel Maintenance Program. The project owner shall: • Supervise the implementation of a Channel Maintenance Program in accordance with conditions of certification; • Ensure the Project Construction and Operation Managers receive training on the Channel Maintenance Program; • As part of the Project Annual Compliance Report to the CPM, submit a Channel Maintenance Program Annual Report specifying which maintenance activities were completed during the year including type of work, location, and measure of the activity (e.g., cubic yards of sediment removed).	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
4. Routine Channel Maintenance - trash removal and associated debris to maintain channel design capacity; repair and installation of fences, gates and signs; grading and other repairs to restore the original contour of access roads and levees (if applicable); and removal of flow obstructions at Project storm drain outfalls. *5. Channel Maintenance Program – Exclusions* including: emergency repair and CIP. ***D. Related Programmatic Documentation*** – the CPM will review and approve the Channel Maintenance Program programmatic documentation. Maintenance activities shall comply with the streambed alteration agreement provisions and requirements for channel maintenance activities consistent with California's endangered species protection regulations and other applicable regulations. ***E. Channel Maintenance Process Overview*** *1. Program Development and Documentation* – This documentation provides the permitting requirements for channel maintenance work in accordance with the conditions of certification for individual routine maintenance of the engineered channel without having to perform separate CEQA/NEPA review or obtain permits. *2. Maintenance Guidelines* - based on two concepts: (1) the maintenance standard and (2) the acceptable maintenance condition, and applies to sediment removal, vegetation management, trash and debris collection, blockage removal, fence repairs, and access road maintenance. *3. Implementation* – Sets Maintenance Guidelines for vegetation and sediment management. The Project's vegetation management activities are established in Condition of Certification **BIO-14**. Maintenance Guidelines for sediment removal provide information on the allowable depth of sediment for the engineered channel that would continue to provide design discharge protection. *4. Reporting* – the CPM requires the following reports to be submitted each year as part of the Annual Compliance Report: a. Channel Maintenance Work Plan – Describes the planned "major" maintenance activities and extent of work to be accomplished; and b. Channel Maintenance Program Annual Report – Specifies which maintenance activities were completed during the year including type of work, location, and measure of the activity (e.g. cubic yards of sediment removed). c. A report describing "Lessons Learned" to evaluate the effectiveness of both resource protection and maintenance methods used throughout the year. **F.** ***Resource Protection Policies*** - establishes policies to ensure that resources would be protected to the fullest extent feasible during routine channel maintenance activities. Policies shall be developed to guide decision-making for channel maintenance activities. BMPs shall be developed to implement these policies.		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
SOIL&WATER-13, Closure and Decommissioning Plan: The project owner shall prepare a decommissioning plan that will meet the requirements of the BLM. The project owner shall identify likely decommissioning scenarios and develop specific decommissioning plans for each scenario that will identify actions to be taken to avoid or mitigate long-term impacts related to water and wind erosion after decommissioning. Actions may include such measures as a decommissioning SWPPP, revegetation and restoration of disturbed areas, post-decommissioning maintenance, collection and disposal of project materials and chemicals, and access restrictions.	At least 60 days prior to the start of site mobilization or alternate date as agreed to with the CPM, the project owner shall submit decommissioning plans to the CPM for review and approval. The project owner shall amend these documents as necessary, with approval from the CPM, should the decommissioning scenario change in the future.	CEC
SOIL&WATER-14, Mitigation of Impacts to the Palo Verde Mesa Groundwater Basin: To mitigate the impact from Project pumping, the Project owner shall identify and implement offset measures to mitigate the increase in discharge from surface water to groundwater that affects recharge in the Palo Verde Valley Groundwater Basin (USGS). The project owner shall implement **SOIL&WATER-17** to evaluate the change in recharge over the life of the project including any latency effects from Project pumping. The activities shall include the following water conservation projects: payment for irrigation improvements in Palo Verde Irrigation District, payment for irrigation improvements in Imperial Irrigation District, purchase of water rights within the Colorado River Basin that will be held in reserve, and/or BLM's Tamarisk Removal Program or other proposed mitigation activities acceptable to the CPM. The activities proposed for mitigation shall be outlined in a Water Offset Plan that will be provided to the CPM for review and approval and which shall include the following at a minimum: A. Identification of the water offsets as determined in SOIL&WATER-17; B. Demonstration of the Project owner's ability to conduct the activity; C. Whether any governmental approval of the identified offset will be needed, and if so, whether additional approval will require compliance with CEQA or NEPA; D. Demonstration of how much water is provided by each of the offset measures; E. An estimated schedule for completion of the activities; F. Performance measures that would be used to evaluate the amount of water replaced by the proposed offset measure; and, G. A Monitoring and Reporting Plan outlining the steps necessary and proposed frequency of reporting to show the activities are achieving the intended benefits of the water supply offsets;	The project Owner shall submit a Water Offset Plan to the CPM for review and approval thirty (30) days before the start of extraction of groundwater for construction or operation. The Project owner shall implement the activities reviewed and approved in the Water Offset Plan in accordance with the agreed upon schedule in the Water Offset Plan. If agreement with the CPM on identification or implementation of offset activities cannot be achieved the Project owner shall immediately halt construction or operation until the agreed upon activities can be identified and implemented.	CEC
SOIL&WATER-15, Groundwater Production Reporting: The Project is subject to the requirement of Water Code Sections 4999 et. seq. for reporting of groundwater production in excess of 25 acre feet per year.	The project owner shall file an annual "Notice of Extraction and Diversion of Water" with the SWRCB in accordance with Water Code Sections4999 et. seq. The project owner shall include a copy of the filing in the annual compliance report.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
SOIL&WATER 16, Groundwater Subsidence Monitoring and Action Plan: One monument monitoring station per production well or a minimum of three stations shall be constructed to measure potential inelastic subsidence that may alter surface characteristics of the Chuckwalla Valley near the proposed production wells. The applicant shall: A. Prepare and submit a Subsidence Monitoring Plan (SMP). The plan shall include the following elements: 1. Construction diagrams of the proposed monument monitoring station including size and description, planned depth, measuring points, and protection measures; 2. Map depicting locations (minimum of three) of the planned monument monitoring stations; 3. Monitoring program that includes monitoring frequency, thresholds of significance, reporting format. B. Prepare quarterly reports commencing three (3) months following commencement of groundwater production during construction and operations. 1. The reports shall include presentation and interpretation of the data collected including comparison to the thresholds developed in Item C. C. Prepare a Mitigation Action Plan that details the following: 1. Thresholds of significance for implementation of proposed action plan; a. Any subsidence that may occur will not be allowed to damage existing structures either on or off the site or alter the appearance or use of the structure; b. Any subsidence that may occur will not be allowed to alter the natural drainage patterns or permit the formation of playas or lakes; c. Any subsidence that violates (a) or (b) will result in the project owner investigating the need to immediately reduce/cease pumping until the cause is identified or subsidence caused by project pumping abates and the structures and/or drainage patterns are stabilized and corrected. 2. Action Plan that details proposed actions by the applicant in the event thresholds are achieved during the monitoring program. The applicant shall submit the Ground Subsidence Monitoring and Action Plan that is prepared by an Engineering Geologist registered in the State of California 30 days prior to the start of extraction of groundwater for construction or operation.	The project owner shall do all of the following: 1. At least 30 days prior to project construction, the project owner shall submit to the CPM, a comprehensive report presenting all the data and information required in item A above. 2. The project owner shall submit to the CPM all calculations and assumptions made in development of the SMP. 3. During Project construction and operations, the project owner shall submit to the CPM quarterly reports presenting all the data and information required in item B above. 4. The project owner shall submit to the CPM all calculations and assumptions made in development of the report data and interpretations. 5. After the first five years of the monitoring period, the project owner shall submit a 5-year monitoring report to the CPM that submits all monitoring data collected and provides a summary of the findings. The CPM will determine if the Ground Subsidence Monitoring and Action Plan frequencies should be revised or eliminated.	CEC
SOIL&WATER 17, Estimation of Surface Water Impacts: To further assess the impacts from Project pumping, the Project owner shall estimate the increase in discharge from surface water to groundwater that affects recharge in the Palo Verde Valley Groundwater Basin (PVVGB)(USGS). This estimate may be used for determining the appropriate offset volume in accordance with **SOIL&WATER-14**. The Project owner shall do the following to provide an estimate for review and approval by the CPM: 1. The Project owner shall conduct a detailed analysis of the affect from Project pumping on at the end of the 30 year operational period the change in groundwater outflow from the Chuckwalla Valley Groundwater Basin to the Palo Verde Valley and how the change in outflow may affect recharge of surface water to the PVVGB from the Project's groundwater extraction activities. The detailed analysis shall include:	Within thirty (30) days following certification of the proposed Project, the project owner shall submit to the CPM for their review and approval a report detailing the results of the modeling effort. The report shall include the estimated amount of change in discharge from surface water to groundwater within the Palo Verde Valley due to Project pumping. This estimate shall be used for determining the appropriate volume of water for offset in accordance with **SOIL&WATER-14**.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
a. The conceptual model developed in the AFC and the Staff Assessment, for the Chuckwalla Valley Groundwater Basin and the Palo Verde Valley, and any changes resultant from further analysis in support of numerical modeling; b. The use of an appropriately constructed groundwater model 1.) for the eastern portion of the Chuckwalla Valley Groundwater Basin that describes the effect from Project pumping on the outflow of groundwater to the Palo Verde Valley, and 2.) an appropriately constructed groundwater model of the Palo Verde Valley, inclusive of the mesa and floodplain. The models shall be coupled as appropriate to determine the effect from Project pumping on the surface water recharge in the Palo Verde Valley. Each model shall be constructed in consideration of the following: i. Horizontal and vertical geometry information gained through on- and offsite investigations conducted as part of the hydrogeological field investigations for the AFC, and any subsequently documented investigation performed as part of the model development ; ii. Aquifer properties developed as part of the AFC and any subsequently documented investigations performed as part of the model development, and an assessment of aquifer properties available from other published sources. The properties used shall be representative of the available data; and iii. The modeling effort shall include a sensitivity analysis where in the most sensitive variables will be identified and varied within a reasonable range outside of the calibration value to provide an assessment of the range of potential impacts from the Project pumping on the recharge from the Palo Verde Valley Groundwater Basin. c. Reporting of the results of the modeling effort d. Estimation of the increased contribution of surface water discharge to groundwater and the change in recharge to the Palo Verde Valley Groundwater Basin attributable to Project groundwater pumping. 2. The analysis shall include the following elements: a. The change in groundwater flux to the regional aquifer from surface water sources attributable to Project pumping in afy for the life of the Project (30 years) until pre-project (within 95%) conditions are achieved; b. A sensitivity analysis that would provide a range in the potential changes in flux relative to variation in the key model variables within each model as a result of Project pumping for life of the Project until pre-project (within 95%) conditions are achieved; 3. The project owner shall present the results of the conceptual model, numerical model, transient runs and sensitivity analysis in a report for review and approval by the CPM. The report shall include all pertinent information regarding the development of the numerical models. The report shall include as discussion of the following as appropriate to each model: a. Introduction b. Previous Investigations c. Conceptual Model d. Numerical Model and Input Parameters e. Sensitivity Analysis f. Transient Modeling Runs g. Conclusions		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
SOIL&WATER-18, Groundwater Quality Monitoring and Reporting Plan: The project owner shall submit a Groundwater Quality Monitoring and Reporting Plan to the CPM for review and approval. The Groundwater Quality Monitoring and Reporting Plan shall provide a description of the methodology for monitoring background and site groundwater quality following the Waste Discharge Requirements of **SOIL&WATER-6**, to assess the effects from pumping on changes in the aquifer water chemistry, and to monitor potential impacts from operation of proposed septic leach fields, if required. The initial background water quality sampling shall be implemented during the background groundwater level monitoring events in accordance with **SOIL&WATER-4**. Prior to project construction, access to offsite wells shall be obtained and samples collected and monitoring wells shall be installed to evaluate background water quality in the shallow and deep regional aquifer in areas that will be affected by Project pumping. These data will be used to establish pre-construction water quality that can be quantitatively compared against data gathered during construction and operation to assess if project pumping or a release from the waste management units (See **SOIL&WATER-6**), or septic systems (if required) has adversely affected the water supply or sensitive receptors. 1. A Groundwater Quality Monitoring and Reporting Plan shall be submitted to the CPM 90 days prior to operation of the water supply wells for construction. The Plan shall include a scaled map showing the site and vicinity, existing well locations, and proposed monitoring locations (both existing wells and new monitoring wells proposed for construction). Additional monitoring wells that shall be installed include wells required in accordance with Condition of Certification **SOIL&WATER-6**, for the evaporation ponds and land treatment unit proposed for the project, and if required for the sanitary leachfield system. The map shall also include relevant natural and man-made features (existing and proposed as part of this project). The plan also shall provide: (1) well construction information and borehole lithology for each existing well proposed for use as a monitoring well; (2) description of proposed drilling and well installation methods; (3) proposed monitoring well design; and, (4) schedule for completion of the work. 2. A Well Monitoring Installation and Groundwater Quality Network Report shall be submitted to the CPM for review and approval in conjunction with Condition of Certification **SOIL&WATER-4** and 60 days prior to operation of the water supply wells. The report shall include a scaled map showing the final monitoring well network. It shall document the drilling methods employed, provide individual well construction as-builds, borehole lithology recorded from the drill cuttings, well development, and well survey results. The well survey shall measure the location and elevation of the top of the well casing and reference point for all water level measurements, and shall include the coordinate system and datum for the survey measurements. Additionally, the report shall describe the water level monitoring equipment employed in the wells and document their deployment and use. 3. As part of the monitoring well network development, all newly constructed monitoring wells shall be constructed consistent with State and Riverside County specifications. 4. Prior to use of any groundwater for construction, all groundwater quality and groundwater level monitoring data shall be reported to the CPM in the Well Monitoring Installation and Groundwater Quality Network Report that is due in conjunction with the background water level monitoring report under **SOIL&WATER-4** and 60 days prior to construction. The report shall include the following: a. An assessment of pre-project groundwater levels, a summary of available climatic information (monthly average temperature and rainfall records from the nearest weather station), and a comparison and assessment of water level data relative to the assumptions and spatial trends simulated by the applicant's groundwater model.	The project owner shall complete the following: At least 90 days prior to construction, a Groundwater Level and Quality Monitoring and Reporting Plan shall be submitted to the CPM for review and approval. At least 60 days prior to construction, a Well Monitoring Installation and Groundwater Level Network Report shall be submitted to the CPM for review and approval. At least 60 days prior to use of any groundwater for construction, all groundwater quality and groundwater level monitoring data shall be reported to the CPM. On a semiannual basis water quality data shall be collected during construction and 5 years following initial operation. The results of the monitoring will be reported on a semiannual basis, one month following the end of the 1st and 3rd quarters.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
b. An assessment of pre-project groundwater quality with groundwater samples analyzed for those constituents required under the Waste Discharge Requirements (Appendix B, C and D) and if not included total dissolved solids (TDS), chloride, nitrates, major cations and anions, oxygen-18 and deuterium isotopes, and soluble metals. c. The data shall be tabulated and include the estimated range (minimum and maximum values), average, and median for each constituent analyzed. If a sufficient number of data points are available from the background sampling, the data shall also be analyzed using the Mann-Kendall test for trend at 90% confidence to assess whether pre-project water quality trends, if any, are statistically significant. 5. During project construction and during the first five years of project operations, the project owner shall semi-annually monitor the quality of groundwater and changes in groundwater elevation and submit data semiannually to the CPM one month following the end of the 1st and 3rd quarter and following the operation reporting requirement under **SOIL&WATER-4**. After five years of project operations, the frequency and scope of the monitoring program shall be reassessed by the CPM. The semi-annual report shall document water level monitoring methods, the water level data, water level plots, and a comparison between pre- and post-project start-up water level trends as itemized below. The report shall also include a summary of actual water use conditions, monthly climatic information (temperature and rainfall) from the nearest meteorological monitoring station, and a comparison and assessment of water level data relative to the assumptions and simulated spatial trends predicted by the applicant's groundwater model. a. Groundwater samples from all wells in the monitoring well network shall be analyzed and reported semi-annually for those constituents required in the Waste Discharge Requirements (Appendix B, C and D) and if not included TDS, chloride, nitrates, cations and anions, oxygen-18 and deuterium isotopes. b. For analysis purposes, pre-project water quality shall be defined by samples collected prior to project construction as specified above, and compliance data shall be defined by samples collected after the construction start date to determine the effects from Project pumping and after the installation and operation of the waste management units in compliance with the Waste Discharge Requirements (Appendix B, C and D) and the sanitary leachfields, if required. c. Trends in water quality data shall be analyzed using the Mann- Kendall test for trend at the 90% confidence. Trends in the compliance data shall be compared and contrasted to pre-project trends, if any. d. The contrast between pre-project and compliance mean or median concentrations shall be compared using an Analysis of Variance (ANOVA) or other appropriate statistical method approved by the CRBRWQCB for evaluation of water quality impacts. A parametric ANOVA (for example, an F-test) can be conducted on the two data sets if the residuals between observed and expected values are normally distributed and have equal variance, or the data can be transformed to an approximately normal distribution. If the data cannot be represented by a normal distribution, then a nonparametric ANOVA shall be conducted (for example, the Kruskal-Wallis test). If a statistically significant difference is identified at 90% confidence between the two data sets, the monitoring data are inconsistent with random differences between the pre-project and baseline data indicating a significant water quality impact from project pumping may be occurring. e. If compliance data to evaluate the effects from Project pumping or potential impacts from operation of sanitary leachfield indicate that the water supply quality has deteriorated in (exceeds pre-project constituent concentrations in TDS, sodium, chloride, or other constituents identified as part of the monitoring plan and applicable Water Quality		

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
Objectives are exceeded for the applicable beneficial uses of the water supply) adjacent water supply wells that can be shown to be adversely influenced by Project Pumping for three consecutive years, the Project owner shall provide well-head treatment or a new water supply to either meet or exceed pre-project water quality conditions to any impacted water supply wells.		
SOIL&WATER-19, Non-Transient, Non-Community Water System: The Project is subject to the requirement of Title 22, Article 3, Sections 64400.80 through 64445 for a non-transient, non-community water system (serving 25 people or more for more than six months). In addition, the system shall require periodic monitoring for various bacteriological, inorganic and organic constituents.	The project owner shall submit the equivalent County of Riverside requirements to operate a non-transient, non-community water system with the County of Riverside at least 60 days prior to commencement of operations at the site. In addition, the project owner shall submit to the CPM a monitoring and reporting plan for production wells operated as part of the domestic water supply system prior to plant operations. The plan shall include reporting requirements including monthly, quarterly and annual submissions. The project owner shall designate a California Certified Water Treatment Plant Operator as well as the technical, managerial and financial requirements as prescribed by State law. The project owner shall supply updates on an annual basis of monitoring requirements, any required submittals equivalent to the County of Riverside requirements including annual renewal requirements.	CEC
TRAFFIC AND TRANSPORTATION		
TRANS-1, Regulation Compliance: The project owner shall comply with limitations imposed by Caltrans District 8 and other relevant jurisdictions, including the County of Riverside, on vehicle sizes and weights and driver licensing. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.	In the Monthly Compliance Reports (MCRs), the project owner shall report permits received during that reporting period. In addition, the project owner shall retain copies of permits and supporting documentation on-site for Compliance Project Manager (CPM) inspection if requested.	CEC
TRANS-2, Transport of Hazardous Materials: The project owner shall ensure that permits and/or licenses are secured from the California Highway Patrol and Caltrans for the transport of hazardous materials.	In the MCRs, the project owner shall report permits and/or licenses for hazardous substance transportation received during that reporting period. In addition, the project owner shall retain copies of permits, licenses, and supporting documentation on-site for CPM inspection if requested.	CEC
TRANS-3, Repair and Restoration of Roads: The project owner shall restore all public roads, easements, and rights-of-way that have been damaged due to project-related construction activities to original or near-original condition in a timely manner, as directed by BLM's Authorized Officer and the CPM. Repair and restoration of access roads may be required at any time during the construction phase of the project to assure safe ingress and egress.	At least 30 days prior to the start of mobilization, the project owner shall photograph or videotape all affected public roads, easements, and right-of-way segments and/or intersections and shall provide the CPM and the affected	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
TRAFFIC AND TRANSPORTATION (cont.)		
	local jurisdictions and Caltrans (if applicable) with a copy of these images. The project owner shall rebuild, repair and maintain all public roads, easements, and rights-of-way in a usable condition throughout the construction phase of the project. At least 30 days prior to the start of site mobilization, the project owner shall consult with the County of Riverside and Caltrans District 8 and notify them of the proposed schedule for project construction. The purpose of this notification is to request that the County of Riverside and Caltrans consider postponement of public right-of-way repair or improvement activities in areas affected by project construction until construction is completed and to coordinate with the project owner regarding any concurrent construction-related activities that are planned or in progress and cannot be postponed. Within 60 calendar days after completion of construction, the project owner shall meet with the CPM, the County of Riverside, and Caltrans District 8 to identify sections of public right-of-way to be repaired. At that time, the project owner shall establish a schedule to complete the repairs and to receive approval for the action(s). Following completion of any public right-of-way repairs, the project owner shall provide to the CPM a letter signed by the County of Riverside and Caltrans District 8 stating their satisfaction with the repairs.	
TRANS-4, Traffic Control Plan (TCP): Prior to the start of construction of the PSPP, the project owner shall prepare and implement a Traffic Control Plan (TCP) for the PSPP's construction and operations traffic. The TCP shall address the movement of workers, vehicles, and materials, including arrival and departure schedules and designated workforce and delivery routes. The project owner shall consult with the County of Riverside and the California Department of Transportation (Caltrans) District 8 office in the preparation and implementation of the Traffic Control Plan (TCP). The project owner shall submit the proposed TCP to the County of Riverside and the Caltrans District 8 office in sufficient time for review and comment, and to the Energy Commission Compliance Project Manager (CPM) for review and approval prior to the proposed start of construction and implementation of the plan. The CPM shall review and approve the TCP or identify any material deficiencies within thirty (30) days of receipt. The project owner shall provide a copy of any written comments from the County of Riverside and the Caltrans District 8 office and any changes to the TCP to the CPM prior to the proposed start of construction. The Traffic Control Plan (TCP) shall include:	At least 60 calendar days prior to the start of construction, including any grading or site remediation on the power plant site or its associated easements, the project owner shall submit the proposed TCP to the County of Riverside and the Caltrans District 8 office for review and comment and to the CPM for review and approval. The project owner shall also provide the CPM with a copy of the transmittal letter to the County of Riverside and the Caltrans District 8 office requesting review and comment.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
TRAFFIC AND TRANSPORTATION (cont.)		
1. A work schedule and end-of-shift departure plan designed to ensure that stacking does not occur at intersections necessary to enter and exit the project sites. The project owner shall consider using one or more of the following measures designed to prevent stacking: staggered work shifts, off-peak work schedules, and/or restricting travel to and departures from each project site to 10 or fewer vehicles every three minutes during peak travel hours on I- 10. 2. Provisions for an incentive program, such as employer-sponsored commuter checks, to encourage construction workers to carpool and/or use van or bus service. 3. Limitation of truck deliveries at the project site to only off-peak hours. 4. A heavy-haul plan addressing the transport and delivery of heavy and oversized loads requiring permits from the California Department of Transportation (Caltrans) or other state or federal agencies. 5. Timing of heavy equipment and building material delivery to the sites 6. Parking for workforce and construction vehicles. 7. Emergency vehicle access to the project site. 8. Provisions for redirection of construction traffic with a flag person as necessary to ensure traffic safety and minimize interruptions to non-construction related traffic flow. 9. Placement of signage, lighting, and traffic control devices at the project construction site and laydown areas. 10. Placement of signage along northbound Corn Springs Road and at the entrance of each of the I-10 westbound and eastbound offramps at Corn Springs Road notifying drivers of construction traffic throughout the duration of the construction period. 11. Placement of signage to redirect traffic from Corn Springs Road during construction activities related to roadway realignments and pipeline installation in and across the Corn Springs Road right-of-way 12. Temporary closing of travel lanes, if necessary. 13. Access to adjacent residential and commercial property during the construction of all linears		
TRANS-5, Encroachment Permits: The project owner or contractor shall comply with Caltrans' and other relevant jurisdictions' limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans and any other relevant jurisdictions.	In the MCRs, the project owner shall report permits received during that reporting period. In addition, for at least six months after the start of commercial operation, the project owner shall retain copies of permits and supporting documentation on-site for CPM inspection if requested.	CEC
TRANS-6: Glint and Glare Reduction Measures: To reduce glint and glare from the Project, the Project Owner shall implement the following measures during operation of any unit: 1. Ensure the mirrors are brought out of stowage before sunrise and are aligned to catch the first rays of the morning sun;	90 days prior to the start of operation of any unit, the project owner shall prepare and submit to the CPM for review and approval a plan describing how the above measures will be implemented to reduce glint and glare. If a legitimate	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
TRAFFIC AND TRANSPORTATION (cont.)		
2. Ensure the mirrors are returned to stow position after sunset; 3. As soon as is feasible, redirect malfunctioning mirrors to the east in a manner so that there is no reflection from the sun as the sun continues west; and 4. Establish a toll-free number for the public to report complaints related to glint and glare and post such number in the same location as that required in **Compliance-9**. If the project owner receives a complaint regarding glint or glare it shall investigate to determine whether the complaint is legitimate and if the project is the source of such glint or glare. If it is determined that the project is the source of such glint or glare and the glint or glare is causing human health or safety hazards, the project owner shall take all feasible measures to reduce the glint or glare. Such measures may include localized screening. The project owner shall notify the CPM within 3 days of receiving a glint or glare complaint. As soon as the complaint has been resolved the project owner shall submit to the CPM a report in which the complaint as well as the actions taken to resolve the complaint are documented. The report shall include (a) a complaint summary, including the name and address of the complainant; and (b) a discussion of the steps taken to investigate the complaint, the reasons supporting a determination of whether or not the complaint is legitimate, and the steps taken to address the complaint and the final results of these efforts. In the monthly compliance report, the project owner shall describe any complaints it received that month that it determined not to be legitimate and shall explain the basis of its determination.	complaint is received concerning potential human health and safety hazards relating to glint or glare, the project owner shall notify the CPM within 3 days of receipt of the complaint and shall provide to the CPM within 10 days of the complaint the report detailing how the complaint has been addressed. In the monthly compliance report, the project owner shall describe any complaints received that month that were determined not to be legitimate and shall explain the basis of that determination. If no legitimate complaints are received and/or if a legitimate complaint is received and the project owner has resolved the source of the complaint(s) within the first 12 months of project operation, project owner can request that the CPM release the project owner from the obligations under Section 4 of this condition after the 12th month of project operations.	
TRANSMISSION LINE SAFETY AND NUISANCE		
TLSN-1, EMF Reduction Guidelines: The project owner shall construct the proposed transmission line (anywhere along the area identified by the applicant as available for its routing) according to the requirements of (a) California Public Utility Commission's GO-95, GO-52, GO-131-D, Title 8, and Group 2, (b) the High Voltage Electrical Safety Orders, sections 2700 through 2974 of the California Code of Regulations, and (3) Southern California Edison's EMF reduction guidelines.	At least 30 days before starting the transmission line or related structures and facilities, the project owner shall submit to the Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the lines will be constructed according to the requirements stated in the condition.	CEC
TLSN-2, Measurements of Electric and Magnetic Fields: The project owner shall use a qualified individual to measure the strengths of the electric and magnetic fields from the line at the points of maximum intensity along the route for which the applicant provided specific estimates. The measurements shall be made before and after energization according to the American National Standard Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) standard procedures. These measurements shall be completed no later than 6 months after the start of operations.	The project owner shall file copies of the pre-and post-energization measurements with the CPM within 60 days after completion of the measurements.	CEC
TLSN-3, Transmission Line Distance from Combustible Material: The project owner shall ensure that the rights-of-way of the proposed transmission line are kept free of combustible material, as required under the provisions of section 4292 of the Public Resources Code and section 1250 of Title 14 of the California Code of Regulations.	During the first five years of plant operation, the project owner shall provide a summary of inspection results and any fire prevention activities carried out along the right-of-way and provide such summaries in the Annual Compliance Report on transmission line safety and nuisance-related requirements.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
TRANSMISSION LINE SAFETY AND NUISANCE (cont.)		
TLSN-4, Grounding Permanent Metallic Objects: The project owner shall ensure that all permanent metallic objects within the right-of-way of the project-related lines are grounded according to industry standards regardless of ownership.	At least 30 days before the lines are energized, the project owner shall transmit to the CPM a letter confirming compliance with this condition.	CEC
VISUAL RESOURCES		
VIS-1, Surface Treatment of Project Structures and Buildings: The project owner shall treat the surfaces of all project structures and buildings visible to the public such that a) their colors minimize visual intrusion and contrast by blending with (matching) the existing characteristic landscape colors; b) their colors and finishes do not create excessive glare; and c) their colors and finishes are consistent with local policies and ordinances. The transmission line conductors shall be non-specular and non-reflective, and the insulators shall be non-reflective and non-refractive. Following in-field consultation with the Energy Commission/BLM Visual Resources specialist and other representatives as deemed necessary, the project owner shall submit for Compliance Project Manager (CPM) review and approval, a specific Surface Treatment Plan that will satisfy these requirements. The treatment plan shall include: A. A description of the overall rationale for the proposed surface treatment, including the selection of the proposed color(s) and finishes based on the characteristic landscape. Colors will be fielded tested using the actual distances from the KOPs to the proposed structures, using the proposed colors painted on representative surfaces; B. A list of each major project structure, building, tank, pipe, and wall; the transmission line towers and/or poles; and fencing, specifying the color(s) and finish proposed for each. Colors must be identified by vendor, name, and pantone number; or according to a universal designation system; C. One set of color brochures or color chips showing each proposed color and finish; D. A specific schedule for completion of the treatment; and E. A procedure to ensure proper treatment maintenance for the life of the project. The project owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated in the field, until the project owner receives notification of approval of the treatment plan by BLM's Authorized Officer and the CPM. Subsequent modifications to the treatment plan are prohibited without BLM's Authorized Officer and CPM approval.	At least 90 days prior to specifying to the vendor the colors and finishes of the first structures or buildings that are surface treated during manufacture, the project owner shall submit the proposed treatment plan to BLM's Authorized Officer and the CPM for review and approval and simultaneously to Riverside County for review and comment. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a plan with the specified revision(s) for review and approval by BLM's Authorized Officer and the CPM before any treatment is applied. Any modifications to the treatment plan must be submitted to BLM's Authorized Officer and the CPM for review and approval. Prior to the start of commercial operation, the project owner shall notify BLM's Authorized Officer and the CPM that surface treatment of all listed structures and buildings has been completed and they are ready for inspection and shall submit to each one set of electronic color photographs from the same key observation points identified in (d) above. The project owner shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report. The report shall specify a): the condition of the surfaces of all structures and buildings at the end of the reporting year; b) maintenance activities that occurred during the reporting year; and c) the schedule of maintenance activities for the next year.	CEC
VIS-2, Revegetation of Disturbed Soil Areas: The project owner shall revegetate disturbed soil areas to the greatest practical extent, as described in Condition of Certification BIO 8. In order to address specifically visual concerns, the required Closure, Revegetation and Rehabilitation Plan shall include reclamation of the area of disturbed soils used for laydown, project construction, and siting of the substation and other ancillary operation and support structures.	Refer to Condition of Certification BIO 8.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
VISUAL RESOURCES (cont.)		
VIS-3, Temporary and Permanent Exterior Lighting: To the extent feasible, consistent with safety and security considerations, the project owner shall design and install all permanent exterior lighting and all temporary construction lighting such that a) lamps and reflectors are not visible from beyond the project site, including any off-site security buffer areas; b) lighting does not cause excessive reflected glare; c) direct lighting does not illuminate the nighttime sky, except for required FAA aircraft safety lighting (which should be an on-demand, audio-visual warning system that is triggered by radar technology); d) illumination of the project and its immediate vicinity is minimized, and e) the plan complies with local policies and ordinances. The project owner shall submit to BLM's Authorized Officer and the CPM for review and approval and simultaneously to the County of Riverside for review and comment a lighting mitigation plan that includes the following: A. Location and direction of light fixtures shall take the lighting mitigation requirements into account; B. Lighting design shall consider setbacks of project features from the site boundary to aid in satisfying the lighting mitigation requirements; C. Lighting shall incorporate fixture hoods/shielding, with light directed downward or toward the area to be illuminated; D. Light fixtures that are visible from beyond the project boundary shall have cutoff angles that are sufficient to prevent lamps and reflectors from being visible beyond the project boundary, except where necessary for security; E. All lighting shall be of minimum necessary brightness consistent with operational safety and security; and F. Lights in high illumination areas not occupied on a continuous basis (such as maintenance platforms) shall have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied.	At least 90 days prior to ordering any permanent exterior lighting or temporary construction lighting, the project owner shall contact BLM's Authorized Officer and the CPM to discuss the documentation required in the lighting mitigation plan. At least 60 days prior to ordering any permanent exterior lighting, the project owner shall submit to BLM's Authorized Officer and the CPM for review and approval and simultaneously to the County of Riverside for review and comment a lighting mitigation plan. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a revised plan for review and approval by BLM's Authorized Officer and the CPM. The project owner shall not order any exterior lighting until receiving BLM Authorized Officer and CPM approval of the lighting mitigation plan. Prior to commercial operation, the project owner shall notify BLM's Authorized Officer and the CPM that the lighting has been completed and is ready for inspection. If after inspection, BLM's Authorized Officer and the CPM notify the project owner that modifications to the lighting are needed, within 30 days of receiving that notification the project owner shall implement the modifications and notify BLM's Authorized Officer and the CPM that the modifications have been completed and are ready for inspection. Within 48 hours of receiving a lighting complaint, the project owner shall provide BLM's Authorized Officer and the CPM with a complaint resolution form report as specified in the Compliance General Conditions including a proposal to resolve the complaint, and a schedule for implementation. The project owner shall notify BLM's Authorized Officer and the CPM within 48 hours after completing implementation of the proposal. A copy of the complaint resolution form report shall be submitted to BLM's Authorized Officer and the CPM within 30 days.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
VISUAL RESOURCES (cont.)		
VIS-4, Project Design: To the extent possible, the project owner will use proper design fundamentals to reduce the visual contrast to the characteristic landscape. These include proper siting and location; reduction of visibility; repetition of form, line, color (see VIS 1) and texture of the landscape; and reduction of unnecessary disturbance. Design strategies to address these fundamentals will be based on the following factors: Earthwork: Select locations and alignments that fit into the landforms to minimize the size of cuts and fills. Avoid hauling in or hauling out of excess earth cut or fill. Avoid rounding and/or warping slopes. Retain existing rock formations, vegetation, and drainage. Tone down freshly broken rock faces with emulsions or stains. Use retaining walls to reduce the amount and extent of earthwork. Retain existing vegetation by using retaining walls or fill slopes, reducing surface disturbance, and protecting roots from damage during excavations. Avoid soil types that generate strong color contrasts. Reduce dumping or sloughing of excess earth and rock on downhill slopes. Vegetation Manipulation: Retain as much of the existing vegetation as possible. Use existing vegetation to screen the development from public viewing. Use scalloped, irregular cleared edges to reduce line contrast. Use irregular clearing shapes to reduce form contrast. Feather and thin the edges of cleared areas and retain a representative mix of plant species and sizes. Structures: Minimize the number of structures and combine different activities in one structure. Use natural, self-weathering materials and chemical treatments on surfaces to reduce color contrast. Bury all or part of the structure. Use natural appearing forms to complement the characteristic landscape. Screen the structure from view by using natural land forms and vegetation. Reduce the line contrast created by straight edges. Linear Alignments: Use existing topography to hide induced changes associated with roads, lines, and other linear features. Select alignments that follow landscape contours. Avoid fall-line cuts and bisecting ridge tops. Hug vegetation lines and avoid open areas such as valley bottoms. Cross highway corridors and less sharp angles. Reclamation and Restoration: Reduce the amount of disturbed area and blend the disturbed areas into the characteristic landscape. Replace soil, brush, rocks, and natural debris over disturbed area. Newly introduce plant species should be of a form, color, and texture that blends with the landscape.	As early as possible in the site and facility design, the project owner shall meet with the CPM to discuss incorporation of these above factors into the design plans. At least 90 days prior to final site and facility design, the project owner shall contact the CPM to review the incorporation of the above factors into the final facility and site design plans. If the CPM determines that the site and facility plans require revision, the project owner shall provide to the CPM a revised plan for review and approval by the CPM.	CEC
WASTE		
WASTE-1, Training and Reporting Plan: The project owner shall prepare a UXO Identification, Training and Reporting Plan to properly train all site workers in the recognition, avoidance and reporting of military waste debris and ordnance. The project owner shall submit the plan to the Compliance Project Manager (CPM) and BLM Authorized Office (AO) for review and approval prior to the start of construction. The plan shall contain, at a minimum, the following: 1. A description of the training program outline and materials, and the qualifications of the trainers; and 2. Identification of available trained experts that will respond to notification of discovery of any ordnance (unexploded or not); and 3. Work plan to recover and remove discovered ordnance, and complete additional field screening, possibly including geophysical surveys to investigate adjacent areas for surface, near surface or buried ordnance in all proposed land disturbance areas.	The project owner shall submit the UXO Identification, Training and Reporting Plan to the CPM for approval no later than 30 days prior to the start of site mobilization. The results of geophysical surveys shall be submitted to the CPM within 30 days of completion of the surveys.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
WASTE (cont.)		
WASTE-2, Resume of Professional Engineer or Geologist: The project owner shall provide the résumé of an experienced and qualified Professional Engineer or Professional Geologist to the Compliance Project Manager (CPM) and BLM Authorized Office (AO) for review and approval. The résumé shall show experience in remedial investigation and feasibility studies. This Professional Engineer or Professional Geologist shall be available during site characterization (if needed), excavation, grading, and demolition activities. The Professional Engineer or Professional Geologist shall be given authority by the project owner to oversee any earth-moving activities that have the potential to disturb contaminated soil and impact public health, safety, and the environment.	At least 30 days prior to the start of site mobilization the project owner shall submit the resume to the CPM for review and approval.	CEC
WASTE-3, Inspection and Reporting of Potentially Contaminated Soil: If potentially contaminated soil is identified during site characterization, excavation, grading, or demolition at either the proposed site or linear facilities—as evidenced by discoloration, odor, detection by handheld instruments, or other signs—the Professional Engineer or Professional Geologist shall inspect the site; determine the need for sampling to confirm the nature and extent of contamination; and provide a written report to the project owner, representatives of Department of Toxic Substances Control (DTSC) or Regional Water Quality Control Board (RWQCB), the Compliance Project Manager (CPM) and the BLM Authorized Office (AO) stating the recommended course of action. Depending on the nature and extent of contamination, the Professional Engineer or Professional Geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If in the opinion of the Professional Engineer or Professional Geologist significant remediation may be required, the project owner shall contact the CPM, AO and representatives of the DTSC or RWQCB for guidance and possible oversight.	The project owner shall submit any reports filed by the Professional Engineer or Professional Geologist to the CPM within five days of their receipt. The project owner shall notify the CPM within 24 hours of any orders issued to halt construction.	CEC
WASTE-4, Construction Waste Management Plan: The project owner shall submit a Construction Waste Management Plan to the Compliance Project Manager (CPM) and the BLM Authorized Office (AO) for review and approval prior to the start of construction. The plan shall contain, at a minimum, the following: 1. a description of all construction waste streams, including projections of frequency, amounts generated and hazard classifications; 2. a survey of structures to be demolished that identifies the types of waste to be managed; 3. a reuse/recycling plan for construction and demolition materials that meets or exceeds the 50 percent waste diversion goal established by the Integrated Waste Management Compliance Act; and, 4. management methods to be used for each waste stream, including temporary on-site storage, housekeeping and best management practices to be employed, treatment methods, and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/reduction plans.	The project owner shall submit the Construction Waste Management Plan to the CPM for approval no less than 30 days prior to the initiation of construction activities at the site.	CEC
WASTE-5, Hazardous Waste Generator Identification Number: The project owner shall obtain a hazardous waste generator identification number from the United States Environmental Protection Agency (USEPA) prior to generating any hazardous waste during project construction and operations.	The project owner shall keep a copy of the identification number on file at the project site and provide documentation of the hazardous waste generation and notification and receipt of the number to the CPM in the next scheduled	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
WASTE (cont.)		
	Monthly Compliance Report after receipt of the number. Submittal of the notification and issued number documentation to the CPM is only needed once unless there is a change in ownership, operation, waste generation, or waste characteristics that requires a new notification to USEPA. Documentation of any new or revised hazardous waste generation notifications or changes in identification number shall be provided to the CPM in the next scheduled compliance report.	
WASTE-6, Notification of Impending Waste Management-Related Enforcement Action: Upon notification of any impending waste management-related enforcement action by any local, state, or federal authority, the project owner shall notify the Compliance Project Manager (CPM) of any such action taken or proposed against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts, and describe how the violation will be corrected.	The project owner shall notify the CPM in writing within 10 days of receiving written notice from authorities of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required in the way project-related wastes are managed as a result of a finalized action against the project.	CEC
WASTE-7, Operation Waste Management Plan: The project owner shall submit the Operation Waste Management Plan to the CPM for review and approval. The plan shall contain, at a minimum, the following: 1. a detailed description of all operation and maintenance waste streams, including projections of amounts to be generated, frequency of generation, and waste hazard classifications; 2. management methods to be used for each waste stream, including temporary on-site storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to ensure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans; 3. information and summary records of contacts with the local Certified Unified Program Agency and the Department of Toxic Substances Control regarding any waste management requirements necessary for project activities. Copies of all required waste management permits, notices, and/or authorizations shall be included in the plan and updated as necessary; 4. a detailed description of how facility wastes will be managed and any contingency plans to be employed, in the event of an unplanned closure or planned temporary facility closure; and 5, a detailed description of how facility wastes will be managed and disposed upon closure of the facility.	The project owner shall submit the Operation Waste Management Plan to the CPM for approval no later than 30 days prior to the start of project operation. The project owner shall submit any required revisions to the CPM within 20 days of notification from the CPM that revisions are necessary. The project owner shall also document in each Annual Compliance Report the actual volume of wastes generated and the waste management methods used during the year, provide a comparison of the actual waste generation and management methods used to those proposed in the original Operation Waste Management Plan, and update the Operation Waste Management Plan as necessary to address current waste generation and management practices.	CEC
WASTE-8, Heat Transfer Fluid Spills and Releases: The project owner shall document all releases and spills of Heat Transfer Fluid (HTF) as described in Condition **WASTE-9** and report only those that are 42 gallons or more, the CERCLA reportable quantity, as required in the **Soil and Water Resources** section of this Decision. Cleanup and temporary staging of HTF-contaminated soils shall be conducted in accordance with the approved Operation Waste Management Plan	The project owner shall submit to the CPM and the DTSC for approval the project owner's assessment of whether the HTF contaminated soil is considered hazardous or non-hazardous under state regulations. HTF- contaminated soil	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
WASTE (cont.)		
required in Condition **WASTE-7**. The project owner shall sample HTF-contaminated soil from CERCLA reportable incidents involving 42 gallons or more in accordance with the United States Environmental Protection Agency's (USEPA) current version of "Test Methods for Evaluating Solid Waste" (SW-846). Samples shall be analyzed in accordance with USEPA Method 8015 or other method to be reviewed and approved by DTSC and the CPM. Within 28 days of an HTF spill, the project owner shall provide the results of the analyses and their assessment of whether the HTF- contaminated soil is considered hazardous or non-hazardous to the Department of Toxic Substances Control (DTSC) and the CPM for review and approval. If DTSC, and the CPM determine the HTF-contaminated soil is considered hazardous, it shall be disposed of in accordance with California Health and Safety Code Section 25203 and procedures outlined in the approved Operation Waste Management Plan required in Condition **WASTE-7** and reported to the CPM in accordance with Condition **WASTE-9**. If DTSC and the CPM determine the HTF-contaminated soil is considered non-hazardous it shall be retained in the land treatment unit (LTU) and treated on-site in accordance with the Waste Discharge Requirements contained in the **Soil and Water Resources** section of this Decision.	that exceeds the regulatory hazardous waste levels must be disposed of in accordance with California Health and Safety Code Section 25203. HTF-contaminated soil that does not exceed the hazardous waste levels may be discharged to the on-site LTU. For discharges into the LTU, the project owner shall comply with the Waste Discharge Requirements contained in the **Soil and Water Resources** section of this Decision.	
WASTE-9, The project owner shall ensure that all accidental spills or unauthorized releases of hazardous substances, hazardous materials, and hazardous waste are documented and remediated, and that wastes generated from accidental spills and unauthorized releases are properly managed and disposed of in accordance with all applicable federal, state, and local LORS and requirements. For the purpose of this Condition of Certification, "release" shall have the definition in Title 40 of the Code of Federal Regulations, Part 302.3.	No later than 30 days of the date that a project-related hazardous substance release was discovered, the project manager shall provide a copy of the accidental spill or unauthorized release documentation to the CPM. The project owner shall document management of all accidental spills and unauthorized releases of hazardous substances, hazardous materials, and hazardous wastes that occur on the project property or related linear facilities. The documentation shall include, at a minimum, the following information: location of release; date and time of release; reason for release; volume released; how release was managed and material cleaned up; amount of contaminated soil and/or cleanup wastes generated; if the release was reported; to whom the release was reported; release corrective action and cleanup requirements placed by regulating agencies; level of cleanup achieved and actions taken to prevent a similar release or spill; and disposition of any hazardous wastes and/or contaminated soils and materials that may have been generated by the release.	CEC
WASTE-10, The project owner shall ensure that **none** of the project's non- hazardous, non-recyclable, and non-reusable construction and operation wastes shall be diverted to or deposited at either the Desert Center Landfill or the Oasis Sanitary Landfill.	The project owner shall provide documentation of all project- related solid waste disposal activities and identify the landfills receiving project- related wastes in the Annual Compliance Report submitted to the CPM.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
WORKER SAFETY		
WORKER SAFETY-1, Project Construction Safety and Health Program: The project owner shall submit to the Compliance Project Manager (CPM) a copy of the Project Construction Safety and Health Program containing the following: 1. a Construction Personal Protective Equipment Program; 2. a Construction Exposure Monitoring Program; 3. a Construction Injury and Illness Prevention Program; 4. a Construction heat stress protection plan that implements and expands on existing Cal OSHA regulations as found in 8 CCR 3395; 5. a Construction Emergency Action Plan; and 6. a Construction Fire Prevention Plan. The Personal Protective Equipment Program, the Exposure Monitoring Program, the Heat Stress Protection Plan, and the Injury and Illness Prevention Program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable safety orders. The Construction Emergency Action Plan and the Fire Prevention Plan shall be submitted to the Riverside County Fire Department for review and comment prior to submittal to the CPM for approval.	At least 30 days prior to the start of construction, the project owner shall submit to the CPM for review and approval a copy of the Project Construction Safety and Health Program. The project owner shall provide a copy of a letter to the CPM from the Riverside County Fire Department stating the fire department's comments on the Construction Fire Prevention Plan and Emergency Action Plan.	CEC
WORKER SAFETY-2, Project Operations and Maintenance Safety and Health Program: The project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety and Health Program containing the following: 1. an Operation Injury and Illness Prevention Plan, including measures to present exposure to Valley Fever; 2. an Operation heat stress protection plan that implements and expands on existing Cal OSHA regulations (8 CCR 3395); 3. a Best Management Practices (BMP) for the storage and application of herbicides; 4. an Emergency Action Plan; 5. Hazardous Materials Management Program; 6. Fire Prevention Plan that includes the fuel depot should the project owner elect to maintain and operate the fuel depot during operations (8 Cal Code Regs. § 3221) as well as the fire protection measures described in this Decision and any necessary upgrades required by current applicable LORS; and 7. Personal Protective Equipment Program (8 Cal Code Regs, §§ 3401-3411). The Operation Injury and Illness Prevention Plan, Emergency Action Plan, Heat Stress Protection Plan, BMP for Herbicides, and Personal Protective Equipment Program shall be submitted to the CPM for review and comment concerning compliance of the programs with all applicable safety orders. The Fire Prevention Plan and the Emergency Action Plan shall also be submitted to the Riverside County Fire Department for review and comment.	At least 30 days prior to the start of first-fire or commissioning, the project owner shall submit to the CPM for approval a copy of the Project Operations and Maintenance Safety and Health Program. The project owner shall provide a copy of a letter to the CPM from the Riverside County Fire Department stating the fire department's comments on the Operations Fire Prevention Plan and Emergency Action Plan.	CEC

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
WORKER SAFETY (cont.)		
WORKER SAFETY-3, Construction Safety Supervisor: The project owner shall provide a site Construction Safety Supervisor (CSS) who, by way of training and/or experience, is knowledgeable of power plant construction activities and relevant laws, ordinances, regulations, and standards; is capable of identifying workplace hazards relating to the construction activities; and has authority to take appropriate action to assure compliance and mitigate hazards. The CSS shall: 1. have overall authority for coordination and implementation of all occupational safety and health practices, policies, and programs; 2. assure that the safety program for the project complies with Cal/OSHA and federal regulations related to power plant projects; 3. assure that all construction and commissioning workers and supervisors receive adequate safety training; 4. complete accident and safety-related incident investigations and emergency response reports for injuries and inform the CPM of safety-related incidents; and 5. assure that all the plans identified in Conditions of Certification **Worker Safety-1** and **-2** are implemented.	At least 30 days prior to the start of site mobilization, the project owner shall submit to the CPM the name and contact information for the Construction Safety Supervisor (CSS). The contact information of any replacement CSS shall be submitted to the CPM within one business day. The CSS shall submit in the Monthly Compliance Report a monthly safety inspection report to include: A. A record of all employees trained for that month (all records shall be kept on site for the duration of the project); B. A summary report of safety management actions and safety-related incidents that occurred during the month; C. A report of any continuing or unresolved situations and incidents that may pose danger to life or health; and D. A report of accidents and injuries that occurred during the month.	CEC
WORKER SAFETY-4, Safety Monitor: The project owner shall make payments to the Chief Building Official (CBO) for the services of a Safety Monitor based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. Those services shall be in addition to other work performed by the CBO. The Safety Monitor shall be selected by and report directly to the CBO and will be responsible for verifying that the Construction Safety Supervisor, as required in Condition of Certification **WORKER SAFETY-3**, implements all appropriate Cal/OSHA and Energy Commission safety requirements. The Safety Monitor shall conduct on-site (including linear facilities) safety inspections at intervals necessary to fulfill those responsibilities.	At least 30 days prior to the start of construction, the project owner shall provide proof of its agreement to fund the Safety Monitor services to the CPM for review and approval.	CEC
WORKER SAFETY-5, Automatic External Defibrillator (AED): The project owner shall ensure that a portable automatic external defibrillator (AED) is located on site during construction and operations and shall implement a program to ensure that workers are properly trained in its use and that the equipment is properly maintained and functioning at all times. During construction and commissioning, the following persons shall be trained in its use and shall be on site whenever the workers that they supervise are on site: the Construction Project Manager or delegate, the Construction Safety Supervisor or delegate, and all shift foremen. During operations, all power plant employees shall be trained in its use. The training program shall be submitted to the CPM for review and approval.	At least 60 days prior to the start of site mobilization, the project owner shall submit to the CPM proof that a portable automatic external defibrillator (AED) exists on site and a copy of the training and maintenance program for review and approval.	CEC
WORKER SAFETY-6, Emergency Access Point: The project owner shall: A. Provide a secondary site access gate for emergency personnel to enter the site. This secondary site access gate shall be at least one-quarter mile from the main gate.	At least 60 days prior to the start of site mobilization, the project owner shall submit to the RCFD and the CPM preliminary plans showing the location of a secondary site access gate to the site, a description of how the secondary	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
WORKER SAFETY (cont.)		
B. Provide a second access road which provides entry to the site. This road shall be at a minimum an all-weather gravel road, at least 20 feet wide, and shall come from the Interstate-10 right-of-way to the project site at the location of where the fence line of the eastern solar field comes the nearest to the I-10 right-of-way, if approved by Caltrans, a locked gate shall be placed in the I-10 right-of-way fence. The RCFD, the California Highway Patrol, and the Riverside County Sheriff's Department shall be given access to the gate. C. Maintain the main access road and the second access road and provide a plan for construction and implementation. Plans for the secondary access gate, the method of gate operation, secondary gravel road, and maintenance of the roads shall be submitted to the Riverside County Fire Department for review and comment and to the CPM for review and approval.	site access gate will be opened by the fire department and other emergency services, and a description and map showing the location, dimensions, and composition of the main road, and the gravel road to the secondary site access gate. At least 30 days prior to the start of site mobilization, the project owner shall submit the secondary site access gate final plans plus the road maintenance plan to the CPM for review and approval. The final plan submittal shall also include a letter containing comments from the Riverside County Fire Department or a statement that no comments were received. At least 30 days after approval by Caltrans, the project owner shall submit final plans for the gate in the I-10 right-of-way to the Riverside County Fire Department for review and comment and to the CPM for review and approval.	
WORKER SAFETY-7, Fire Protection/Response Infrastructure: The project owner shall either: A. Reach an agreement with the Riverside County Fire Department regarding funding of its project-related share of capital costs to build fire protection/response infrastructure and provide appropriate equipment as mitigation of project-related impacts on fire protection services, or, if no agreement can be reached shall B. Fund its share of the capital costs in the amount of $850,000 and shall provide an annual payment of $375,000 to the RCFD for the support of three fire department staff commencing with the date of site mobilization and continuing annually thereafter on the anniversary until the final date of power plant decommissioning.	At least 30 days prior to the start of site mobilization, the project owner shall provide to the CPM for review and approval either: 1. A copy of the agreement with the RCFD for 2. Documentation that a letter of credit in the amount of $850,000 has been provided to the RCFD and documentation that a letter of credit in the amount of $375,000 will be provided to RCFD each year at the start of commercial operations. Proof of the annual $375,000 letter of credit shall be included each year in the Project Owner's Annual Report to the CPM.	
WORKER SAFETY-8, Water Spray System: The project owner shall place a water spray system on the two LPG storage tanks. The engineering design plans shall comply with NFPA 15, *Standard for Water Spray Fixed Systems for Fire Protection* and be provided to the CPM for review and approval prior to commencing construction of the water spray system.	At least 30 days prior to site mobilization, the project owner shall provide the engineering design plans to the CPM for review and approval. At least 30 days prior to the delivery of any LPG to the facility, the project owner shall provide a written statement to the CPM that the LPG tank water spray system has been built and successfully tested.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
WORKER SAFETY (cont.)		
WORKER SAFETY-9, Dust Control Plan: The project owner shall develop and implement an enhanced Dust Control Plan that includes the requirements described in Conditions **AQ-SC3** and **AQ-SC4**, and additionally requires: A. Site worker use of dust masks (NIOSH N-95 or better) whenever visible dust is present; B. Implementation of Rule 402 of the Kern County Air Pollution Control District (as amended Nov. 3, 2004); and C. Implementation of enhanced dust control methods (increased frequency of watering, use of dust suppression chemicals, etc. consistent with **AQ-SC4**) immediately whenever visible dust persists in the breathing zone of the workers, or when PM10 measurements obtained when implementing B (above) indicate an increase in PM10 concentrations due to project activities of 50 µg/m3 or more.	At least 30 days prior to the commencement of site mobilization, the enhanced Dust Control Plan shall be provided to the CPM for review and approval.	
WORKER SAFETY-10, Joint Training with RCFD: The project owner shall participate in annual joint training exercises with the Riverside County Fire Department (RCFD). The project owner shall coordinate this training with other Energy Commission-licensed solar power plants within Riverside County such that this project shall host the annual training on a rotating yearly basis with the other solar power plants.	At least 10 days prior to the start of commissioning, the project owner shall submit to the CPM proof that a joint training program with the RCFD is established. In each January Monthly Compliance Report during construction and the Annual Compliance Report during operation, the project owner shall include the date, list of participants, training protocol, and location of the annual joint training.	
GEOLOGY, PALEONTOLOGY, AND MINERALS		
GEO-1, Soils Engineering Report: The Soils Engineering Report required by Section 1802A of the 2007 CBC should specifically include laboratory test data, associated geotechnical engineering analyses, and a thorough discussion of potential hydrocompaction or dynamic compaction; the presence of expansive clay soils; and the presence of corrosive soils. The report should also include recommendations for ground improvement and/or foundation systems necessary to mitigate these potential geologic hazards, if present.	The project owner shall include in the application for a grading permit a copy of the Soils Engineering Report which addresses the potential for liquefaction; settlement due to compressible soils, ground water withdrawal, hydro-compaction, or dynamic compaction; and the possible presence of expansive clay soils, and a summary of how the results of the analyses were incorporated into the project foundation and grading plan design for review and comment by the Chief Building Official (CBO). A copy of the Soils Engineering Report, application for grading permit and any comments by the CBO are to be provided to BLM's Authorized Officer and the CPM at least 30 days prior to grading.	
PAL-1, Paleontological Resources Specialist (PRS): The project owner shall provide the compliance project manager (CPM) with the resume and qualifications of its paleontological resource specialist (PRS) for review and approval. If the approved PRS is replaced prior to completion of project mitigation and submittal of the Paleontological Resources Report, the project owner shall obtain CPM approval of the replacement PRS. The project owner shall keep resumes on file for qualified paleontological resource monitors (PRMs). If a PRM is replaced, the resume of the replacement PRM shall also be provided to the CPM.	(1) At least 60 days prior to the start of ground disturbance, the project owner shall submit a resume and statement of availability of its designated PRS for on-site work. (2) At least 20 days prior to ground disturbance, the PRS or project owner shall provide a letter with resumes	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
GEOLOGY, PALEONTOLOGY, AND MINERALS (cont.)		
The PRS resume shall include the names and phone numbers of references. The resume shall also demonstrate to the satisfaction of the CPM the appropriate education and experience to accomplish the required paleontological resource tasks. As determined by the CPM, the PRS shall meet the minimum qualifications for a vertebrate paleontologist as described in the Society of Vertebrate Paleontology (SVP) guidelines of 1995. The experience of the PRS shall include the following: 1. Institutional affiliations, appropriate credentials, and college degree; 2. Ability to recognize and collect fossils in the field; 3. Local geological and biostratigraphic expertise; 4. Proficiency in identifying vertebrate and invertebrate fossils; and 5. At least three years of paleontological resource mitigation and field experience in California and at least one year of experience leading paleontological resource mitigation and field activities. The project owner shall ensure that the PRS obtains qualified paleontological resource monitors to monitor as he or she deems necessary on the project. Paleontologic resource monitors (PRMs) shall have the equivalent of the following qualifications: 1. BS or BA degree in geology or paleontology and one year of experience monitoring in California; or 2. AS or AA in geology, paleontology, or biology and four years' experience monitoring in California; or 3. Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.	naming anticipated monitors for the project, stating that the identified monitors meet the minimum qualifications for paleontological resource monitoring required by the condition. If additional monitors are obtained during the project, the PRS shall provide additional letters and resumes to the CPM. The letter shall be provided to the CPM no later than one week prior to the monitor's beginning on-site duties. (3) Prior to the termination or release of a PRS, the project owner shall submit the resume of the proposed new PRS to the CPM for review and approval.	
PAL-2, Materials for PRS and CPM: The project owner shall provide to the PRS and the CPM, for approval, maps and drawings showing the footprint of the power plant, construction lay-down areas, and all related facilities. Maps shall identify all areas of the project where ground disturbance is anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and plan and profile drawings for the utility lines would be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and be at a scale between 1 inch = 40 feet and 1 inch = 100 feet. If the footprint of the project or its linear facilities changes, the project owner shall provide maps and drawings reflecting those changes to the PRS and CPM. If construction of the project proceeds in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the PRS and CPM. Before work commences on affected phases, the project owner shall notify the PRS and CPM of any construction phase scheduling changes. At a minimum, the project owner shall ensure that the PRS or PRM consults weekly with the project superintendent or construction field manager to confirm area(s) to be worked the following week and until ground disturbance is completed.	(1) At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings to the PRS and CPM. (2) If there are changes to the footprint of the project, revised maps and drawings shall be provided to the PRS and CPM at least 15 days prior to the start of ground disturbance. (3) If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within 5 days of identifying the changes.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
GEOLOGY, PALEONTOLOGY, AND MINERALS (cont.)		
PAL-3, Paleontological Resources Monitoring and Mitigation Plan (PRMMP): The project owner shall ensure that the PRS prepares, and the project owner submits to the CPM for review and approval, a paleontological resources monitoring and mitigation plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for monitoring, collecting, and sampling activities and may be modified with CPM approval. This document shall be used as the basis of discussion when on-site decisions or changes are proposed. Copies of the PRMMP shall reside with the PRS, each monitor, the project owner's on-site manager, and the CPM. The PRMMP shall be developed in accordance with the guidelines of the Society of Vertebrate Paleontology (SVP 1995) and shall include, but not be limited, to the following: 1. Assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking, construction monitoring, mapping and data recovery, fossil preparation and collection, identification and inventory, preparation of final reports, and transmittal of materials for curation will be performed according to PRMMP procedures; 2. Identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and the conditions of certification; 3. A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units; 4. An explanation of why, how, and how much sampling is expected to take place and in what units. Include descriptions of different sampling procedures that shall be used for fine-grained and coarse-grained units; 5. A discussion of the locations of where the monitoring of project construction activities is deemed necessary, and a proposed plan for monitoring and sampling; 6. A discussion of procedures to be followed in the event of a significant fossil discovery, halting construction, resuming construction, and how notifications will be performed; 7. A discussion of equipment and supplies necessary for collection of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits; 8. Procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meet the Society of Vertebrate Paleontology's standards and requirements for the curation of paleontological resources; 9. Identification of the institution that has agreed to receive data and fossil materials collected, requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution; and 10. A copy of the paleontological conditions of certification.	At least 30 days prior to ground disturbance, the project owner shall provide a copy of the PRMMP to the CPM. The PRMMP shall include an affidavit of authorship by the PRS and acceptance of the PRMMP by the project owner evidenced by a signature.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
GEOLOGY, PALEONTOLOGY, AND MINERALS (cont.)		
PAL-4, Approved Weekly Training Pertaining to Ground Disturbance: Prior to ground disturbance and for the duration of construction activities involving ground disturbance, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for the following workers: project managers, construction supervisors, foremen, and general workers involved with or who operate ground-disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving CPM-approved worker training. Worker training shall consist of an initial in-person PRS training or may utilize a CPM-approved video or other presentation format during the project kick off for those mentioned above. Following initial training, a CPM-approved video or other approved training presentation/materials, or in-person training may be used for new employees. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or other areas of interest or concern. No ground disturbance shall occur prior to CPM approval of the Worker Environmental Awareness Program (WEAP), unless specifically approved by the CPM. The WEAP shall address the possibility of encountering paleontological resources in the field, the sensitivity and importance of these resources, and legal obligations to preserve and protect those resources. The training shall include: 1. A discussion of applicable laws and penalties under the law; 2. Good quality photographs or physical examples of vertebrate fossils for project sites containing units of high paleontologic sensitivity; 3. Information that the PRS or PRM has the authority to halt or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource; 4. Instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the PRS or PRM; 5. An informational brochure that identifies reporting procedures in the event of a discovery; 6. A WEAP certification of completion form signed by each worker indicating that he/she has received the training; and 7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.	(1) At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP, including the brochure, with the set of reporting procedures for workers to follow. (2) At least 30 days prior to ground disturbance, the project owner shall submit the training program presentation/materials to the CPM for approval if the project owner is planning to use a presentation format other than an in-person trainer for training. (3) If the owner requests an alternate paleontological trainer, the resume and qualifications of the trainer shall be submitted to the CPM for review and approval prior to installation of an alternate trainer. Alternate trainers shall not conduct training prior to CPM authorization. (4) In the monthly compliance report (MCR), the project owner shall provide copies of the WEAP certification of completion forms with the names of those trained and the trainer or type of training (in-person or other approved format) offered that month. The MCR shall also include a running total of all persons who have completed the training to date.	
PAL-5, Paleontological Monitoring Activities: The project owner shall ensure that the PRS and PRM(s) monitor consistent with the PRMMP all construction-related grading, excavation, trenching, and augering in areas where potential fossil-bearing materials have been identified, both at the site and along any constructed linear facilities associated with the project. In the event that the PRS determines full-time monitoring is not necessary in locations that were identified as potentially fossil bearing in the PRMMP, the project owner shall notify and seek the concurrence of the CPM. The project owner shall ensure that the PRS and PRM(s) have the authority to halt or redirect construction if paleontological resources are encountered. The project owner shall ensure that there is no interference with monitoring activities unless directed by the PRS. Monitoring activities shall be conducted as follows: 1. Any change of monitoring from the accepted schedule in the PRMMP shall be proposed in a letter or email from the PRS and the project owner to the CPM prior to the change in monitoring and will be included in the monthly compliance report. The letter or email shall include the justification for the change in monitoring and be submitted to the CPM for review and approval.	The project owner shall ensure that the PRS submits the summary of monitoring and paleontological activities in the MCR. When feasible, the CPM shall be notified 10 days in advance of any proposed changes in monitoring different from the plan identified in the PRMMP. If there is any unforeseen change in monitoring, the notice shall be given as soon as possible prior to implementation of the change.	

TABLE B-1 (Continued)
CONDITIONS OF CERTIFICATION (Continued)

Conditions of Certification	Verification	Responsible Agency
GEOLOGY, PALEONTOLOGY, AND MINERALS (cont.)		
2. The project owner shall ensure that the PRM(s) keep a daily monitoring log of paleontological resource activities. The PRS may informally discuss paleontological resource monitoring and mitigation activities with the CPM at any time. 3. The project owner shall ensure that the PRS notifies the CPM within 24 hours of the occurrence of any incidents of non-compliance with any paleontological resources conditions of certification. The PRS shall recommend corrective action to resolve the issues or achieve compliance with the conditions of certification. 4. For any significant paleontological resources encountered, either the project owner or the PRS shall notify the CPM within 24 hours, or Monday morning in the case of a weekend event, where construction has been halted because of a paleontological find. The project owner shall ensure that the PRS prepares a summary of monitoring and other paleontological activities placed in the monthly compliance reports. The summary will include the name(s) of PRS or PRM(s) active during the month; general descriptions of training and monitored construction activities; and general locations of excavations, grading, and other activities. A section of the report shall include the geologic units or subunits encountered, descriptions of samplings within each unit, and a list of identified fossils. A final section of the report will address any issues or concerns about the project relating to paleontologic monitoring, including any incidents of non-compliance or any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the report shall include an explanation in the summary as to why monitoring was not conducted.		
PAL-6, Implementation of PRMMP: The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed including collection of fossil materials, preparation of fossil materials for analysis, analysis of fossils, identification and inventory of fossils, the preparation of fossils for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during project construction.	The project owner shall maintain in his/her compliance file copies of signed contracts or agreements with the designated PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after project completion and approval of the CPM-approved paleontological resource report (see Condition of Certification **PAL-7**). The project owner shall be responsible for paying any curation fees charged by the museum for fossils collected and curated as a result of paleontological mitigation. A copy of the letter of transmittal submitting the fossils to the curating institution shall be provided to the CPM.	
PAL-7, Paleontological Resources Report (PRR): The project owner shall ensure preparation of a Paleontological Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground-disturbing activities. The PRR shall include an analysis of the collected fossil materials and related information and submit it to the CPM for review and approval. The report shall include, but is not limited to, a description and inventory of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated below the level of significance.	Within 90 days after completion of ground-disturbing activities, including landscaping, the project owner shall submit the PRR under confidential cover to the CPM.	

APPENDIX C

Applicable Laws, Regulations, Policies, Executive Orders

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS

Applicable LORS	Description
GENERAL	
Federal	
Federal Land Policy and Management Act of 1976 (FLPMA) (43 United States Code [USC] Section 1701, 1761; 43 Code of Federal Regulations [CFR] parts 1600 and 2800.	Establishes public land policy; guidelines for administration; and provides for the management, protection, development, and enhancement of public lands. In particular, FLPMA is relevant to the proposed project because Title V, Section 501, establishes BLM's authority to grant rights-of-way for generation, transmission, and distribution of electrical energy (FLPMA 2001).
Bureau of Land Management – California Desert Conservation Area (CDCA) Plan, 1980 as Amended	The 25 million-acre CDCA contains over 12 million acres of public lands spread within the area known as the California Desert, which includes the following three deserts: the Mojave, the Sonoran, and a small portion of the Great Basin. The 12 million acres of public lands administered by the BLM are about half of the CDCA. The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development, and protection of the resources and public lands within the CDCA. It is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. The plan's goals and actions for each resource are established in its 12 elements. Each element provides both a desert-wide perspective of the planning decisions for one major resource or issue of public concern and a more specific interpretation of multiple-use class guidelines for a given resource and its associated activities.
Northern and Eastern Colorado Desert Coordinated Management Plan (NECO Plan)	The NECO plan is a landscape-scale planning effort for most of the California portion of the Sonoran Desert ecosystem. The planning area encompasses over five million acres. The NECO Plan amended the CDCA Plan in 2002 and is currently undergoing evaluation for further amendment.
Wild and Free-Roaming Horse and Burro Act of 1971 (Public Law 92-195)	Under this authority, and as part of its multiple-use mission under FLPMA, the BLM protects wild horses and burros from capture, branding, harassment, and death; and manages and controls them with the intent to achieve and preserve the natural ecological balance on public lands and to ensure that healthy herds thrive on healthy rangelands. The BLM manages these animals.
State	
California Environmental Quality Act (CEQA) (Cal. Pub. Res. Code § 21000 et seq.); CEQA Guidelines (14 Cal. Code Regs. § 15000 et seq.)	CEQA requires State and local public agencies in California to consider the direct, indirect and cumulative effects of projects that they undertake, fund, or permit, and to avoid or reduce significant environmental impacts when it is feasible to do so. The California Energy Commission, the state Lead Agency, implements CEQA through its certified regulatory program. Under this program, which has been certified by the Resources Agency as equivalent to CEQA, the ,CEC complies with CEQA by evaluating the impacts of energy projects as a part of its Staff Assessment ……
Local	
Riverside County General Plan	The Riverside County General Plan provides a blueprint for long-term public and private within the County, expresses the community's goals with respect to both human-made and natural environments, and provides the foundation upon which County leaders make decisions about growth, land use, traffic, open space, safety, noise, housing, air quality and other values.
Riverside County General Plan Land Use Element	A 40-acre parcel (APN 810-110-007) within the PSPP area is under the County of Riverside's jurisdiction; land uses on this parcel are subject to the County's General Plan, County Code and applicable policies. The Land Use designation of the parcel is "Open Space Rural."
Open Space-Rural Policies:	The Open Space Rural land use designation is applied to remote privately owned open space areas with limited access and a lack of public services.
LU 20.1	Require that structures be designed to maintain the environmental character in which they are located.
LU 20.2	Require that development be designed to blend with undeveloped natural contours of the site and avoid an unvaried, unnatural, or manufactured appearance;

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
GENERAL (cont.)	
Local (cont.)	
LU 20.3	Require that adequate and available circulation facilities, water resources, sewer facilities, and/or septic capacity exist to meet the demands of the proposed land use;
LU 20.4	Ensure that development does not adversely impact the open space and rural character of the surrounding area
LU 20.5	Encourage parcel consolidation; and
LU 20.6	Provide programs and incentives that allow Open Space-Rural areas to maintain and enhance their existing and desired character.
Riverside County Land Use Ordinance	Assigns zones to land within unincorporated areas in the County, describes land uses allowed in each zone, and generally includes direction for implementing the County General Plan.
Riverside County Airport Land Use Compatibility Plan	The Riverside County Airport Land Use Commission (RCALUC) reviews major land use projects within the Airport Influence Area to determine if they are consistent with the Compatibility Plan adopted by the RCALUC for the airports environs.
AIR QUALITY	
Federal	
40 CFR Part 52	Nonattainment New Source Review (NSR) requires a permit, Best Available Control Technology (BACT) and Offsets. Permitting and enforcement is delegated to the Mojave Desert Air Quality Management District (MDAQMD). Prevention of Significant Deterioration (PSD) requires major sources or major modifications to major sources to obtain permits for attainment pollutants. The PSPP is a new source that does not have a rule listed emission source; thus, the PSD trigger levels are 250 tons per year for NOx, VOC, SOx, PM10 PM2.5 and CO.
40 CFR Part 60	New Source Performance Standards (NSPS), Subpart Dc Standards of Performance for Small Industrial-Commercial-Institutional Steam Generation Units. Establishes recordkeeping and reporting requirements for natural gas-fired steam-generating units. Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Establishes emission standards for compression-ignition internal combustion engines, including emergency generator and fire water pump engines.
40 CFR Part 93	General Conformity requires a determination of conformity with the State Implementation Plan for a project that requires a Federal approval if the project's annual emissions are above specified levels.
State	
California Health & Safety Code §§ 40910-40930	Permitting of source needs to be consistent with Air Resource Board (ARB) approved Clean Air Plans.
Health & Safety Code § 41700	Restricts emissions that would cause nuisance or injury.
Title 17 California Code of Regulations (CCR) § 93115	Airborne Toxic Control Measure for Stationary Compression Ignition Engines limits the types of fuels allowed, establishes maximum emission rates, and establishes recordkeeping requirements on stationary compression ignition engines, including emergency generator and fire water pump engines.
Rule 201 and 203 Permits Required	Requires a Permit to Construct before construction of an emission source occurs. Prohibits operation of any equipment that emits or controls an air pollutant without first obtaining a permit to operate.

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
AIR QUALITY (cont.)	
Local (Mojave Desert Air Quality Management District, MDAQMD)	
Rules 401, 402, and 403 Nuisance, Visible Emissions, Fugitive Dust	Limits visible, nuisance, and fugitive dust emissions and would be applicable to the construction period of the project.
Rule 404 Particulate Matter - Concentration	Limits the particulate matter concentration from stationary source exhausts.
Rule 406 Specific Contaminants	Prohibits sulfur compound emissions in excess of 500 parts per million by volume (ppmv)
Rule 407 Liquid and Gaseous Air Contaminants	Prohibits carbon monoxide emissions in excess of 2,000 ppmv.
Rule 409 Combustion Contaminants	Limits the emissions from fossil fuel combustion.
Rule 431 Sulfur Content of Fuels	Limits the sulfur content of liquid fuels to no more than 0.5% by weight.
Rule 900 Standard of Performance for New Stationary Source	Incorporates the Federal NSPS (40 CFR 60) rules by reference.
Rule 1303 New Source Review	Specifies BACT/Offsets technology and requirements for a new emissions unit that has potential to emit any regulated pollutants.
Rule 1306 Electric Energy Generating Facilities	Describes actions to be taken for permitting of power plants that are within the jurisdiction of the California Energy Commission.
BIOLOGICAL RESOURCES	
Federal	
Federal Endangered Species Act (16 USC 1531 et seq.; 50 CFR Parts 17 and 402	Designates and protects Federally threatened and endangered plants and animals and designated critical habitats.
Clean Water Act (33 USC 1251-1376; 40 CFR 330.5(a)(26))	Requires the permitting and monitoring of all discharges to surface water bodies. Section 404 requires a permit from the U.S. Army Corps of Engineers (USACE) for a discharge of dredged or fill materials into" waters of the U.S", including wetlands. Section 401 requires that an applicant for a Federal license or permit to conduct an activity that could result in a discharge to waters of the United States must provide the Federal agency with a certification from the applicable regional water quality control board (RWQCB) that any such discharge will comply with the Clean Water Act, including state and Federal water quality standards.
Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d; 50 CFR Part 22)	This Act protects bald eagles and golden eagles by prohibiting, except under certain specified conditions, the take, possession, and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the Act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the Act. Authorizes limited take of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*), where the take is compatible with the preservation of the bald and golden eagle; necessary to protect an interest in a particular locality; associated with but not the purpose of the activity; and (1) for individual instances of take, the take cannot practicably be avoided; or (2) for programmatic take, the take is unavoidable even though advanced conservation practices are being implemented. 50 CFR Section 22.27 provides for the intentional removal or relocation of eagle nests where (i) necessary to alleviate a safety emergency; (ii) necessary to ensure public health and safety; (iii) the nest prevents the use of a human–engineered structure, or; (iv) the activity, or mitigation for the activity, will provide a clear and substantial benefit to eagles. Only inactive nests would be allowed to be removed or relocated except in the case of safety emergencies.

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
BIOLOGICAL RESOURCES (cont.)	
Federal (cont.)	
Migratory Bird Treaty Act of 1918 (16 USC 703-711), as amended	Makes it unlawful to take or possess any migratory nongame bird (or any part of such migratory nongame bird) as designated in the Migratory Bird Treaty Act.
Executive Order 11312	Prevents and controls invasive species.
Wild and Free-Roaming Horse and Burro Act of 1971 (Public Law 92-195)	Under this authority, and as part of its multiple-use mission under FLPMA, the BLM protects wild horses and burros from capture, branding, harassment, and death; and manages and controls them with the intent to achieve and preserve the natural ecological balance on public lands and to ensure that healthy herds thrive on healthy rangelands. The BLM manages these animals
California Desert Protection Act of 1994 (CDPA)	An Act of Congress which established 69 wilderness areas, the Mojave National Preserve, expanded Joshua Tree and Death Valley National Monuments and redefined them as National Parks. Lands transferred to the National Park Service were formerly administered by the BLM and included substantial portions of grazing allotments, wild horse and burro Herd Management Areas, and Herd Areas.
California Desert Conservation Area Plan of 1980, as amended	The California Desert Conservation Area (CDCA) comprises one of two national conservation areas established by Congress at the time of the passage of the Federal Land Policy and Management Act (FLPMA), which outlines how the BLM will manage public lands. Congress specifically provided guidance for the management of the CDCA and directed the development of the 1980 CDCA Plan.
Northern and Eastern Colorado Desert Coordinated Management Plan (NECO)	A regional amendment to the CDCA Plan approved in 2002, NECO protects and conserves natural resources while simultaneously balancing human uses in the northern and eastern portion of the Colorado Desert.
Desert Tortoise (Mojave Population) Recovery Plan (1994) and Draft Revised Recovery Plan (USFWS 2008a)	Describes a strategy for recovery and delisting of the desert tortoise
State	
California Endangered Species Act of 1984 (Fish and Game Code §§ 2050-2098)	Protects California's rare, threatened, and endangered species.
Protected furbearing mammals (14 CCR 460)	Prohibits the take at any time of fisher, marten, river otter, desert kit fox and red fox.
14 CCR 670.2 and 670.5	Lists the plants and animals of California that are declared rare, threatened, or endangered.
Fully Protected Species (Fish and Game Code §§ 3511, 4700, 5050, and 5515)	Designates certain species as fully-protected and prohibits the take of such species or their habitat unless for scientific purposes (see also 14 CCR 670.7, concerning permits to take fully protected species for scientific purposes).
Nest or Eggs (Fish and Game Code § 3503)	Protects California's birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird.
Birds of Prey (Fish and Game Code § 3503.5	Protects birds of prey by making it unlawful to take, possess, or destroy any birds in the orders Falconiformes and Strigiformes or to take, possess, or destroy the nest or eggs of any such bird.
Migratory Birds (Fish and Game Code § 3513)	Protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame birds.
Nongame mammals (Fish and Game Code § 4150)	Makes it unlawful to take or possess any non-game mammal or parts thereof except as provided in the Fish and Game Code or in accordance with regulations adopted by the Fish and Game Commission.

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
BIOLOGICAL RESOURCES (cont.)	
State (cont.)	
Significant Natural Areas (Fish and Game Code § 1930 et seq.)	Designates certain areas such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitat.
California Environmental Quality Act (CEQA) (Cal. Pub. Res. Code § 21000 et seq.); CEQA Guidelines (14 CCR 15380)	CEQA defines rare species more broadly than the definitions for species listed under the state and Federal Endangered Species Acts. Under CEQA Guidelines Section 15830, species not protected through state or Federal listing but nonetheless demonstrable as "endangered" or "rare" under CEQA should receive consideration in environmental analyses. Included in this category are many plants considered rare by the California Native Plant Society (CNPS) and some animals on the CDFG's Special Animals List.
Streambed Alteration Agreement (Fish and Game Code Section 1600 et seq.)	Regulates activities that may divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California designated by CDFG in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit. Impacts to vegetation and wildlife resulting from disturbances to waterways are also reviewed and regulated during the permitting process.
California Native Plant Protection Act of 1977 (Fish and Game Code Section 1900 et seq.)	Designates state rare, threatened, and endangered plants.
California Desert Native Plants Act of 1981 (Food and Agricultural Code Section 80001 et seq.; California Fish and Game Code Sections 1925-1926)	Protects non-listed California desert native plants from unlawful harvesting on both public and private lands in Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego counties. Unless issued a valid permit, wood receipt, tag, and seal by the commissioner or sheriff, harvesting, transporting, selling, or possessing specific desert plants is prohibited.
Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.)	Regulates discharges of waste and fill material to waters of the State, including "isolated" waters and wetlands.
Local	
Riverside County General Plan	Protection and preservation of wildlife for the maintenance of the balance of nature.
CULTURAL RESOURCES	
Federal	
Antiquities Act of 1906 (16 USC 431–433)	Establishes criminal penalties for unauthorized destruction or appropriation of "any historic or prehistoric ruin or monument, or any object of antiquity" on Federal land; empowers the President to establish historical monuments and landmarks.
Archaeological Resources Protection Act of 1979 (ARPA) (16 USC 470aa et seq.)	Protects archaeological resources from vandalism and unauthorized collection on public and Indian lands.
National Historic Preservation Act of 1966 (NHPA) (16 USC 470)	Directs Federal agencies to take into account the effects of their undertakings on properties included in or eligible for inclusion in the National Register of Historic Places. Sets inventory, nomination, protection and preservation responsibilities for Federally-owned cultural properties.
Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) (25 USC 3001–3013)	Provides for the protection of Native American human remains, funerary objects, sacred objects and objects of cultural patrimony on Federal land. Establishes procedures for determining ownership of such remains and objects under Federal jurisdiction.

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
GEOLOGY AND PALEONTOLOGY	
Federal	
Antiquities Act of 1906 (16 USC 431-433; 43 CFR Part 3)	All but about 40 acres of the proposed site is located on land currently administered by the BLM. Although there is no specific mention of natural or paleontologic resources in the Act itself, or in the Act's uniform rules and regulations, "objects of antiquity" has been interpreted to include fossils by the Federal Highways Act of 1956, the National Park Service (NPS), the BLM, the United States Forest Service (USFS), and other Federal agencies.
National Environmental Policy Act of 1970 (NEPA) (42 USC 4321 et. seq.)	Established the Council on Environmental Quality (CEQ), which is charged with preserving "important historic, cultural, and natural aspects of our national heritage."
Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1701-1784)	Authorizes the BLM to manage public lands to protect the quality scientific, scenic, historical, archeological, and other values, and to develop "regulations and plans for the protection of public land areas of critical environmental concern," which include "important historic, cultural or scenic values."
Paleontologic Resources Preservation Act (PRPA) (Public Law 111-011)	Authorizes the Secretaries of the United States Departments of Interior and Agriculture to manage the protection of paleontologic resources on Federal lands.
National Historic Preservation Act of 1966 (NHPA) (16 USC 470)	Establishes policies for the "preservation of the prehistoric and historic resources of the United States."
State	
California Building Code (CBC), 2007	Includes a series of standards that are used in project investigation, design, and construction (including grading and erosion control).
Alquist-Priolo Earthquake Fault Zoning Act (Cal. Pub. Res. Code [PRC] §§ 2621–2630)	Mitigates against surface fault rupture of known active faults beneath occupied structures. Requires disclosure to potential buyers of existing real estate and a 50-foot setback for new occupied buildings. The proposed PSPP site is not crossed by any known active faults or designated Alquist-Priolo Earthquake Fault Zones (EFZs).
Seismic Hazards Mapping Act (PRC 2690–2699)	Identifies areas that are subject to the effects of strong ground shaking, such as liquefaction, landslides, tsunamis, and seiches.
PRC 5097.5, 30244	Regulates removal of paleontologic resources from state lands, defines unauthorized removal of fossil resources as a misdemeanor, and requires mitigation of disturbed sites.
Warren-Alquist Act (PRC 25527, 25550.5(i))	Requires the CEC to "give the greatest consideration to the need for protecting areas of critical environmental concern, including, but not limited to, unique and irreplaceable scientific, scenic, and educational wildlife habitats; unique historical, archaeological, and cultural sites…" With respect to paleontologic resources, the CEC relies on guidelines from the Society for Vertebrate Paleontology, indicated below.
Society for Vertebrate Paleontology (SVP), 1995	The "Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontologic Resources: Standard Procedures" is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontologic resources. The measures were adopted in October 1995 by the SVP, a national organization of professional scientists.
Local	
Riverside County General Plan 2000, Safety Element	Adopts the Uniform Building Code (UBC) (1997), which provides design criteria for buildings and excavations. The UBC is superseded by the CBC (2007). Requires mitigation measures for geologic hazards, including seismic shaking, surface rupture (adopts Alquist-Priolo Earthquake Fault Zoning Act), liquefaction, unstable soils and slopes, and flooding.

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
GEOLOGY AND PALEONTOLOGY (cont.)	
Local (cont.)	
Riverside County General Plan 2000, Multipurpose Open Space Element	Provides for 'preservation of cultural, historical, archaeological, paleontologic, geologic and educational resources'. Also provides a map showing paleontologic sensitivity in the county.
HAZARDOUS MATERIALS MANAGEMENT	
Federal	
Superfund Amendments and Reauthorization Act of 1986 (42 USC 9601 et seq.)	Contains the Emergency Planning and Community Right To Know Act (also known as SARA Title III).
Clean Air Act of 1990, as amended (CAA) (42 USC 7401 et seq.)	Establishes a nationwide emergency planning and response program and imposes reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials.
CAA Risk Management Plans (42 USC Section 112(r))	Requires states to implement a comprehensive system informing local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of both SARA Title III and the CAA are reflected in the California Health and Safety Code, section 25531, et seq.
49 CFR 172.802	Contains the U.S. Department of Transportation (DOT) requirement that suppliers of hazardous materials prepare and implement security plans.
49 CFR Part 1572, Subparts A and B	Requires suppliers of hazardous materials to ensure that all their hazardous materials drivers are in compliance with personnel background security checks.
Oil Pollution Prevention Regulation (40 CFR 112)	Aims to prevent the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Requires a written spill prevention, control, and countermeasures (SPCC) plan to be prepared for facilities that store oil that could leak into navigable waters.
49 CFR Part 190	Outlines gas pipeline safety program procedures.
49 CFR Part 191	Addresses transportation of natural and other gas by pipeline: annual reports, incident reports, and safety-related condition reports. Requires operators of pipeline systems to notify the DOT of any reportable incident by telephone and then submit a written report within 30 days.
49 CFR Part 192	Addresses transportation of natural and other gas by pipeline and minimum Federal safety standards, specifies minimum safety requirements for pipelines including material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to the population density and land use that characterize the surrounding land. This part also contains regulations governing pipeline construction (which must be followed for Class 2 and Class 3 pipelines) and the requirements for preparing a pipeline integrity management program.
Interim Final Rule (6 CFR Part 27)	A regulation of the U.S. Department of Homeland Security that requires facilities that use or store certain hazardous materials to submit information to the Department so that a vulnerability assessment can be conducted to determine what certain specified security measures shall be implemented.
State	
8 CCR 5189	Requires facility owners to develop and implement effective safety management plans that ensure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the Risk Management Plan (RMP) process.
Health and Safety Code [HSC] § 41700	Requires that "No person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
HAZARDOUS MATERIALS MANAGEMENT (cont.)	
State (cont.)	
Health and Safety Code [HSC] § 41700 (cont.)	which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) (HSC § 25249.5 et seq.)	Prevents certain chemicals that cause cancer and reproductive toxicity from being discharged into sources of drinking water.
Hazardous Material Business Plan (HSC §§ 25500-25541; 19 CCR 2720- 2734	Requires the submittal of a chemical inventory and planning and reporting for management of hazardous materials.
Hazardous Substance Information and Training Act, 8 CCR 339, § 3200 et seq., § 5139 et seq., and § 5160 et seq.	8 CCR Section 339 lists hazardous chemicals relating to the Hazardous Substance Information and Training Act; 8 CCR Section 3200 et seq. and Section 5139 et seq. address the control of hazardous substances; 8 CCR Section 5160 et seq. addresses hot, flammable, poisonous, corrosive, and irritant substances. Together, these sections require the listing and implementation of specified control measures for the management of hazardous substances.
HSC §§ 25270-25270.13	Requires the preparation of a Spill Prevention, Control, and Countermeasures (SPCC) Plan if 10,000 gallons or more of petroleum is stored on-site. The regulations would also require the immediate reporting of a spill or release of 42 gallons or more to the California Office of Emergency Services and the Certified Unified Program Authority (CUPA).
Process Safety Management (8 CCR 5189)	Requires facility owners to develop and implement effective process safety management plans when toxic, reactive, flammable, or explosive chemicals are maintained on site in quantities that exceed regulatory thresholds.
Local	
Riverside County Fire Code, Riverside County Code Chapter 8.32: Ordinance No. 787	Adopts the California Fire Code, 2007 Edition, with some of its appendices, into Riverside County regulations.
Disclosure of Hazardous Materials and the Formulation of Business Emergency Plans: Riverside County Ordinance 651	Requires disclosure where businesses handle hazardous materials and requires the development of response plans; designates Riverside County Department of Environmental Health as responsible for administration and enforcement of local codes.
PUBLIC HEALTH AND SAFETY	
Federal	
Clean Air Act Section 112 (42 USC Section 7412)	Requires new sources of air pollution that emit more than 10 tons per year of any specified Hazardous Air Pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology.
State	
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) (HSC Section 25249.5 et seq.)	Establish thresholds of exposure to carcinogenic substances above which Prop 65 exposure warnings are required.
HSC Section 41700	States that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."
Air Toxics Hot Spots Program (HSC Section 44300 et seq.)	Requires participation in the inventory and reporting program at the District level.

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
PUBLIC HEALTH AND SAFETY (cont.)	
State (cont.)	
Air Toxics Hot Spots Information and Assessment Act (HSC Sections 44360– 44366)	Requires that, based on results of a Health Risk Assessment (HRA) conducted per CARB/OEHHA guidelines, toxic contaminants do not exceed acceptable levels.
PRC Section 25523(a); 20 CCR Sections 1752.5, 2300–2309 and Div. 2 Chapter 5, Article 1, Appendix B, Part (1); California Clean Air Act, HSC Section 39650, et seq.	Requires a quantitative HRA for new or modified sources, including power plants that emit one or more toxic air contaminants (TACs).
Local	
Mojave Desert Air Quality Management District (MDAQMD) Rule 402	Prohibits the discharge of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to the public; endanger the comfort, repose, health or safety of the public; or cause injury or damage to business or property.
MDAQMD Regulation X Emission Standards for Additional Specific Air Contaminants	Provides notice to the regulated community that California Air Toxic Control measures (ATCMs) are enforceable by the MDAQMD within its jurisdiction and Federal maximum achievable control technology (MACT) and NESHAPS are adopted by reference and enforced by the MDAQMD.
MDAQMD Rule 1320	Requires the use of best available control technology (BACT) and best available control technology for toxics (T-BACT) at certain projects and the preparation of an HRA.
MDAQMD Rule 1520	Implementation of HSC Section 44300 et seq., Air Toxics “Hot Spots” Information and Assessment Act.
SOCIOECONOMICS AND ENVIRONMENAL JUSTICE	
Federal	
Emergency Economic Stabilization Act of 2008 (PL 110-343) Business Solar Investment Tax Credit (Internal Revenue Code Section 48)	Extends the 30 percent investment tax credit (ITC) for solar energy property for eight years through December 31, 2016. The bill allows the ITC to be used to offset both regular and alternative minimum tax (AMT) and waives the public utility exception of current law (i.e., permits utilities to directly invest in solar facilities and claim the ITC). The five-year accelerated depreciation allowance for solar property is permanent and unaffected by passage of the eight-year extension of the solar ITC.
State	
Cal. Rev. and Tax. Code 73	Allows property tax exclusion for certain types of solar energy systems.
Cal. Educ. Code § 17620	The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities.
Cal. Gov’t Code §§ 65996-65997	Except for a fee, charge, dedication, or other requirement authorized under Section 17620 of the Education Code, state and local public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities.
TRANSMISSION LINE SAFETY AND NUISANCE (TLSN)	
Federal (Aviation Safety)	
Objects Affecting the Navigable Air Space (14 CFR Part 77)	Describes the criteria used to determine the need for a Federal Aviation Administration (FAA) “Notice of Proposed Construction or Alteration” in cases of potential obstruction hazards.
FAA Advisory Circular No. 70/7460-1G, “Proposed Construction and/or Alteration of Objects that May Affect the Navigation Space”	Addresses the need to file the “Notice of Proposed Construction or Alteration” form (Form 7640) with the FAA in cases of potential for an obstruction hazard.

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
TRANSMISSION LINE SAFETY AND NUISANCE (TLSN) (cont.)	
Federal (Aviation Safety) (cont.)	
FAA Advisory Circular 70/460-1G, "Obstruction Marking and Lighting"	Describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR.
Federal (Interference with Radio Frequency Communication)	
47 CFR 15.2524, Federal Communications Commission (FCC)	Prohibits operation of devices that can interfere with radio-frequency communication and requires mitigation of any interference by the owner of the source.
State (Interference with Radio Frequency Communication)	
California Public Utilities Commission (CPUC) General Order 52 (GO-52)	Governs the construction and operation of power and communications lines to prevent or mitigate interference.
Local (Audible Noise)	
Riverside County General Plan, Noise Element	Establishes policies and programs to ensure that noise levels are appropriate to land uses.
Riverside County Noise Ordinance	Establishes performance standards for planned noise-sensitive land uses.
State (Hazardous and Nuisance Shocks)	
Rules for Overhead Electric Line Construction (CPUC GO-95)	Governs clearance requirements to prevent hazardous shocks, grounding techniques to minimize nuisance shocks, and maintenance and inspection requirements.
High Voltage Safety Orders (8 CCR Section 2700 et seq.)	Specifies requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment.
National Electrical Safety Code (i.e. National Fire Protection Association [NFPA] 70E)	OSHA adopted the NESC/NFPA 70E which specifies grounding procedures to limit nuisance shocks. Also specifies minimum conductor ground clearances.
Industry Standards (Hazardous and Nuisance Shocks)	
Institute of Electrical and Electronics Engineers (IEEE) 1119, "IEEE Guide for Fence Safety Clearances in Electric-Supply Stations"	Specifies the guidelines for grounding-related practices within the right-of-way and substations.
State (Electric and Magnetic Fields)	
Rules for Planning and Construction of Electric Generation Line and Substation Facilities in California (CPUC GO-131-D)	Specifies application and noticing requirements for new line construction including electromagnetic fields (EMF) reduction.
CPUC Decision 93-11-013	Specifies CPUC requirements for reducing power frequency EMF.
Industry Standards (Electric and Magnetic Fields)	
American National Standards Institute (ANSI/IEEE) 644-1944 Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines	Specifies standard procedures for measuring EMF from an operating electric line.
State (Fire Hazards)	
Fire Prevention Standards for Electric Utilities (14 CCR 1250-1258)	Provides specific exemptions from electric pole and tower firebreak and conductor clearance standards and specifies when and where standards apply.

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
VISUAL RESOURCES	
Federal	
California Desert Conservation Area (CDCA) Plan of 1980, as amended	The BLM Resource Management Plan applicable to the proposed site. The CDCA Plan did not include Visual Resource Management (VRM) inventory or management classes. However, a BLM-approved Visual Resource Inventory (VRI) was conducted in 2005 for the Devers-Palo Verde 2 Transmission Project EIS/EIR, which covers the site of the proposed action. The site is classified in the CDCA Plan as Multiple-Use Class (MUC) M (Moderate Use). Management of MUC M lands is based upon a controlled balance between higher intensity use and protection of public lands. This class provides for a wide variety of present and future uses such as mining, livestock grazing, recreation, energy, and utility development. Class M management is also designed to conserve desert resources and to mitigate damage to those resources, which permitted uses may cause. Table 1 of the CDCA Plan illustrates the types of allowable land uses by MUC Class. The table specifically includes Electrical Power Generation Facilities including solar facilities. Guidance provided under this section allows for the authorization of such facilities within MUC M lands in compliance with NEPA requirements. New major electric transmission facilities may be allowed only within designated utility corridors. Existing facilities within designated utility corridors may be maintained and upgraded or improved in accordance with existing rights-of-way or amendments to right-of- way grants.
State	
State Scenic Highway Program (Cal. Streets and Highways Code §§ 260-263)	The California State Department of Transportation (Caltrans) identifies a state system of eligible and designated scenic highways which, if designated, are subject to various controls intended to preserve their scenic quality.
Local	
Riverside County General Plan Land Use Policy LU-4, relating to project design	*LU 4.1*: Requires that new developments be located and designed to visually enhance, not degrade the character of the surrounding area through consideration of the following concepts: c. Require that an appropriate landscape plan be submitted and implemented for development projects subject to discretionary review. d. Require that new development utilize drought- tolerant landscaping and incorporate adequate drought-conscious irrigation systems. l. Mitigate noise, odor, lighting, and other impacts on surrounding properties. m. Provide and maintain landscaping in open spaces and parking lots. n. Include extensive landscaping. o. Preserve natural features, such as unique natural terrain, drainage ways, and native vegetation, wherever possible, particularly where they provide continuity with more extensive regional systems. p. Require that new development be designed to provide adequate space for pedestrian connectivity and access, recreational trails, vehicular access and parking, supporting functions, open space, and other pertinent elements. *LU 4.2:* Require property owners to maintain structures and landscaping to a high standard of design, health, and safety through the following: c. Promote and support community and neighborhood based efforts for the maintenance, upkeep, and renovation of structures and sites.
County Scenic Corridors	*LU 13.1*: Preserve and protect outstanding scenic vistas and visual features for the enjoyment of the traveling public.

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
VISUAL RESOURCES (cont.)	
Local (cont.)	
County Scenic Corridors (cont.)	*LU 13.3*: Ensure that the design and appearance of new landscaping, structures, equipment, signs, or grading within Designated and Eligible State and County scenic highway corridors are compatible with the surrounding scenic setting or environment. *LU 13.7*: Require that the size, height, and type of on-premise signs visible from Designated and Eligible State and County Scenic Highways be the minimum necessary for identification. The design, materials, color, and location of the signs shall blend with the environment, utilizing natural materials where possible. *LU 13.8*: Avoid the blocking of public views by solid walls.
The following policies apply to properties designated as Open Space-Rural on the area plan land use maps.	LU 20.1: Require that structures be designed to maintain the environmental character in which they are located. LU 20.2: Require that development be designed to blend with undeveloped natural contours of the site and avoid an unvaried, unnatural, or manufactured appearance; LU 20.3: Require that adequate and available circulation facilities, water resources, sewer facilities, and/or septic capacity exist to meet the demands of the proposed land use; LU 20.4: Ensure that development does not adversely impact the open space and rural character of the surrounding area LU 20.5: Encourage parcel consolidation; and LU 20.6: Provide programs and incentives that allow Open Space-Rural areas to maintain and enhance their existing and desired character.
WASTE MANAGEMENT	
Federal	
Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act of 1976, et al.) (42 USC 6901 et seq.)	The Solid Waste Disposal Act, as amended and revised by the Resource Conservation and Recovery Act (RCRA) establishes requirements for the management of solid wastes (including hazardous wastes), landfills, underground storage tanks, and certain medical wastes. The statute also addresses program administration, implementation and delegation to states, enforcement provisions, and responsibilities, as well as research, training, and grant funding provisions. RCRA Subtitle C establishes provisions for the generation, storage, treatment, and disposal of hazardous waste, including requirements addressing: Generator record keeping practices that identify quantities of hazardous wastes generated and their disposition; Waste labeling practices and use of appropriate containers; Use of a manifest when transporting wastes; Submission of periodic reports to the United States Environmental Protection Agency (U.S. EPA) or other authorized agency; and Corrective action to remediate releases of hazardous waste and contamination associated with RCRA-regulated facilities. RCRA Subtitle D establishes provisions for the design and operation of solid waste landfills. RCRA is administered at the Federal level by U.S. EPA and its 10 regional offices. The Pacific Southwest regional office (Region 9) implements U.S. EPA programs in California, Nevada, Arizona, and Hawaii.

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
WASTE MANAGEMENT (cont.)	
Federal (cont.)	
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, or "Superfund") (42 USC 9601 et seq.)	Establishes authority and funding mechanisms for cleanup of uncontrolled or abandoned hazardous waste sites, as well as cleanup of accidents, spills, or emergency releases of pollutants and contaminants into the environment. Among other things, the statute addresses: Reporting requirements for releases of hazardous substances; Requirements for remedial action at closed or abandoned hazardous waste sites, and brownfields; Liability of persons responsible for releases of hazardous substances or waste; and Requirements for property owners/potential buyers to conduct "all appropriate inquiries" into previous ownership and uses of the property to 1) determine if hazardous substances have been or may have been released at the site, and 2) establish that the owner/buyer did not cause or contribute to the release. A Phase I Environmental Site Assessment is commonly used to satisfy CERCLA "all appropriate inquiries" requirements.
40 CFR Subchapter I – Solid Wastes	Implements the provisions of the Solid Waste Disposal Act and RCRA (described above). Among other things, the regulations establish the criteria for classification of solid waste disposal facilities (landfills), hazardous waste characteristic criteria and regulatory thresholds, hazardous waste generator requirements, and requirements for management of used oil and universal wastes. Part 257 addresses the criteria for classification of solid waste disposal facilities and practices. Part 258 addresses the criteria for municipal solid waste landfills. Parts 260 through 279 address management of hazardous wastes, used oil, and universal wastes (i.e., batteries, mercury-containing equipment, and lamps). U.S. EPA implements the regulations at the Federal level. However, California is an RCRA-authorized state, so most of the solid and hazardous waste regulations are implemented by state agencies and authorized local agencies in lieu of U.S. EPA.
Hazardous Materials Regulations (49 CFR Parts 172 and 173)	Address the U.S. Department of Transportation (DOT) established standards for transport of hazardous materials and hazardous wastes. The standards include requirements for labeling, packaging, and shipping of hazardous materials and hazardous wastes, as well as training requirements for personnel completing shipping papers and manifests. Section 172.205 specifically addresses use and preparation of hazardous waste manifests in accordance with 40 CFR Section 262.20.
Clean Water Act (33 USC 1251 et seq.)	The Clean Water Act governs the discharge of wastewater to surface waters of the U.S.
State	
Hazardous Waste Control Act of 1972, as amended (HSC § 25100 et seq.)	Creates the framework under which hazardous wastes are managed in California. The law provides for the development of a state hazardous waste program that administers and implements the provisions of the Federal RCRA program. It also provides for the designation of California-only hazardous wastes and development of standards (regulations) that are equal to or, in some cases, more stringent than Federal requirements. The California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC) administers and implements the provisions of the law at the state level. Certified Unified Program Agencies (CUPAs) implement some elements of the law at the local level.

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
WASTE MANAGEMENT (cont.)	
State (cont.)	
Environmental Health Standards for the Management of Hazardous Waste (22 CCR Div. 4.5, Section 66001 et seq.)	Establish requirements for the management and disposal of hazardous waste in accordance with the provisions of the California Hazardous Waste Control Act and Federal RCRA. As with the Federal requirements, waste generators must determine if their wastes are hazardous according to specified characteristics or lists of wastes. Hazardous waste generators must obtain identification numbers; prepare manifests before transporting the waste off site; and use only permitted treatment, storage, and disposal facilities. Generator standards also include requirements for record keeping, reporting, packaging, and labeling. Additionally, while not a Federal requirement, California requires that hazardous waste be transported by registered hazardous waste transporters. The standards addressed by 22 CCR include: Identification and Listing of Hazardous Waste (Ch. 11, Section 66261.1 et seq.). Standards Applicable to Generator of Hazardous Waste (Ch. 12, Section 66262.10 et seq.). Standards Applicable to Transporters of Hazardous Waste (Ch. 13, Section 66263.10 et seq.). Standards for Universal Waste Management (Ch. 23, Section 66273.1 et seq.). Standards for the Management of Used Oil (Ch. 29, Section 66279.1 et seq.). Requirements for Units and Facilities Deemed to Have a Permit by Rule (Ch. 45, Section 67450.1 et seq.). The Title 22 regulations are established and enforced at the state level by DTSC. Some generator and waste treatment standards are also enforced at the local level by CUPAs.
Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) (HSC Ch. 6.11, Sections 25404– 25404.9)	Consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the six environmental and emergency response programs listed below. Aboveground Petroleum Storage Act requirements for Spill Prevention, Control, and Countermeasure (SPCC) Plans. Hazardous Materials Release and Response Plans and Inventories (Business Plans). California Accidental Release Prevention (CalARP) Program. Hazardous Materials Management Plan / Hazardous Materials Inventory Statements. Hazardous Waste Generator / Tiered Permitting Program. Underground Storage Tank Program. The state agencies responsible for these programs set the standards for their programs while local governments implement the standards. The local agencies implementing the Unified Program are known as CUPAs. Note: The Waste Management analysis only considers application of the Hazardous Waste Generator/Tiered Permitting element of the Unified Program.
Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (27 CCR Div. 1, Subdiv, 4, Ch. 1, Section 15100 et seq.)	While these regulations primarily address certification and implementation of the program by the local CUPAs, the regulations do contain specific reporting requirements for businesses. Article 9 – Unified Program Standardized Forms and Formats (Sections 15400–15410). Article 10 – Business Reporting to CUPAs (Sections 15600–15620).

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
WASTE MANAGEMENT (cont.)	
State (cont.)	
California Integrated Waste Management Act of 1989 (CIWMA) (PRC Div. 30, Section 40000 et seq.)	Establishes mandates and standards for management of solid waste in California. The law addresses solid waste landfill diversion requirements; establishes the preferred waste management hierarchy (source reduction first, then recycling and reuse, and treatment and disposal last); sets standards for design and construction of municipal landfills; and addresses programs for county waste management plans and local implementation of solid waste requirements.
California Integrated Waste Management Board (14 CCR Div, 7, Section 17200 et seq.)	Implement the provisions of the CIWMA and set forth minimum standards for solid waste handling and disposal. The regulations include standards for solid waste management, as well as enforcement and program administration provisions. Chapter 3 – Minimum Standards for Solid Waste Handling and Disposal. Chapter 3.5 – Standards for Handling and Disposal of Asbestos Containing Waste. Chapter 7 – Special Waste Standards. Chapter 8 – Used Oil Recycling Program. Chapter 8.2 – Electronic Waste Recovery and Recycling.
Hazardous Waste Source Reduction and Management Review Act of 1989 (HWSRMRA) (HSC Div. 20, Ch. 6.5, Art. 11.9, Section 25244.12 et seq.)	Expands the state's hazardous waste source reduction activities. Among other things, it establishes hazardous waste source reduction review, planning, and reporting requirements for businesses that routinely generate more than 12,000 kilograms (approximately 26,400 pounds) of hazardous waste in a designated reporting year. The review and planning elements are required to be done on a four-year cycle, with a summary progress report due to DTSC every fourth year.
Hazardous Waste Source Reduction and Management Review (22 CCR 67100.1 et seq.)	Implement the provisions of the HWSRMRA. The regulations establish the specific review elements and reporting requirements to be completed by generators subject to the act.
23 CCR Div. 3, Ch. 16 and 18	Relate to hazardous material storage and petroleum UST cleanup, as well as hazardous waste generator permitting, handling, and storage. The DTSC Imperial County CUPA is responsible for local enforcement.
Local	
County of Riverside General Plan, Safety Element: Policy S 6.1	Describes the County's policies and siting criteria identified in the County of Riverside Hazardous Waste Management Plan including coordination of hazardous waste facility responsibilities on a regional basis through the Southern California Hazardous Waste Management Authority
Riverside County Code Title 8 Chapters 8.60, 8.84, and 8.132, Health and Safety	Establishes requirements for the use, generation, storage, and disposal of hazardous and non-hazardous materials and wastes within the County.
Riverside County Code, Chapter 8.32, Ordinance No. 787, Fire	Adopts the 2007 California Fire Code.
WORKER SAFETY AND FIRE PROTECTION	
Federal	
Occupational Safety and Health Act of 1970 (29 USC 651 et seq.)	Mandates safety requirements in the workplace with the purpose of "[assuring] so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources" (29 USC Section 651).
Occupational Safety and Health Administration Safety and Health Regulations (29 CFR 1910.1- 1910.1500)	Define the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector.

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
WORKER SAFETY AND FIRE PROTECTION (cont.)	
Federal (cont.)	
29 CFR 1952.170-1952.175	Provide Federal approval of California's plan for enforcement of its own Safety and Health requirements, in lieu of most of the Federal requirements found in 29 CFR sections 1910.1 to 1910.1500.
State	
Cal/OSHA regulations (8 CCR)	Require that all employers follow these regulations as they pertain to the work involved, including regulations pertaining to safety matters during construction, commissioning, and operations of power plants, as well as safety around electrical components, fire safety, and hazardous materials use, storage, and handling.
24 CCR 3 et seq.	Incorporate the current edition of the Uniform Building Code.
HSC § 25500 et seq.	Present Risk Management Plan requirements for threshold quantities of listed acutely hazardous materials at a facility.
HSC § 25500-25541	Require a Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at a facility.
Local	
Riverside County Ordinance 457	Adopts specific building, mechanical, plumbing, and electrical codes from sources such as the California Building Standards Commission with county-specific modifications.
Riverside County Ordinance 787	Adopts the 2007 edition of the California Fire Code and portions of the 2007 edition of the California Building Code with county-specific modifications.
Riverside County Ordinance 615	Establishes requirements for the use, generation, storage and disposal of hazardous materials within the County.
Riverside County Dept. of Environmental Health, Hazardous Materials Releases	Adopts State requirements and guidelines to govern hazardous materials release response plans and inventories.
Chapter 22 of the 2007 California Fire Code	Addresses requirements for Motor Fuel-Dispensing Facilities and Repair Garages. It has been adopted by Riverside County and will apply to the fuel depot at the site.
NFPA code for Motor Fuel Dispensing Facilities and Repair Garages, 2008 edition (NFPA 30a)	The industry standard for fuel depots.
NOISE	
Federal	
Occupational Safety & Health Act (OSHA) (29 USC 651 et seq.)	Protects workers from the effects of occupational noise exposure.
State	
California Occupational Safety & Health Act (Cal-OSHA) (29 USC 651 et seq.; 8 CCR 5095-5099)	Protects workers from the effects of occupational noise exposure. Note, These standards are equivalent to federal OSHA standards.
Local	
Riverside County General Plan, Noise Element	Establishes goals, objectives, and procedures to protect the public from noise intrusion. Land use compatibility defines the acceptability of a land use in a specified noise environment. For residential land uses, these guidelines categorize noise levels of up to 60 dBA day/night average sound level (Ldn) or CNEL as "normally acceptable" and up to 70 dBA Ldn or CNEL as "conditionally acceptable."

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
NOISE (cont.)	
Local (cont.)	
Riverside County Noise Ordinance, Ordinance 847	Section 4 of Ordinance No. 847 (Regulating Noise) limits noise on any property that causes the exterior noise level on any other occupied property to 55 dBA during the daytime hours and 45 dBA during the nighttime hours, for noise-sensitive receptors[1] within a very low density rural area, such the area surrounding the site. Also limits the hours of construction activities to the hours of 6:00 a.m. to 7:00 p.m., June through September, 6:00 a.m. to 6:00 p.m., October through May, Mondays through Fridays, and to 9:00 a.m. to 5:00 p.m. on Saturdays.

1 A sensitive noise receptor, also referred to as a noise-sensitive receptor, is a receptor at which there is a reasonable degree of sensitivity to noise (such as residences, schools, hospitals, elder care facilities, libraries, cemeteries, and places of worship).

APPENDIX D
Results of Scoping

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United States Department of the Interior
Bureau of Land Management
Palm Springs-South Coast Field Office

Palen Solar Power Project

BLM Land Use Application
File # CACA-48810

SCOPING REPORT

RESULTS OF SCOPING

January 2010

Palm Springs-South Coast Field Office
1201 Bird Center Drive
Palm Springs, CA 92262

Approved by: _____ _____
John R. Kalish Date
Field Manager

Palen Solar Power Project

I. Introduction

A. Brief Description of the Project

Solar Millennium, LLC and Chevron Energy Solutions propose the Palen Solar Power Project (PSPP), a concentrated solar thermal electric generating facility comprised of two 242 megawatt (MW) plant units with a nominal capacity of 484 MW capable of supplying enough renewable electricity for 150,000 homes.

If approved, the PSPP would be located on Bureau of Land Management (BLM) administered land approximately 10 miles east of the rural community of Desert Center, about halfway between the cities of Blythe and Indio in unincorporated Riverside County (See Project Location Map below). The project would include a new double-circuited 230 kV transmission line that would interconnect with Southern California Edison's regional transmission at the planned Red Bluff substation. The Applicants have filed with BLM for a right-of-way (ROW) grant of approximately 5,200 acres. Within the 5,200 acre ROW, construction and operation will disturb approx. 3,950 acres.

The Project would utilize solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect radiant energy from the sun and refocus the energy on a receiver tube located at the focal point of the parabola. Through this process, a heat transfer fluid (HTF) is heated to high temperature (approx. 750°F) and piped through heat exchangers where it is used to generate high-pressure steam. The steam is then fed to a traditional steam turbine generator to generate electricity.

B. Potential Land Use Plan Amendment to the California Desert Conservation Area Plan

The Project would be located on land that is subject to the BLM's California Desert Conservation Area (CDCA) Plan. All of the public lands in the CDCA under BLM management, except for a few small and scattered parcels, have been designated geographically as a Multiple Use Class (MUC) as follows: Controlled Use (C), Limited Use (L), Moderate Use (M), and Intensive Use (I). The Project would be located in BLM designated M lands. For M lands, wind and solar electric generation facilities may be allowed after National Environmental Policy Act (NEPA) requirements are met. The CDCA also states that sites associated with power generation or transmission not identified in the CDCA will be considered through the Plan Amendment process. The Project site is currently not identified in the CDCA. Therefore prior to ROW grant issuance, the Project would require a Land Use Plan Amendment to the CDCA.

Figure 1: Project Location

C. Purpose and Need for the Project

The Proponent proposes to assist the State of California in meeting the State of California Renewable Portfolio Standard Program goals and reduce greenhouse gases by developing a 484 megawatt solar thermal energy production plant and related facilities in Riverside County, California on Bureau of Land Management (BLM) administered lands.

BLM's purpose and need for the Solar project is to respond to the Proponent's application under Title V of the Federal Land Policy and Management Act of 1976 (43 USC 1761) for a right-of-way grant to construct, operate and decommission a solar thermal facility on BLM lands. BLM will consider alternatives to the Proponent's proposed action and will include terms and conditions. If BLM decides to approve issuance of a ROW grant to the Proponent, BLM's actions would include amending the California Desert Conservation Area Plan concurrently. BLM will take into consideration the provisions of the Energy Policy Act of 2005 in responding to the Proponent's application.

D. Agency Coordination

D.1 Lead Agency

The California Energy Commission (CEC) is responsible for licensing solar thermal projects that are 50 MW and larger. Therefore, the Project is also under the jurisdiction of the CEC. The Applicant submitted an Application for Certification (AFC) for the Project to the CEC on August 24, 2009 and a Supplement to the AFC was submitted on October 26, 2009. The CEC and the BLM entered into a MOU on August 8, 2007 and as lead agencies under CEQA and NEPA, agreed that a single environmental report can meet both agencies environmental requirements. It is assumed that any future EIS data and analysis will be incorporated into the CEC's AFC documentation and processes.

D.2 Cooperating Agency

The cooperating agency (CA) role derives from the National Environmental Policy Act (NEPA) of 1969, which calls on federal, state, and local governments to cooperate with the goal of achieving "productive harmony" between humans and their environment. The Council on Environmental Quality's (CEQ) regulations implementing NEPA allow federal agencies (as lead agencies) to invite tribal, state, and local governments, as well as other federal agencies, to serve as CAs in the preparation of environmental impact statements. In 2005, the BLM amended its planning regulations to ensure that it engages its governmental partners consistently and effectively through the CA relationship whenever land use plans are prepared or revised.

State agencies, local governments, tribal governments, and other federal agencies may serve as CAs. CEQ regulations recognize two criteria for CA status: jurisdiction by law and special expertise. The BLM regulations incorporate these criteria.

40 CFR 1508.5 (CEQ) Defining eligibility. "Cooperating agency" means any Federal agency other than a lead agency which has "jurisdiction by law" or "special expertise" with respect to any environmental impact….A State or local agency of similar qualifications or, when the effects are on a reservation, an Indian Tribe, may by agreement with the lead agency become a cooperating agency.

The BLM has invited approximately 29 tribes and multiple state and local agencies to participate in the planning process as Cooperating Agencies. To date, no agencies have agreed to be Cooperating Agencies.

II. Scoping Process Summary

A. Notice of Intent

The BLM published a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) on November 23, 2009 in the Federal Register. Publication of the NOI began a 30-day comment period which ended on December 23, 2009. BLM provided a website with Project information that also described the various methods of providing

public comment on the Project including an e-mail address where comments could be sent electronically.

B. Public Notification

Notification for a public Scoping Meeting held on December 11, 2009 appeared in the Desert Sun local newspaper on November 24, 2009. Notification was also published on the BLM website on November 23, 2009.

C. Public Scoping Meeting

A public Scoping Meeting was held on December 11, 2009 at the University of Riverside Palm Desert Graduate Center located at 75-080 Frank Sinatra Drive in Palm Desert, California. A presentation describing the Project was made by Solar Millennium, LLC with presentations describing the environmental review process presented by members of the BLM and CEC. Seventy-five attendees were documented by signing in on a voluntary sign-in sheet.

D. Written Comments

Twenty comment letters were received within the comment period ending on December 23, 2009.

III. Comment Summary and Analysis

Issues were identified by reviewing the comment documents received. Many of the comments identified similar issues; all of the public comment documents were reviewed and the following section provides a summary of the issues, concerns, and/or questions raised. For this report, the issues have been grouped into one of the three following categories:

- Issues or concerns that could be addressed by effects analysis;
- Issues or concerns that could develop an alternative and/or a better description or qualification of the alternatives;
- Issues or concerns outside the scope of the EIS.

The comments discussed below are paraphrased from the original comment letters. To a minor degree, some level of interpretation was needed to identify the specific concern to be addressed. Many of the comments identified similar issues; to avoid duplication and redundancy similar comments were grouped together and then summarized. Original comment letters may be reviewed up on request at the BLM Palm Springs-South Coast Field Office at 1201 Bird Center Drive, Palm Springs, California, 92262, during normal business hours, from 8:00 am to 4:30 pm.

A. Effects Analysis

Comments in this category will be described in detail in the affected environment section of the EIS or addressed in the effects analysis for each alternative.

Purpose and Need

- Project description should not be narrowly defined to rule out feasible alternatives
- Project should be discussed in the context of the larger energy market; identify potential purchasers of the power produced; discuss how project will assist in meeting its renewable energy portfolio standards and goals

Air Resources (Air sheds)

- Greenhouse gas emissions/climate change impacts on plants, wildlife, and habitat
- Planning for species adaptation due to climate change
- Discussion of how projected impacts could be exacerbated by climate change
- Quantify and disclose anticipated climate change benefits of solar energy
- Discussion of trenching/grading/filling and effects on carbon sequestration of the natural desert

Soils Resources

- Impacts to desert soils
- Increased siltation during flooding and dust
- Impacts to crypto-biotic crust
- Preparation of a drainage, erosion, and sediment control plan

Water Resources (Surface and Ground water)

- If new wells will draw water from mainstream of the lower Colorado River, an entitlement to the use of Colorado River water is required by Section 5 of the Boulder Canyon Project Act (BCPA) and by the Consolidated Decree. If entitlement is required, it must be satisfied from Colorado River water apportioned for used within the State of California by the Secretary in accordance with the terms of the Consolidated Decree. The entitlement to be used for a proposed solar project may be an existing entitlement made available for this purpose by an existing entitlement holder either directly or through exchange.
- Identify impacts to jurisdictional waters of the US and California
- Effects of additional groundwater pumping in conjunction with other groundwater issues
- Groundwater and surface water impacts
- Subsidence potential

- Impacts to downgradient groundwater, surface water, and wetlands
- Effects of diversion of water from ephemeral streams
- Water supply impacts related to dust control, fire prevention and containment, vegetation management, sanitation, equipment maintenance, construction, and human consumption
- Description of water conservation measures to reduce water demands
- Effects of climate change on water supply
- Discussion of potential effects of project discharges, if any, on surface and groundwater quality
- Disposal of wastewater or other fluids, if any
- Determination if project requires a Section 404 permit under the Clean Water Act (CWA)
- Suggests BLM include a jurisdictional delineation for all Waters of the US, including ephemeral drainages
- Description of natural drainage patterns, project operations, identify whether any component of project is within 50 or 100-year floodplain
- Provide information on CWA Section 303(d) impaired waters, if any, and efforts to develop and revise TMDLs

Biological Resources

- If there are threatened or endangered species present, recommend BLM consult with USFWS and prepare a Biological Opinion under Section 7 of the ESA
- Consider adopting a formal adaptive management plan
- Impacts to all known species, not just special status, should be analyzed to assure ecosystem level protection—permanent loss of 4,000 acres of habitat and associated species is significant and cannot be mitigated
- Maximize options to protect habitat and minimize habitat loss and fragmentation
- Impacts associated with constructing fences
- Impacts due to increase of shade in the desert environment
- Seasonal surveys should be performed for sensitive plant and animal species
- Impacts to all known species, not just special status, should be analyzed to assure ecosystem level protection—permanent loss of habitat and associated species is significant and cannot be mitigated
- If ponded water or bioremediation areas would attract wildlife, particularly migratory waterfowl
- Acquisition of lands for conservation should be part of mitigation strategy
- Identify fire prevention BMP due to use of high temperature liquids
- Impacts regarding habitat fragmentation and loss of connectivity

Vegetation Resources (Vegetative communities, priority and special status species)

- Seasonal surveys should be performed for sensitive plant species—lack of fall surveys may under represent onsite plants
- Vegetation maps should be at scale that is useful for evaluating impacts
- Impacts due to non-native invasive species
- Inclusion of an invasive plant management plan
- Impacts to the following species:
  - Dwarf germander
  - Harwood's milkvetch
  - Jackass clover
  - Coachella Valley Milkvetch

Wildlife Resources (Priority species, special status species)

- Desert tortoise; especially impacts to existing movement corridor connection from the Chuckwalla DWMA; translocation proposed results in high mortality; project site located within the Eastern Colorado Desert Tortoise Recovery Unit; portion of site designated as critical habitat
- Impacts to the following species:
  - Burrowing owl
  - Desert bighorn sheep
  - Mojave fringe-toed lizard
  - Mule deer
  - American badger
  - Northern harrier
  - Swainson's hawk
  - Loggerhead shrike
  - Purple martin
  - Migratory birds
  - Golden eagles
- Impacts to wildlife movement corridors
- Preserve large landscape-level migration areas

Cultural Resources

- Has a 100 percent archaeological inventory been conducted pursuant to Section 106 of the National Historic Preservation Act and BLM Manual 8100?
- Have archaeological sites been evaluated pursuant to the National Register of Historic Places criteria?
- Has consultation with Native Americans take place?

Visual Resources

- Baseline for visual resources has not been categorized
- Avoid impacting visually sensitive areas

Land Use/Special Designations (ACECs, WAs, WSAs, etc.)

- Applicant implies that biological resources within project area are not sensitive because not located within ACEC or Desert Wildlife Management Area (DWMA), but many areas outside such designated areas do contain significant biological resources
- Portion of project occurs within a multi-species Wildlife Habitat Management Area (WHMA) designated pursuant to the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) with the specific role of providing connectivity for the desert tortoise across Interstate-10 between the Chuckwall Desert Wildlife Management Area (DWMA), the Chuckwall Valley, and the Chemcheuvi DWMA
- Evaluation of consistency with land use and regulatory plans, including Executive Order 11644, which allows for use of off-road vehicles on public lands
- Describe reasonably foreseeable future land use and associated impacts resulting from additional power supply
- Consider direct and indirect effects of the inter-connecting transmission line
- Project is located adjacent to Palen Lake ACEC and associated archaeological sites

Public Health and Safety

- Identify fire prevention BMP due to use of high temperature liquids
- Discussion if bioremediation areas are to be used for soil contaminated by heat transfer fluid
- Discussion of concentrated, dewatered solid waste associated with evaporation ponds

Noise/Vibration

- Consider wildlife as sensitive receptors
- Dry cooling process noise/vibration impacts on wildlife

Recreation (RMAs, facilities, LTVAs, dispersed recreation opportunities, etc.)

- Evaluation should include impacts regarding off-highway vehicle use (OHV), camping, photography, hiking, wildlife viewing, and rockhounding
- Evaluation should include number of users, value of affected land for recreational purposes, and need to locate and acquire replacement venues for lands lost
- Indirect impacts caused by displacing recreational users
- Cumulative loss of land available for OHV recreation

Social and Economic Setting

- Evaluation of economic impacts due to construction, implementation, and operation
- Economic impacts regarding loss of commerce due to recreational use losses

Environmental Justice (minority and low-income communities)

- Evaluation whether diminished recreational access would be placed disproportionately on minorities and low-income communities

Cumulative Impacts

- Identify impacts from other projects occurring in the vicinity, including solar, wind, geothermal, roads, transit, housing, ORV use, military maneuvers, and other development
- Cumulative analysis area should encompass the Sonoran/transition desert areas of the California desert at a minimum
- Some reasonably foreseeable projects in the vicinity include all the solar and wind applications along Interstate-10
- Cumulative analysis area should encompass Chuckwalla Valley region

B. Alternative Development and/or Alternative Design Criteria

Comments in this category will be considered in the development of alternatives or can be addressed through design criteria in the alternative descriptions.

- Project description should not be narrowly defined to rule out feasible alternatives
- Preferred alternative should consider conjunctive use of disturbed private land in combination with adjacent lower value federal land
- Reduce project size by excluding proposed eastern half to exclude sensitive dune habitat
- Owens Lake “dust project” area as potential alternative site
- Alternatives should include: sites not under BLM jurisdiction; project extent and electrical power generation that differ from proposal; use of different technology; benefits associated with the proposed technology
- Alternatives should describe rationale used to determine whether impacts of an alternative are significant or not
- Consider reconfiguration alternatives proposed by CEC in their Dec. 7, 2009 data request—to minimize impacts to wildlife movement and sensitive biological resources such as the Palen Dunes
- Discuss feasibility of using residential and wholesale distributed generation, in conjunction with increased energy efficiency, as an alternative

C. Issues or Concerns Outside the Scope of the EIS

Comments in this category are outside the scope of analysis and will not be addressed in the EIS. Rationale for considering these comments out-of-scope is included.

- Agencies must require adequate end of project life planning, including reuse of abandoned sites for future renewable energy projects in lieu of allowing development on other undisturbed lands; and/or returning to public use in original condition
- What mix of distributed PV, wind energy, and transmission dependent “Big Solar” best fits with forecast demand in 2020
- Consider development wherein solar and wind is focused first on lands which have lower resource value due to fragmentation, type conversion, edge effects, and other factors
- Include independent analysis of resource values of various renewable energy zones under consideration

APPENDIX E

Analysis of the Red Bluff Substation Project, Incorporated by Reference from the Desert Sunlight Solar Farm Project EIS

ANALYSIS OF THE RED BLUFF SUBSTATION PROJECT, INCORPORATED BY REFERENCE FROM THE DESERT SUNLIGHT SOLAR FARM PROJECT EIS

Resource / Issue Area	Summary of Data and Information Incorporated and Citation to Desert Sunlight EIS
Air Resources	Impacts of the Red Bluff Substation project on Air Resources are analyzed in Section 4.2, Air Resources, page 4.2-19 et seq. *Construction:* For criteria pollutant emissions from on-site construction activity, emission estimates are summarized in a series of tables which portray annual emissions in tons per year, and average daily emissions in pounds per day, for 2011, 2012, and 2013. Additional details concerning the construction emissions analyses are provided in Appendix D-2. Annual and maximum day emissions for criteria pollutant emissions from construction-related vehicle traffic, are also provided. There are no residences or other sensitive land uses in the immediate vicinity of the substation site, although there are some rural residences near the telecommunications site. Construction activities and associated vehicle traffic associated with the Red Bluff Substation would generate emissions of criteria pollutants and hazardous air pollutants over a period of approximately 26 months. Construction-related emissions generally would be limited to daytime hours on weekdays, and would have little effect on night sky visibility conditions. No odor problems would be expected as a result of construction-related activity or vehicle traffic. The primary hazardous air pollutant emission associated with construction and operation of the Red Bluff Substation would be diesel particulate matter emissions from construction equipment. Small quantities of other hazardous air pollutants would be associated with gasoline-fueled vehicles also used during construction. There would be few operational sources of hazardous air pollutant emissions other than limited and infrequent on-site vehicle traffic for periodic facility inspection and necessary maintenance activities. The quantities of hazardous pollutant emissions associated with substation construction and operation are expected to be too small to pose a health risk to the nearest residences. *Operations and Maintenance:* Operation and maintenance activities and associated vehicle traffic associated with the Red Bluff Substation would generate limited amounts of emissions of criteria pollutants and hazardous air pollutants for the duration of Project operations. Assuming two line inspections and one maintenance event per year, operational traffic would typically produce maximum daily emissions of less than 2.5 pounds of nitrogen oxide and less than 0.7 pounds of PM10. The Red Bluff Substation would include installation of a generator to provide emergency power for substation lighting, battery chargers, and circuit breakers in the event of an electrical outage at the substation. Total daily operational emissions of the emergency generator on test days would not exceed the SCAQMD's regional emissions significance thresholds (see Table 4.2-1) or the SCAQMD localized significance thresholds (see Table 4.2-3). Changes in ground cover conditions would not result in increases in wind erosion potential for the Red Bluff Substation site. The project would not conflict with any air quality management plan, and would be expected to comply with federal, state, and SCAQMD regulatory requirements. Operation and maintenance conditions for the Substation are not expected to create any air quality issues related to corona discharge or odors. *Decommissioning:* Equipment used for decommissioning would generally be similar to that used for construction. Decommissioning activities would likely require less heavy equipment than facility construction, since no vegetation clearing or site grading would be required. Because decommissioning would occur at least 30 years in the future, it is likely that equipment engine technology and fuels would be different from current technology and fuels. Consequently, it is not possible to provide reliable estimates of equipment emissions from decommissioning activities.
Global Climate Change	Impacts of the Red Bluff Substation project on climate change are analyzed in Section 4.5, Climate Change, page 4.5-6 et seq. *Construction:* For greenhouse gas emissions from on-site construction activity, emission estimates are summarized in a series of tables which portray annual emissions in tons per year for 2011, 2012, and 2013. Annual and maximum day emissions for criteria pollutant emissions from construction-related vehicle traffic are also provided. Construction activities and associated vehicle traffic would generate emissions of greenhouse gas pollutants over a period of approximately 26 months. The Applicant proposes to implement a construction worker shuttle bus system that would greatly reduce the volume of traffic and resulting greenhouse gas emissions that would otherwise be generated by construction worker commute traffic for the solar farm. *Operations and Maintenance:* There are few sources of greenhouse gas emissions associated with substation operation. The Substation would not have on-site employees, and would require only infrequent inspection and maintenance activities. The primary source of operational greenhouse gas emissions would be leaks of sulfur hexafluoride from circuit breakers and other equipment at the substation. SCE estimates that equipment at the Red Bluff Substation would contain about 9,000 pounds of sulfur hexafluoride, with an annual leak rate of 0.5 percent, or 45 pounds per year. Vehicles used for periodic facility inspection and necessary maintenance activities would be an intermittent and very small source of additional greenhouse gas emissions. The ozone that can be generated by corona discharge effects at high voltage equipment is also

ANALYSIS OF THE RED BLUFF SUBSTATION PROJECT, INCORPORATED BY REFERENCE FROM THE DESERT SUNLIGHT SOLAR FARM PROJECT EIS (Continued)

Resource / Issue Area	Summary of Data and Information Incorporated and Citation to Desert Sunlight EIS
Global Climate Change (cont.)	a greenhouse gas, but ozone in the lower atmosphere is so chemically reactive that it has a very short atmospheric lifetime and thus has little impact on climate change. Regarding changes in greenhouse gas storage potential of desert soils, desert ecosystems do not have a large capacity to store greenhouse gases. Consequently, operation of the Red Bluff Substation would have little impact on potential ecosystem carbon storage. *Decommissioning:* Equipment used for decommissioning would generally be similar to that used for construction. Decommissioning activities would likely require less heavy equipment than facility construction, since no vegetation clearing or site grading would be required. Because decommissioning would occur at least 30 years in the future, it is likely that equipment engine technology and fuels would be different from current technology and fuels. Consequently, it is not possible to provide reliable estimates of equipment greenhouse gas emissions from decommissioning activities.
Cultural Resources	Impacts of the Red Bluff Substation project on cultural resources are analyzed in Section 4.6, Cultural Resources, page 4.6-5 et seq. *Construction:* Construction of the Red Bluff Substation and its associated components would require clearing and grading that would directly impact archaeological sites, built environment resources, and historic landscapes. Specifically, resources that would be directly impacted by construction of the Substation and its associated components include 25 sites (23 historic, 1 multicomponent, and 1 prehistoric). The one prehistoric site recorded within the Substation (distribution line) is an NRHP-listed site that contributes to the North Chuckwalla Petroglyph District (CA-RIV-1383). As such, direct impacts would also occur on the landscape of the district. Indirect visual and audible impacts would occur on the historic landscapes of the Colorado River Aqueduct (NRHP-eligible), potential DTC-C-AMA historic district (potentially CRHR and NRHP eligible), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible). Physical disturbance of NRHP-eligible sites would constitute a significant impact under NEPA. The Memorandum of Agreement that is currently being developed to comply with Section 106 will also prescribe mitigation measures that would be implemented by the Applicant in coordination with applicable responsible agencies to resolve adverse effects to NRHP-eligible sites. However, given that the Memorandum of Agreement and associated consultations are still in progress, unmitigable impacts on cultural resources under NEPA may still occur. *Operations and Maintenance:* Operation and maintenance of the Substation would indirectly impact the setting and historic landscapes of the potential DTC-C-AMA historic district, Colorado River Aqueduct (NRHP-eligible), the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed), the North Chuckwalla Mountains Quarry District (CA-RIV-1814, NRHP-listed), and prehistoric site CA-RIV-330 (NRHP-eligible) by altering the historic settings of these resources. Native American consultations are continuing at this time. Although no sacred sites, TCPs or traditional use areas have been identified, such areas may be identified as the consultation process moves forward. If such areas are identified, the operation and maintenance of the Substation may have direct and indirect impacts on them. *Decommissioning*: Decommission and removing substation components would eliminate the indirect impacts on cultural resources described above for construction of the Substation. The historic landscapes would be restored by restoring the natural and historic settings of these resources. The same effect would occur for the viewsheds of sacred sites, traditional use areas, or TCPs that may exist. Further, access to places of traditional importance to Native Americans would be restored. However, impacts on the potential DTC-C-AMA historic district and the North Chuckwalla Petroglyph District (CA-RIV-1383, NRHP-listed) would remain since archaeological sites that contribute to these districts would be permanently affected by construction of Alternative 1.
Environmental Justice	Impacts of the Red Bluff Substation project on environmental justice are analyzed in Section 4.13, Socioeconomics and Environmental Justice, page 4.13-6 et seq. *Construction:* Any impacts on socioeconomics associated with construction of Red Bluff Substation would be temporary, and no impacts that could occur to environmental justice populations would be disproportionate to these populations. Construction of the Substation would not displace either local or regional businesses or residents, nor would it result in a substantial reduction in the employment or income in the regional and local economy. It would, however, result in short-term increases in regional employment and income if the construction crew hired to work on the substation were not previously employed. It could indirectly generate increased expenditures, income, and employment in the local economies in which the construction workforce spends its earnings and would generate direct expenditures in the regional economy.

ANALYSIS OF THE RED BLUFF SUBSTATION PROJECT, INCORPORATED BY REFERENCE FROM THE DESERT SUNLIGHT SOLAR FARM PROJECT EIS (Continued)

Resource / Issue Area	Summary of Data and Information Incorporated and Citation to Desert Sunlight EIS
Environmental Justice (cont.)	*Operations and Maintenance:* No additional employment would occur for the operation and maintenance of the Red Bluff Substation and its associated components, and there would be no further demand for water, waste, or other utilities and services. Therefore, there would be no further socioeconomic or environmental justice impacts from operation and maintenance of this facility. *Decommissioning:* Impacts resulting from decommissioning the Red Bluff Substation are similar to those described above under Construction.
Lands and Realty	Impacts of the Red Bluff Substation project on lands and realty are analyzed in Section 4.9, Lands and Realty, page 4.9-4 et seq. *Construction:* Construction of the Substation would be primarily on BLM-administered land designated as Multiple Use Class L (Limited Use) by the CDCA Plan. The exception would be the less than one-acre Telecom Site, which would be on land designated Class M (Moderate Use). Electrical generation, transmission, and distribution facilities may be allowed on both Moderate and Limited Use land within designated utility corridors after NEPA requirements are met and a plan amendment is approved. The Red Bluff Substation and Access Road 2 would be located within the Chuckwalla Desert Wildlife Management Area (DWMA) and Critical Habitat Unit (CHU). Temporary and permanent land disturbance would result in these areas. The BLM-administered portion of the DWMA is approximately 465,287 acres in size; therefore, the development the Red Bluff Substation would represent a negligible percentage (0.004 percent) of the allowable development within the DWMA. The Red Bluff Substation would not impact any agricultural lands. *Operations and Maintenance:* The impacts resulting from operating and maintaining the Red Bluff Substation would be reduced compared to those discussed under construction of the Substation because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint. *Decommissioning*: Decommissioning of the Red Bluff Substation would temporarily impact a footprint similar to that of construction. When decommissioning was complete, it would result in restoration of 172 acres of multiple use BLM-administered land, making the land available for other uses. Decommissioning would initially result in additional disturbance to the Chuckwalla DWMA and CHU. However, the amount of land disturbed would be much less than the one percent allowed by the NECO Plan, and the disturbance would be limited to the duration of decommissioning activities. When decommissioning was complete, this land would be restored and could once again be used as a habitat conservation area.
Livestock and Grazing	There are no impacts of the Red Bluff Substation project on livestock grazing.
Mineral Resources	There are no impacts of the Red Bluff Substation project on mineral resources.
Multiple Use Classes	Impacts of the Red Bluff Substation project on multiple use classes are analyzed in Section 4.9, Lands and Realty, page 4.9-4 et seq. Construction*:* Construction of the Red Bluff Substation would be primarily on BLM-administered land designated as Multiple Use Class L (Limited Use) by the CDCA Plan. The exception would be the less than one-acre Telecom Site, which would be on land designated Class M (Moderate Use). Electrical generation, transmission, and distribution facilities may be allowed on both Moderate and Limited Use land within designated utility corridors after NEPA requirements are met and a plan amendment is approved. The Substation would be within utility corridor K. Construction of the Red Bluff Substation would convert 76 acres of multiple use BLM-administered land to an electrical substation and an additional 96 acres for associated facilities (e.g., distribution system, drainage improvements, Telecom Site and tower, and Access Road 2). *Operations and Maintenance*: The impacts resulting from operating and maintaining the Red Bluff Substation would be reduced compared to those discussed under construction because land that was only impacted during construction such as staging areas would not be impacted during operation and maintenance, resulting in a reduced impact footprint. *Decommissioning:* Decommissioning of the Red Bluff Substation would temporarily impact a footprint similar to that of construction. When decommissioning was complete, it would result in restoration of 172 acres of multiple use BLM-administered land, making the land available for

ANALYSIS OF THE RED BLUFF SUBSTATION PROJECT, INCORPORATED BY REFERENCE FROM THE DESERT SUNLIGHT SOLAR FARM PROJECT EIS (Continued)

Resource / Issue Area	Summary of Data and Information Incorporated and Citation to Desert Sunlight EIS
Multiple Use Classes (cont.)	other uses. Decommissioning would require coordination similar to that performed during construction where the Red Bluff Substation overlapped existing uses (including roads and transmission lines); however, once decommissioning was completed, the Red Bluff Substation would no longer overlap these uses.
Noise	Impacts of the Red Bluff Substation project on noise are analyzed in Section 4.10, Noise and Vibration, page 4.10-14 et seq. *Construction:* Noise levels from on-site construction activity and construction-related traffic would not exceed Riverside County land use compatibility standards at existing residences. Temporary noise impacts to wildlife would be limited to the construction sites and immediately adjacent locations. Ground vibrations from construction equipment would not be perceptible at existing residences near the construction sites. There are no noise-sensitive land uses close to the location proposed for the Red Bluff Substation. Locations 400 feet or more from the construction site would have CNEL increments of less than 60 dBA during the construction period. Maximum 1-hour Leq noise levels would be less than 60 dBA at distances of 800 feet or more from the construction site. Construction-related traffic for the Red Bluff Substation generally would be limited to I-10 and an unpaved access road. There are no noise-sensitive land uses along either of the alternative access road alignments for the Substation. Construction-related traffic for the Red Bluff Substation would have little effect on noise levels from I-10, and there would be limited construction activity and few construction-related vehicle trips at the telecommunication site on SR-177. Construction noise and visible construction activity would have a temporary effect on wildlife in adjacent undisturbed areas, but noise levels would not exceed the general range of existing ambient noise levels at distances beyond 200 to 300 feet from the construction site. Construction activity at the Red Bluff Substation would not cause perceptible ground vibrations and would pose no risk of cosmetic damage to any existing buildings. *Operations and Maintenance:* The Red Bluff Substation site is not located near any noise-sensitive land uses, and would be surrounded by a masonry security wall rather than by a chain link fence. The security wall would reduce off-site operational noise from the substation by an estimated 6 to 8 dBA. Thus, operational noise from the Red Bluff Substation would produce a CNEL level of about 60 dBA outside the substation property. Existing traffic volumes along I-10 are estimated to produce background CNEL levels of about 64 dBA at the north side of the substation location and about 55 dBA at the south side of the substation location. Noise levels adjacent to the substation would be periodically elevated during emergency generator testing; however, it is not anticipated that the associated noise levels would be audible at the closest sensitive receptor locations. Given the existing influence of I-10 on ambient noise levels in the substation vicinity, operational noise levels from the Red Bluff Substation would not be expected to affect off-site wildlife. *Decommissioning*: Equipment used for decommissioning would generally be similar to that used for construction. Decommissioning activities would likely require less heavy equipment than facility construction, since no vegetation clearing or site grading would be required. Noise impacts from decommissioning activities at the Red Bluff substation would be similar to those for construction activities. Traffic volumes associated with decommissioning activities would likely be similar to traffic volumes associated with construction activities. Because decommissioning would occur at least 30 years in the future, it is likely that vehicle engine technology would be different from current technology. Engine technologies that do not rely on internal combustion engines would likely generate lower noise levels than those produced by current vehicles. This effect is already apparent with hybrid vehicles. Because traffic volumes associated with decommissioning activities for the Red Bluff Substation would be only a very small fraction of prevailing traffic volumes on I-10, there would be little change in noise levels along I-10 due to decommissioning of the substation. Noise impacts to wildlife and ground vibrations generated during decommissioning of the Red Bluff Substation would be similar to those discussed previously with respect to construction activities.
Paleontological Resources	Impacts of the Red Bluff Substation project on paleontological resources are analyzed in Section 4.7, Paleontological Resources, page 4.7-2 et seq. *Construction:* The potential for direct or indirect impacts on paleontological resources as a result of constructing the Red Bluff Substation would be low, as the geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. *Operations and Maintenance:* Indirect impacts that may occur during operation and maintenance include the potential for increased unauthorized collection of fossils and other paleontological resources resulting from increased numbers of people in the vicinity. The geologic

ANALYSIS OF THE RED BLUFF SUBSTATION PROJECT, INCORPORATED BY REFERENCE FROM THE DESERT SUNLIGHT SOLAR FARM PROJECT EIS (Continued)

Resource / Issue Area	Summary of Data and Information Incorporated and Citation to Desert Sunlight EIS
Paleontological Resources (cont.)	units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources. The potential for indirect impacts on paleontological resources is low. *Decommissioning*: The potential for direct or indirect impacts on paleontological resources as a result of decommissioning the Red Bluff Substation would be low. The physical disturbance of the geologic units present at the site during decommissioning could directly impact (i.e., damage or destroy) any fossils that might be present. Once the Substation was removed, no additional direct impacts would be likely. The geologic units present at the site have low potential to contain vertebrate fossils and other scientifically valuable paleontological resources.
Public Health and Safety	Impacts of the Red Bluff Substation project on public health and safety are analyzed in Section 4.11, Public Health and Safety/Hazardous Materials, page 4.11-8 et seq. *Construction:* The Project would use hazardous materials during construction, and exposure to hazardous materials may also be caused by discharge of disposal onto soils, or through upset or accidental release. Significant impacts would occur from the hazardous wastes generated during construction, though implementation of applicant measures would reduce the impacts from hazardous materials used. The Red Bluff Substation would not mobilize existing contaminants in groundwater or soil, or expose workers to contaminated or hazardous materials at levels in excess of those permitted by federal and state law. There would not be an increase in exposure of construction or permanent workers or the environment to potentially hazardous levels of chemicals due to the disturbance of previously contaminated soils. No impacts would occur and, therefore, no mitigation is required. However, studies have indicated that the site was historically used as a military training facility, and that there is potential for MEC to be present on portions of the site. As such, applicant measures would be incorporated as part of planning for the Substation in coordination with the BLM. Construction of the 185-foot microwave tower associated with the Red Bluff Substation could possibly create a safety hazard for the special use airport in the vicinity. Implementation of an applicant measure to follow Federal Aviation Administration (FAA) requirements for the microwave tower would reduce impacts. Construction of the Red Bluff Substation has the potential for impairing implementation of County of Riverside adopted emergency evacuation and emergency response plans, such as affecting traffic and emergency routes, including equipment and material delivery. Impacts to existing emergency evacuation and emergency response plans would be significant without implementation of applicant measures that would reduce impacts for emergency evacuation and emergency response plans during construction. The risk to workers or the public from damage to the Red Bluff Substation during construction as a result of accidental or intentional actions by outside parties is low because public access would be controlled, primarily by fencing. The construction of the Substation would not increase the risk for environmental impacts from intentionally destructive acts. *Operations and Maintenance:* During operation, the Red Bluff Substation regularly scheduled maintenance plus any emergency repairs would require workers and the potential use of hazardous materials. To ensure worker health and safety and no impacts to the environment, an applicant measure would be implemented to reduce impacts. Operation of the 185-foot microwave tower associated with the Red Bluff Substation could possibly create safety hazards for the Special Use Airport in the vicinity. An applicant measure requiring adherence to FAA permit requirements for the microwave tower would reduce impacts. An Emergency Evacuation and Response Plan would be needed to provide directions for responding during an emergency. Regularly scheduled or emergency maintenance would be infrequent. To ensure adequate responses during an emergency as well as adequate response to the threat of wildfire during operation of the Red Bluff Substation, applicant measures would be implemented to reduce impacts. The risk to workers or the public from damage to the Red Bluff Substation as a result of accidental or intentional actions by outside parties is low because the Substation would not be staffed and because public access would be controlled by fencing. This would not preclude Intentionally Destructive Acts specifically targeting the Substation. Applicant measures would reduce impacts from Intentionally Destructive Acts to Red Bluff Substation.

**ANALYSIS OF THE RED BLUFF SUBSTATION PROJECT,
INCORPORATED BY REFERENCE FROM THE DESERT SUNLIGHT SOLAR FARM PROJECT EIS (Continued)**

Resource / Issue Area	Summary of Data and Information Incorporated and Citation to Desert Sunlight EIS
Public Health and Safety (cont.)	*Decommissioning*: Decommissioning of the Red Bluff Substation and related facilities would require the use of hazardous materials plus the temporary storage of hazardous wastes. Hazardous materials use likely at the same level as used during construction could be used. As much of the waste as possible would be recycled. Non-recycled waste would be disposed of in an appropriate landfill. Decommissioning would include removing the 185-foot microwave tower, thereby removing a safety hazards for the special use airport in the vicinity. No air safety hazards would remain. No impact would occur. The decommissioning of the Red Bluff Substation has the potential for impairing implementation of County of Riverside adopted emergency evacuation and emergency response plans. During decommissioning, activities could affect traffic and emergency routes, including equipment and material delivery. Impacts to existing emergency evacuation and emergency response plans would be significant without implementation of applicant measures. The risk to workers or the public from damage to the Red Bluff Substation as a result of accidental or intentional actions by outside parties is low because public access would be controlled by fencing. The decommissioning of Red Bluff Substation A would not increase the risk for environmental impacts from intentionally destructive acts. Once all substation equipment and structures have been dismantled and removed, the potential for Intentionally Destructive Acts would be eliminated.
Recreation	Impacts of the Red Bluff Substation project on recreation are analyzed in Section 4.12, Recreation, page 4.12-3 et seq. There would be no impact related to the construction, operation or maintenance, or decommissioning of the substation because no off-highway vehicle (OHV) or recreational vehicle travel routes would be affected.
Social and Economics	Impacts of the Red Bluff Substation project on social economics are analyzed in Section 4.13, Socioeconomics and Environmental Justice, page 4.13-6 et seq. *Construction:* Any impacts on socioeconomics associated with construction of Red Bluff Substation would be temporary. Construction of the Substation would not displace either local or regional businesses or residents, nor would it result in a substantial reduction in the employment or income in the regional and local economy. It would, however, result in short-term increases in regional employment and income if the construction crew hired to work on the substation were not previously employed. It could indirectly generate increased expenditures, income, and employment in the local economies in which the construction workforce spends its earnings and would generate direct expenditures in the regional economy. *Operations and Maintenance:* No additional employment would occur for the operation and maintenance of the Red Bluff Substation and its associated components, and there would be no further demand for water, waste, or other utilities and services. Therefore, there would be no further socioeconomic impacts from operation and maintenance of this facility. *Decommissioning:* Impacts resulting from decommissioning the Red Bluff Substation are similar to those described above under Construction.
Soils Resources	Impacts of the Red Bluff Substation project on soil resources are analyzed in Section 4.8, Geology and Soil Resources, page 4.8-4 et seq. *Construction:* As the Red Bluff Substation is downslope of the Chuckwalla Mountains, surface runoff in the form of eroded channels traverses the site. Three of these channels would be needed to be altered to protect the Substation's southern exposure from flooding. Proposed drainage features would be properly engineered to prevent erosion of soils next to and downslope of the Substation. The proposed construction of the Red Bluff Substation would expose people and/or structures to potential substantial adverse effects, including the risk of loss, injury or death involving (i) rupture of a known earthquake fault; (ii) strong seismic ground shaking and (iii) seismic-related ground failure. Implementing mitigation would reduce these impacts. Other geologic hazards, including liquefaction, seismically induced subsidence, tsunamis, seiches and slope instability are considered generally low to nil to the construction of the Red Bluff Substation. Groundwater levels at the site may fluctuate with precipitation, irrigation, drainage, regional pumping from wells, and site grading. Groundwater levels would be determined in the geotechnical study completed prior to construction of the Red Bluff Substation. Construction of the Red Bluff Substation also has the potential to increase the probability of water and wind erosion. Implementing mitigation would reduce these impacts.

ANALYSIS OF THE RED BLUFF SUBSTATION PROJECT, INCORPORATED BY REFERENCE FROM THE DESERT SUNLIGHT SOLAR FARM PROJECT EIS (Continued)

Resource / Issue Area	Summary of Data and Information Incorporated and Citation to Desert Sunlight EIS
Soils Resources (cont.)	*Operations and Maintenance:* The proposed operation and maintenance of the Red Bluff Substation would expose people and/or structures to the same seismic and geologic hazards as described for construction. Implementation of mitigation would reduce these impacts. The operation and maintenance of the Red Bluff Substation does not have the potential to increase the probability of water and wind erosion. *Decommissioning*: Prior to decommissioning of the SCE facilities or within a reasonable timeframe following termination of the BLM ROW grant, SCE would prepare a Decommissioning Plan for BLM review and approval. The Decommissioning Plan would address the decommissioning of SCE facilities from the permitted area, any requirements for habitat restoration and revegetation, if removal of SCE's facilities is required, activities and procedures for proper disposal of materials associated with the removal effort (if required), and compliance with applicable laws, regulations, and policies. The decommissioning of the Red Bluff Substation would increase the exposure of people and/or property to seismic hazards and increase the erosion of soils from wind and water. The potential soil erosion impacts from water and wind are considered slight. Implementation of applicant measures would reduce these impacts.
Special Designations	Impacts of the Red Bluff Substation project on special designations are analyzed in Section 4.14, Special Designations, page 4.14-1 et seq. *Construction:* Construction of the Substation would result in the potential for direct impacts on the Chuckwalla Mountains and Palen-McCoy Wilderness Areas. In particular, noise and nighttime lighting could affect the wilderness experience within that area, making human presence more noticeable. Fugitive dust from construction would create a temporary visual distraction for a limited number of users of portions of these Wilderness Areas. The Red Bluff Substation would be adjacent to the Alligator Rock ACEC, which was established to protect archaeological resources. These resources would not be impacted due to construction of the Substation because they would not be disturbed by human presence, noise, and dust. There would be no impacts on the Alligator Rock ACEC from construction of the Red Bluff Substation. The access road for the Red Bluff Substation would be to the east from Corn Springs Road. As a result, there would be no impacts during construction on the Alligator Rock ACEC. *Operations and Maintenance:* During operation and maintenance of the Substation, lights would normally be off. Where needed, lights would be shielded, would be directed downward, and would be motion sensitive to minimize glare in surrounding areas. As such, operation and maintenance are unlikely to cause direct impacts on users of the Chuckwalla Mountains Wilderness. Operating and maintaining the Red Bluff Substation and the access road from Corn Springs Road (Access Road 2) are unlikely to cause direct or indirect impacts that would disturb cultural resources within the Alligator Rock ACEC. *Decommissioning*: Decommissioning the Red Bluff Substation would cause temporary direct disturbance to users of the Chuckwalla Mountains Wilderness Area, similar to those described for constructing this substation. No impact would occur to the Chuckwalla Mountains Wilderness Area or the Alligator Rock ACEC.
Transportation and Public Access	Impacts of the Red Bluff Substation project on transportation and public access are analyzed in Section 4.15, Transportation, Traffic and Public Access, page 4.15-10 et seq. *Construction*: No road closures or rerouting would be required for the construction of the Substation. The level of service (LOS) LOS at impacted intersections would remain at LOS A during construction, with only slight increases in delay at those intersections. LOS A is the highest standard of performance for the roadway system, and intersections operating at LOS A are in conformance with Riverside County's LOS performance standards. Impacts would be further reduced with implementation of AM-TRANS-1. With respect to air traffic impacts, coordination with the FAA would be prudent, as the telecom site would be approximately 5,500 feet from the runway of the former Desert Center Airport, which is now a private special-use airport. *Operations and Maintenance:* Because there would be less Project-generated traffic on area roads during operation and maintenance of the Red Bluff Substation (as compared to during construction), impacts related to performance of the roadway system (specifically, LOS and

ANALYSIS OF THE RED BLUFF SUBSTATION PROJECT, INCORPORATED BY REFERENCE FROM THE DESERT SUNLIGHT SOLAR FARM PROJECT EIS (Continued)

Resource / Issue Area	Summary of Data and Information Incorporated and Citation to Desert Sunlight EIS
Transportation and Public Access (cont.)	intersection delay) and road deterioration would be reduced. There would be no impact to air traffic as any necessary mitigation would have been implemented prior to construction. No road closures or rerouting would occur during operation and maintenance. *Decommissioning*: Decommissioning impacts would be similar to construction impacts described above for transportation and public access.
Vegetation Resources	Impacts of the Red Bluff Substation project on vegetation resources are analyzed in Section 4.3, Vegetation, page 4.3-7 et seq. *Construction:* Direct and indirect impacts from construction on native vegetation communities stem from the permanent removal of creosote desert scrub and desert dry wash woodland. All surface disturbances would have permanent impacts, though implementation of applicant measures and mitigation measures would be reduced or mitigated these impacts. Other potential impacts to vegetation communities include: dust generated during construction that could directly adversely affect offsite native vegetation communities immediately adjacent to the Substation; grading activities during construction which could also have direct effects on the water quality and hydrology of desert dry washes located downstream; and clearing and grading activities within the Substation site that would disturb soil and remove vegetation. Implementation of dust control measures, a Storm Water Pollution Prevention Plan (SWPPP) during construction, and applicant measures would be employed to reduce these impacts. Clearing and grading activities to construct the Red Bluff Substation and all of its associated improvements would cause the direct loss of two California ditaxis. Eight other species of cacti have been recorded in the Project locations as well and would be directly impacted by the 172 acres of permanent disturbance caused by construction of the Substation and substation-related features. Implementation of applicant measures and mitigation measures would reduce or mitigate these impacts. With respect to sensitive natural communities and jurisdictional resources, a total of 29 acres of desert dry wash woodland would be permanently removed and a total of 51 acres of CDFG jurisdictional resources would be permanently disturbed, respectively, to construct the elements of the Red Bluff Substation. Implementation of applicant measures and mitigation measures would reduce or mitigate these impacts. The Red Bluff Substation and its associated elements would be consistent with the open space protection policies of the County of Riverside's General Plan. *Operations and Maintenance:* Impacts associated with operation and maintenance of the Red Bluff Substation would include a direct impact on the geomorphic conditions and hydrology of the site, resulting in adverse effects on downstream vegetation within dry wash woodlands. Proposed soil decompaction and additional mitigation measures are expected to substantially mitigate the potential for an increase in offsite channelization and sedimentation, bringing the change in hydrology down to within one percent of pre-development hydraulic conditions. Implementation of dust control measures would be employed to reduce impacts from dust generated during maintenance of access roads, while implementation of Applicant Measure BIO-2 would reduce invasive species impacts to areas of creosote desert scrub and desert dry wash woodland, as well as sensitive natural communities, immediately adjacent to the access roads. Red Bluff Substation would be consistent with the open space protection policies of the County of Riverside's General Plan. *Decommissioning*: Decommissioning of the facility is anticipated to only directly impact areas previously disturbed by installation of the facility. Removal of native vegetation communities is not anticipated for decommissioning activities. However, potential impacts on the rate, volume, and quality of storm water runoff and the potential introduction of dust and invasive species associated with decommissioning activities could have direct and indirect effects on vegetation communities located immediately adjacent to the Substation, similar to the impacts associated with construction. Implementation of provisions in applicant and mitigation measures regarding the restoration of native vegetation during or following decommissioning would provide beneficial impacts to native vegetation. Implementation of the dust control mitigation measures, a SWPPP during decommissioning activities, and other applicant measures would be employed to reduce dust impacts and the potential for the introduction of invasive species. Removal of special status plant species is not anticipated for decommissioning activities. In addition, revegetation of the site would benefit special status plant species. However, dust impacts and the potential introduction of invasive species associated with decommissioning activities could have direct and indirect effects on special status plant species located immediately adjacent to the Substation, similar to the impacts discussed above under Construction.

ANALYSIS OF THE RED BLUFF SUBSTATION PROJECT, INCORPORATED BY REFERENCE FROM THE DESERT SUNLIGHT SOLAR FARM PROJECT EIS (Continued)

Resource / Issue Area	Summary of Data and Information Incorporated and Citation to Desert Sunlight EIS
Vegetation Resources (cont.)	Regarding sensitive natural communities, and jurisdictional resources, impacts associated with decommissioning the Substation would be similar to those described above under construction. In addition, groundwater pumping for dust control during decommissioning would have the potential to reduce local groundwater levels and cause mortality of desert dry wash woodland trees off-site. This potential impact would be minimized by mitigation measures requiring the Project owner to monitor groundwater levels and plant health and vigor for adjacent desert dry wash woodland areas.
Visual Resources	Impacts of the Red Bluff Substation project on visual resources are analyzed in Section 4.16, Visual Resources, page 4.16-17 et seq. *Construction:* Impacts from construction, equipment, and vehicles would be visible to affected viewer groups including dispersed recreationists on the valley floor, as well as Interstate 10 (I-10) travelers. Due to viewer proximity and the lack of screening elements to block direct views of the Substation, the degree of contrast would be strong, involving vegetation changes and structures from construction activities. Although viewers typically expect artificial elements next to highways, they also expect the elements to be clustered instead of spread across the landscape. Construction of the Red Bluff Substation would also affect views of the Chuckwalla Valley from adjacent Wilderness Areas (Chuckwalla Mountains Wilderness, Joshua Tree Wilderness, and Joshua Tree National Park), particularly from elevated viewpoints within the Project's viewshed. The overall visual change would be moderate-to-high, and in the context of the existing landscape's moderate-to-high visual sensitivity, the resulting visual impact on viewers in Joshua Tree Wilderness would be substantial. Construction-related dust plumes would be controlled using dust palliatives and limiting vehicle speeds, and light pollution would be minimized per lighting control mitigation measures. *Operations and Maintenance:* Operation and maintenance would be visible to motorists on I-10. The form of the Red Bluff Substation would not resemble any other form in the landscape. The narrow vertical elements would create multiple prominent focal points on a relatively flat landscape and dwarf other landscape elements, which is mostly vegetation. In addition, artificial lighting would be introduced to the area, thereby decreasing nighttime darkness. The Red Bluff Substation and telecommunication facilities are in the foreground-middle ground distance zone for I-10 viewers. The degree of contrast described above would be strong because of the lack of screening elements to block direct views of the site, the height and number of artificial structures, and the proximity of viewers to the Project. Although viewers typically expect artificial elements next to highways, they also expect the elements to be clustered instead of spread across the landscape. Activity on I-10, however, partially distracts views away from the site. Also, because of the curving nature of I-10 and travelers moving at highway speed, the site would be visible in the foreground distance zone for a limited amount of time. The Red Bluff Substation would not meet Riverside County General Plan policies. The size, composition, style, color, and location of the Red Bluff Substation are incompatible with these policies. For same reasons described above, impacts to the visitor experience at BLM wilderness and Joshua Tree National Park from visual disturbances would be moderate-to-high. *Decommissioning*: Removal of artificial structures would return the developed site to an undeveloped site. Decommissioning would return natural form and contours to the landscape. It would reestablish native vegetation and natural habitat, such as rocks or logs, to the land. The vegetation would be reestablished to resemble the form and line of the vegetation removed by the Project and monitored to assure successful revegetation. After decommissioning, the characteristic landscape would resemble the existing conditions. However, due to the slow pace of natural desert ecology, it would likely take decades after decommissioning for the landscape to resemble the existing conditions. From the KOP, the degree of contrast would be weak because decommissioning activities would leave the landscape in a condition that does not attract attention. Decommissioning would remove the buildings, structures, and activities that do not meet Riverside County General Plan policies. Therefore, there would be no buildings, structures, and activities at the site that would violate Riverside County General Plan policies. For the same reasons discussed under construction impacts, impacts to the visitor experience at BLM wilderness and Joshua Tree National Park from visual disturbances would be moderate-to-high during decommissioning. However, once site restoration is achieved, the impacts would be greatly reduced because the site would appear similar to the surrounding landscape.

ANALYSIS OF THE RED BLUFF SUBSTATION PROJECT, INCORPORATED BY REFERENCE FROM THE DESERT SUNLIGHT SOLAR FARM PROJECT EIS (Continued)

Resource / Issue Area	Summary of Data and Information Incorporated and Citation to Desert Sunlight EIS
Water Resources	Impacts of the Red Bluff Substation project on water resources are analyzed in Section 4.17, Water Resources, page 4.17-12 et seq. *Construction:* Construction of the Red Bluff Substation would require a total of approximately 300 acre-feet of water, and operation and maintenance will require less than 0.1 acre-feet per year. Therefore this alternative would not substantially deplete groundwater or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or the water table would be lowered. Construction of the Substation may alter the existing drainage pattern of the area. A channel would be constructed to route flows around the Substation, and potential changes in flooding patterns, both onsite and off site, associated with implementation of the Project would be minimal. Impacts to water quality are unlikely to occur at the Red Bluff Substation, and the proposed septic system would not substantially reduce groundwater quality. Construction of the Red Bluff Substation may alter the existing drainage pattern of the area, but construction of a channel to route flows around the Substation and construction of a detention basin at the substation would mitigate potential flooding impacts. Therefore, construction of the Substation along with a channel and on site detention basin would not substantially increase the potential for flooding or the amount of damage that could result from flooding. Furthermore, construction of Substation A would not expose people or structures to a significant risk of loss, injury or death involving flooding including flooding as a result of the failure of a levee or dam, inundation by seiche, tsunami, or mudflow, because the proposed Project site is not near a dam, levee or a coastline. *Operations and Maintenance:* Operation of the substation would require additional groundwater pumping for sanitary needs, estimated at less than 100 gallons per month. Surface drainage would be routed around the facility to protect the site, and the design would meet building permit requirements. Most of the potential for water quality impacts would occur during construction, and no water quality impacts are expected during operation and maintenance of the Red Bluff Substation A. With respect to flooding, the natural drainage channels would be altered to prevent flooding and erosion of the Red Bluff Substation site, and the Project would not alter potential for flooding downstream of the site. *Decommissioning*: Only small amounts of water would be required to control dust during decommissioning of the Red Bluff Substation. Therefore, impacts on groundwater supply are expected to be negligible, similar to those expected during construction. Decommissioning the Substation may or may not involve removal of channel protection structures installed to re-route storm drainage around the Substation site. If not maintained, the altered channels would probably be attacked by erosion during intermittent large runoff events as the channel attempts to reestablish its preconstruction flow path. Decommissioning could result in locally increased flooding potential at culverts along the access roadway, and along the stream channel that was altered in the construction phase, if the culverts or channels become blocked by sediment. Increased erosion may occur on the Substation site while vegetation becomes reestablished. However, since most erosion is caused by overland flow from upstream sources, rather than from direct precipitation, which is very low on the valley floor, and because the Substation site is relatively small, erosion on the surface of the Substation site would probably be relatively minor.
Wild Horse and Burros	There are no impacts of the Red Bluff Substation project on wild horse burros.
Wildland Fire Ecology	Impacts of the Red Bluff Substation project on wildland fire ecology are analyzed in Section 4.11, Public Health and Safety/Hazardous Materials, page 4.11-8 et seq. *Construction*: The Red Bluff Substation would be constructed in an area of Riverside County that has been determined to have a low to moderate susceptibility to wildfire. However, construction of the Substation would increase the potential for a wildfire and could affect the public and environment by exposure to wildfire from construction activities and ground disturbance. The risk of wildfire would be related to combustion of native plants caused by smoking, refueling, and operating vehicles and other equipment off-road. Implementation of applicant measures would reduce these impacts. *Operations and Maintenance*: During operation of the Red Bluff Substation, there would be an increased potential for a wildfire that could impact the public and environment by exposure to wildfire due to ongoing operation and maintenance activities. The risk of wildfire would be related to combustion of native plants caused by smoking and operating vehicles. Implementation of applicant measures would ensure adequate response to the threat of wildfire during operation. *Decommissioning*: During decommissioning, there would be an increased potential for a wildfire that and could impact the public and environment by exposure to wildfire. The risk of wildfire would be related to combustion of native plants caused by smoking, refueling, and operating vehicles and other equipment off road. Implementation of applicant measures would reduce such impacts.

**ANALYSIS OF THE RED BLUFF SUBSTATION PROJECT,
INCORPORATED BY REFERENCE FROM THE DESERT SUNLIGHT SOLAR FARM PROJECT EIS (Continued)**

Resource / Issue Area	Summary of Data and Information Incorporated and Citation to Desert Sunlight EIS
Wildlife Resources	Impacts of the Red Bluff Substation project on wildlife resources are analyzed in Section 4.4, Wildlife, page 4.4-18 et seq. *Construction:* Removal of 172 acres of habitat and installation of exclusion fencing around the Substation site and removal of habitat for other substation-related elements would have a direct affect on wildlife species through habitat loss. Implementation of a Habitat Compensation Plan would reduce this impact. Construction would also increase noise, night lighting, and dust which could disturb wildlife species adjacent to the construction zones, and have the potential to introduce invasive plant species into adjacent areas which could result in the degradation of additional wildlife habitat. Mitigation measures would reduce these indirect impacts. Regarding special status wildlife species, wildlife movement or nursery sites, and wildlife management areas and critical habitat, implementation of an Integrated Weed Management Plan, a Worker Environmental Awareness Program, a Habitat Compensation Plan, construction monitoring, and additional Mitigation Measures would reduce impacts. There would be no polarized light impacts to wildlife from construction of the Substation. *Operations and Maintenance:* For operations and maintenance, implementation of the Habitat Conservation Plan, Integrated Weed Management Plan, and other mitigation measures would reduce impacts to wildlife habitat, special status wildlife species, wildlife movement or nursery sites, and wildlife management areas and critical habitat. The operation of the Red Bluff Substation would be would be consistent with the local open space policies of the County of Riverside's General Plan. There would be no polarized light impacts to wildlife from the operation of the Substation. *Decommissioning*: Decommissioning impacts on wildlife species are expected to those discussed under construction impacts, with the exception of the fact that no new habitat would be removed. Revegetation of the site and removal of exclusion fencing would benefit wildlife in the area.

APPENDIX F
Cultural Resources

TABLE 1
PREVIOUS SURVEYS WITHIN THE STUDY AREA (RECORDS SEARCH LIMITS)

Report No.	Date	Within APE	Author(s)	Title
00161	1975	Y	Greenwood	Paleontological, Archaeological, Historical, and Cultural Resources: West Coast-Midwest Pipeline Project, Long Beach to Colorado River.
00190	1981	Y	Hammond	Archaeological Survey Report for the Proposed Safety Project on Interstate 10 Between Chiriaco Summit and Wiley's Well Overcrossing, Riverside County, California
00220	1977	Y	Cowan & Wallof	Interim Report: Fieldwork and Data Analysis: Cultural Resource Survey of the Proposed Southern California Edison Palo Verde-Devers 500 kV Power Transmission Line
00221	1982	Y	Westec Services, Inc.	Cultural Resource Inventory and National Register Assessment of the Southern California Edison Palo Verde to Devers Transmission Line Corridor (California Portion)
00222	1977	Y	Wallof & Cowan	Final Report: Cultural Resource Survey of the Proposed Southern California Edison Palo Verde-Devers 500 kV Power Transmission Line
00813	1980	N	Bureau of Land Management	Eastern Riverside County Geothermal Temperature Gradient Holes
00982	1980	Y	Crew	An Archaeological Survey of Geothermal Drilling Sites in Riverside County
01341	1981	N	Ritter	Archaeological Appraisal of the Palen Dry Lake Area of Critical Environmental Concern, Riverside County, California
02210	1986	Y	Underwood et al.	Preliminary Cultural Resources Survey Report for the US Telecom Fiber Optic Cable Project, From San Timoteo Canyon to Socorro, Texas: The California Segment
05245	2005	Y	Schmidt	Negative Archaeological Survey Report: Southern California Edison Company, Blythe-Eagle Mountain 161-kV Deteriorated Pole Replacement Project
08181	2008	N	Martinez et al.	Cultural Resources Study Regarding Motorized Vehicle Routes of Travel on Lands Managed by the Bureau of Land Management California Desert District in Imperial, Riverside, and San Bernardino Counties, California
unknown	2009	Y	Wilson	Letter Report: Archaeological Monitoring for the Geotechnical Investigation of the proposed Devers-Palo Verde No. 2 Transmission Line Project, Riverside County, California

TABLE 2
PREVIOUSLY RECORDED SITES WITHIN THE STUDY AREA (RECORDS SEARCH LIMITS)

Period	Primary # (P-33-)	Site Trinomial (CA-Riv-)	Site Type	Constituents
Historic	13592		Tin can scatter	Church-key opened beverage cans, juice cans, meat tins
	13681		Isolate	Hole-in-cap can
	13964	7648	Tin can scatter & section marker	Tin cans & wood fragments
	14161		Isolate	General Infantry periscope style flashlight
	17137	8920	Tin can & glass scatter	Hole-in-top cans, evaporated milk cans, glass fragments
	17138	8921	Tin can & glass scatter	Tins cans, glass fragments, and milled lumber
	17766		Road Segment	Rte 60/70 w/ associated diversion dikes
Prehistoric	n/a	893T	Trail Segment	none
	n/a	1515	numerous widely dispersed loci of sparse lithics & FAR scatters over extensive area	FAR, core fragments, flakes, cores, hammer-stones, cobble chopper tools, millingtools, bone fragments, projectile point, pottery sherds, turquoise pendant, and ring of boulders. Rumored fishhooks, fish bone, and possible human remains (burials and cremations).
	13591		Isolate	Quartzite biface
	14160		Isolate	Incised pottery rim sherd and body sherd
	14177		Cleared Circle Ring	none

TABLE 3
SUMMARY OF APPLICANT'S NATIVE AMERICAN CONSULTATION

Contact	Affiliation	Sent	Response
Joseph R. Benitez	None provided by NAHC	Letter (5/5/2009)	6/17/2009 Indicated Chemehuevi Tribe should be contacted
Ann Brierty	San Manuel Band of Mission Indians	Letter (5/5/2009) Phone (7/8/2009) Phone (7/28/2009)	None to date
Bennae Calac, Tribal Council Member	Pauma Band of Luiseño Mission Indians	Letter (5/5/2009) Phone (7/8/2009) Phone (7/30/2009)	None to date Requested information packet be resent (Sent 7/8/2009) (7/10/2009) E-mail requesting continued consultation about concerns for the Project area Asked to call at later date
Daryl Mike Chairperson	Twentynine Palms Band of Mission Indians	Letter (5/5/2009) Phone (7/8/2009) Phone (7/28/2009)	None to date
Diana L. Chihuahua, Cultural Resources Coordinator	Torres-Martinez Desert Cahuilla Indians	Letter (5/5/2009) Phone (7/8/2009) Phone (7/28/2009)	None to date
Michael Contreras, Cultural Heritage Program Manager	Morongo Band of Cahuilla Mission Indians	Letter (5/5/2009) Phone (7/8/2009) Phone (7/28/2009)	None to date No comment to date Referred to Torres-Martinez
Joseph Hamilton, Chairman	Ramona Band of Cahuilla Mission Indians	Letter (5/5/2009) Phone (7/8/2009) Phone (7/28/2009)	None to date
John A. James, Chairperson	Cabazon Band of Mission Indians	Letter (5/5/2009) Phone (7/8/2009)	None to date Referred to David Roosevelt
Linda Otero, Director	AhaMaKav Cultural Society, Fort Mojave Indian Tribe	Letter (5/5/2009) Phone (7/8/2009) Phone (7/28/2009)	None to date Will contact with information
James Ramos, Chairperson	San Manuel Band of Serrano Mission Indians	Letter (5/5/2009) Phone (7/8/2009) Phone (7/28/2009)	None to date
Mary Resvaloso, Chairperson	Torres-Martinez Desert Cahuilla Indians	Letter (5/5/2009) Phone (7/8/2009) Response (7/14/2009)	None to date Requested information packet be resent (Sent 7/14/2009)
Luther Salgado, Sr.	Cahuilla Band of Mission Indians	Letter (7/8/2009) Phone (7/28/2009)	None to date Number disconnected
Alvino Silva	None provided by NAHC	Letter (5/5/2009) Phone (7/8/2009)	None to date Left message, call returned on 7/9/2009
Judy Stapp, Director of Cultural Affairs	Cabazon Band of Mission Indians	Letter (5/5/2009) Phone (7/8/2009)	5/18/2009 – No comment
David Roosevelt, Chairperson	Cabazon Band of Mission Indians	Phone (7/82009) Phone (7/28/2009)	None to date Will contact with information
Michael Tsosie	Colorado River Reservations	Letter (5/5/2009) Phone (7/8/2009) Phone (7/28/2009)	None to date
Patricia Tuck, THPO	Agua Caliente Band of Cahuilla Indians	Letter (5/5/2009) Phone (7/8/2009) Phone (7/28/2009)	None to date
Tim Williams, Chairperson	Fort Mojave Indian Tribe	Letter (5/5/2009) Phone (7/8/2009) Phone (7/28/2009)	None to date Requested information packet be resent (Sent 7/8/2009) Referred to Linda Otero
Charles Wood, Chairperson	Chemehuevi Reservation	Letter (5/5/2009) Phone (7/8/2009) Phone (7/28/2009)	None to date

TABLE 4
NEWLY DISCOVERED PREHISTORIC RESOURCES WITHIN THE APE

Site Ref. (SMP-P-)	Resource Type	Size (m)	Landform	Constituents	Other
1015	Lithic scatter	90x30	Gravel terrace	31 flakes & 2 cores (cryptocryst, metavolcanic, basalt, rhyolite)	Surficial
1016	Lithic scatter	45x25	Gravel terrace	7 flakes (cryptocryst, metavolc, basalt, quartz)	Surficial
1017	Lithic & FAR scatter	50x18	Deflated dune terrace	3 flakes (metavolcanic), quartzite hammerstone, piece ground stone, 60+ FAR frags	Possible subsurface deposit
1018	Lithic & FAR scatter	25x9	Deflated dune terrace	13 pieces metavolcanic debitage, 35 pieces FAR, metate frag	Possible subsurface deposit
2014	Lithic scatter	30x20	Dune	3 flakes & core (metavolcanic)	Possible subsurface deposit
2015	Lithic & FAR scatter	47x22	Dune at base of alluvial fan	40+ flakes (metavolcanic cryptocryst), biface frag (basalt), domed scraper, core, 4 metate frags, 2 poss. metate frags, boulder with ground surface, and marine shell frag	Possible subsurface deposit
2018	Lithic & FAR scatter	54x28	Deflated dune on periphery of Dry Lake	Five clusters of FAR (126 pieces of basaltic, metavolcanic, and granitic rocks), a metavolcanic primary flake, cryptocrystalline biface-thinning flake, a quartz secondary flake, a metavolcanic hammerstone/ battered cobble	Possible subsurface deposit
2023	Lithic & FAR scatter	75x16	Alluvial fan	2 flakes, core, 8 metate fragments, 1 mano, & 6 pieces of FAR	Possible subsurface deposit
MT-001	Lithic scatter	60x20		1 rhyolite core/chopper, 1 rhyolite tested cobble, and 1 rhyolite core	Historic component, mid-20th century can scatter and one screw-top glass bottle

TABLE 5
NEWLY DISCOVERED HISTORICAL ARCHAEOLOGICAL SITES WITHIN THE APE

Site Ref SMP-H-	Type and Size (m.)	Land-form	Constituents	Dates	Other
1003	Refuse scatter 80x50	Alluvial fan & wash	11+ cans (motor oil, key-strip opened, beverage), clear glass bottle fragment	1930s-1940s	Surficial
1004	Refuse scatter 110x80	Alluvial fan	Cans (motor oil, beverage, fish tins), jadite ceramic fragment, modern milled lumber	1930s-1940s	Surficial
1005	Placer mining claim? 455x155	Wash	wooden post w/ wire nails 120+ cans (key-strip opened meat tins, beverage, motor oil, coffee), 2 amber glass bottles, clear glass bottle	1930s-1940s	Surficial
1006	Refuse scatter 140x27	Wash	9 cans (beverage, sanitary, milk, key-strip opened), clear glass medicine bottle	1930s-1940s	Surficial
1007	Placer mining claim? 460x175	Wash	2 wooden posts, a rock cairn 200+ cans (beverage, pull tab, tobacco tin, key-strip opened, sanitary, motor oil, meat tins), hand saw, glass fragments, automobile parts, rubber, metal pipe, milled lumber, bailing wire, shovel	1940s-1960s	Surficial, possibly multiple dumping episodes
1008	Refuse scatter 105x160	Alluvial fan	Cans (sanitary, beverage, single friction, key-strip opened, flat round/hinge lid/square meat tins), glass jar fragment, milled lumber, metal U.S. Army spoon	1930s-1940s	Surficial
1009	Refuse scatter 165x85	Wash	Cans (beverage, pull tab, milk, key-strip meat tins, fish tins), olive green glass bottle	1915-1971	Surficial, possibly multiple dumping episodes
1010	Refuse scatter with assoc. tank tracks 80x150	Alluvial fan	33+ Cans (beverage, fish tins) set of tank tracks, 140 feet long	1930s-1940s	Surficial
1011	Refuse scatter 40x90	Alluvial fan	13 cans (sanitary, kerosene, fish tin, pocket tobacco), amber glass bottle	1940s	Surficial
1013	Refuse scatter 65x110	Alluvial fan	30+ cans (sanitary, key-opened, pocket tobacco, key-wind sardine), piece of iron, clear glass condiment bottle	1908-present	Surficial
1020	Refuse scatter 390x110	Wash	200+ cans (beverage, sanitary, motor oil, cone top, key-opened, single friction, flat round, fuel)	1930s-1940s	Surficial, possibly multiple dumping episodes
1021	Refuse scatter 3x2	Dune	29 cans/lids (sanitary)	1920s-1940s	possible buried deposit
1022	Refuse scatter 155x130	Wash	24+ cans (sanitary, beverage, key-opened), clear glass jar, amber glass bottle, milled lumber, tar	1930s-1940s	Surficial
1023	Refuse scatter 1x1	Alluvial fan	7 coke bottles	1941-1942	Surficial
1025	Survey markers 8x60	Alluvial fan	Clear glass jar, modern wooden lath 2 wooden survey markers, one 5 feet and tall and one 1 foot tall	Possi-ble19th century	Surficial
1026	Tank tracks	Alluvial fan	2 sets tank tracks (106 and 85 meters in length) 1 half-track (53 m in length)	1942-1944	Surficial

TABLE 5 (Continued)
NEWLY DISCOVERED HISTORICAL ARCHAEOLOGICAL SITES WITHIN THE APE

Site Ref SMP-H-	Type and Size (m.)	Land-form	Constituents	Dates	Other
1032	Road 4 X 800	Alluvial fan & washes	graded dirt road	At least 1940s-1950s	Surficial
2002	Refuse scatter 85x145	Wash	26+ cans (sanitary, beverage, hole-in cap, match-stick milk, coffee, non-reclosable), clear glass fragments & a medicine bottle	1930s-1940s	Surficial
2003	Refuse scatter 70x140	Alluvial fan	19 cans (sanitary, motor oil, beverage, hole-in-cap, match-stick filled), clear glass condiment jar, amber beverage bottler, bailing wire	1920s-1960s	Surficial
2004	Refuse scatter 45x20	Alluvial fan	4 cans (hole-in-cap), 2 amber beverage bottles, metal belt buckle	1930s-1940s	Surficial
2006	Refuse scatter 55x105	Alluvial fan	14 cans (sanitary, motor oil, fish, hole-in-cap)	1930s-1940s	Surficial
2007	Refuse scatter 28x60	Alluvial fan	11 cans (sanitary, beverage, key-opened, internal friction cocoa), metal pail, 10 aqua glass fragments, piece of amethyst glass, Colt 45 cartridge case, tar slag	1880-1940s	Surficial
2008	Refuse scatter 80x35	no landform?	54 cans/lids, clear bottle glass frags, clear glass jar base	post-1945	Surficial
2009	Tank tracks	Alluvial fan	1 set tank tracks (207 m in length)	1942-1944	Surficial
2010	Refuse scatter 140x160	Alluvial fan & washes	111 cans/lids (sanitary, key-opened, oblong, flat round, hole-in-cap, match-stick), glass fragments (aqua, green, amethyst), ceramics (whiteware, crockery) 5 rock ring camp fire pits; 3 survey markers; tank tracks (466 feet)	1880-1950s	Surficial, possibly multiple dumping episodes
2011/ 2012	Refuse scatter w/assoc. tank tracks 90x245	Alluvial fan & washes	60+ cans/lids (sanitary, beverage, key-opened, pocket tobacco, hole-in-cap), Coke bottle, amber glass jug fragments, pocket knife, spark plug two sets of tank tracks (130 and 43 m. in length)	1940s	Surficial
2016	Corral & assoc. features 119x70	Alluvial fan & dune terrace	wood/wire corral; 4 rock ring campfire pits; 1 collapsed wooden shed; 1 USGS survey marker 2 cans (beverage), milled lumber, wire/square nails	Early-mid 20th century	Surficial
2017	Refuse scatter 25x20	Alluvial fan	11+ cans/lids (sanitary, hole-in-cap, key opened meat tins)	Early 20th century	Surficial
2019	Refuse Scatter 130x50	Alluvial fan	21 cans (sanitary, motor oil, beverage, ham tin), glass medicine and whisky bottles	1940s	Surficial
2020	Tank Tracks	Gravel terrace	1 tank track (76 m in length)	1942-1944	Surficial

TABLE 5 (Continued)
NEWLY DISCOVERED HISTORICAL ARCHAEOLOGICAL SITES WITHIN THE APE

Site Ref SMP-H-	Type and Size (m.)	Land-form	Constituents	Dates	Other
2021	Refuse Scatter 55x115	Wash & alluvial fan	30+ cans (hole-in-cap, match stick filled, sanitary, beverage, key opened), metal bowl	1919 on (1942-1944)	Surficial
DS-326	Rock Cairn 4.5x1		small rock pile w/ small glass jar and small rock ring (26" diameter	Post-1945	Surficial
DS-327	Mining Claim 1x1		4x4" post, standing 5 ft high, supported by cobble base, with beverage can attached by 2 nails	Post-1945	Surficial
DS-334	Rock Cairn 3x1		two rock cairns: 1) 42" high (30 cobbles stacked in 5 courses; 2) 29" high (20 cobbles stacked in 6 courses	Unde-termined	
DS-452	Quartz Reduction <1x1		1 large quartz cobble and 14 smaller pieces, exhibit-ing strike marks from steel rock hammer	Unde-termined	Prospect-ing
DS-454	Quartz Reduction <1x1		six quartz cobble pieces exhibiting strike marks from steel rock hammer	Unde-termined	Prospect-ing
DS-455	Quartz Reduction <1x1		stockpile of 6 quartz cobbles; quartz fragments exhibit obvious stroke marks from steel rock hammer.	Unde-termined	Prospect-ing
DS-458	Quartz Reduction/Ref use Scatter 140x18		6 large quartz cobbles & 12 shatter pieces w/ strike marks from steel rock hammer 7 scattered cans (2 meat tins, 1 coffee can, 1 can with slits in bottom for a shaker, 1 aerosol shaving cream can, 1 condensed milk can, & 1 sanitary can)	Post-1945	Prospect-ing
DS-459	Survey Marker 1x1		USGS marker (metal capped pipe embedded in ground, stamped 1955) adjacent metal fence post surrounded by cobble cairn	Post-1945	
DS-465	Refuse Scatter 96x32		10 fragments green bottle glass (including 1 base), 50 brown glass fragments, 1 clear glass bottle, "Suncrest"; another clear glass bottle, "Nehi Beverage"; 25 sanitary cans, 1 meat tin, 1 rectangular can with screw top (lighter fluid container?) Concentration 1: Clorox bottle base, 1 metal bolt, ~40 green and brown glass brags, 20 sanitary cans, and can lid "For Coffee Pot or Percolator Regular Grind"; Concentration 2: 20 sanitary cans, cont top beverage can, large juice can, aqua glass jar fragment; Concentration 3: 10 beverage cans, coffee can, condensed milk can, and small meat can	Post-1945	
DS-466	Refuse Scatter 2.5x2.5	Small Dune	10 metal fuel cans, oil filter, air or exhaust filter	Post-1945	Partially buried
DS-467	Refuse Scatter 60x30	Wash & alluvial fan	~20 cans (5 condensed milk, 6 beverage, 5 sanitary food, 1 external friction lid can, 2 aluminum soft-top tear tab beverage can), blue enamel bowl	Multiple events post-1945	

TABLE 5 (Continued)
NEWLY DISCOVERED HISTORICAL ARCHAEOLOGICAL SITES WITHIN THE APE

Site Ref SMP-H-	Type and Size (m.)	Land-form	Constituents	Dates	Other
DS-712	Refuse Scatter 1x1	Sandy terrace	6 rusted metal vehicle parts including a pedal embossed with a "C", 2 leaf springs, 1 strap, and 2 pieces of unidentified metal.	Unde-termined	Surficial
DS-714	Rock Cairn <1 x1	Desert Pavement	collapsed/deflated cairn supporting broken wood lath (~10 cobbles)	Unde-termined	Surficial
DS-716	Quartz Reduction 107x10	Desert Pavement	rock ring (5 ft dia) where 15 cobbles have been turned over, suggesting site of cobble extraction for prospecting two concentrations of shattered quartz rocks broken with steel rock hammer or large hammerstone: 1) 25 pieces in 3-ft-dia area; 2) 10 pieces n 2-ft-dia area	Unde-termined	Surficial
JR-101	Refuse Scatter 10x10		3 pieces of wood lath, 4 cans (1 sanitary, 2 beverage, 1 sardine)	Post-1945	Surficial
JR-102	Refuse Scatter 120x60		26 cans, 75 glass bottle and jar fragments	Post-1945	Surficial
JR-109	Refuse Scatter 15x15	Alluvial fan	4 tin cans (church-key, 2 P-38-opened, crushed)	Post-1945	Surficial
JR-110	Refuse Scatter 125x100	Alluvial fan	6 tin cans	Post-1945	Surficial
Riv-9091	Rock Cairn/ Quartz Reduction 377x178	Desert Pavement at base of small hill	Six cairns, approx 3 ft in dia, 3 ft in height, 3-6 courses 2 small loci of quartz shatter from prospecting	Unde-termined	Surficial
TC-008	Refuse Scatter 44x50	Alluvial fan	15 cans (sanitary, sardine, tobacco)	Post-1945	Surficial
TC-009	Refuse Scatter 55x66	Alluvial fan	11 cans, metal bucket, glass bottle	Post-1945	Surficial
TC-020	Refuse Scatter 34x36	Alluvial fan	8 tin cans, 2 milled wood fragments	Post-1945	Surficial
TC-032	Refuse Scatter 34x36	Alluvial fan	20 beverage cans, weathered milled lumber pieces, motor oil, whiskey bottle	Post-1945	Surficial

TABLE 6
CUMULATIVE ANALYSIS RESULTS: ESTIMATED NUMBER OF CULTURAL RESOURCES PER ACRE

Location	Acres	Number of Known Cultural Resources
Genesis PAAs Blythe PAAs Palen PAAs	19,184	329 = Average Density of 0.017 sites per acre
		Estimated Number of Cultural Resources (acres x 0.017)
I-10 Corridor	122,440	2,081
Southern California Desert Region	11,000,000	187,000
Existing Projects I-10 Corridor		
Chuckwalla Valley Prison and Ironwood Prison	1,720	29
I-10 Freeway	2,328	40
Devers-Palo Verde 1 Transmission Line	350	6
Kaiser Eagle Mountain Mine	3,500	59
Subtotal	7,898	133
Reasonably Foreseeable Future Projects I-10 Corridor		
13 Solar Projects and Chuckwalla Raceway	47,591	809
4 New Transmission Lines	465	17
Subtotal	48,056	816
Reasonably Foreseeable Future Projects Southern California Desert Region		
Solar Projects	567,882	9,654
Wind Projects	433,721	7,373
Subtotal	1,001,606	17,027

APPENDIX G

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APPENDIX H

Programmatic Agreement

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PROGRAMMATIC AGREEMENT
AMONG THE
BUREAU OF LAND MANAGEMENT-CALIFORNIA,
THE CALIFORNIA ENERGY COMMISSION,
PALEN SOLAR I, LLC, AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER,
REGARDING THE PALEN SOLAR POWER PROJECT- RIVERSIDE COUNTY, CALIFORNIA

TABLE OF CONTENTS

TABLE OF CONTENTS 1

INTRODUCTION 3

STIPULATIONS 7

I. DEFINITIONS 7

II. AREA OF POTENTIAL EFFECTS 9

III. IDENTIFICATION AND EVALUATION 11

IV. ASSESSMENT OF EFFECTS 13

V. TREATMENT AND MANAGEMENT OF HISTORIC PROPERTIES 14

VI. DISCOVERIES AND UNANTICIPATED EFFECTS 16

VII. TREATMENT OF HUMAN REMAINS OF NATIVE AMERICAN ORIGIN 16

VIII. STANDARDS AND QUALIFICATIONS 17

IX. REPORTING REQUIREMENTS 18

X. IMPLEMENTATION OF THE UNDERTAKING 18

XI. AMENDMENTS TO THE AGREEMENT 19

XII. DISPUTE RESOLUTION 19

XIII. TERMINATION 20

XIV. ADDITION/WITHDRAWAL OF PARTIES FROM/TO THE AGREEMENT 20

XV. DURATION OF THIS AGREEMENT 21

XVI. EFFECTIVE DATE 21

SIGNATORY PARTIES 22

INVITED SIGNATORY PARTIES 23

CONCURRING PARTIES 26

APPENDIX A: IDENTIFICATION AND EVALUATION 38

I. IDENTIFICATION 38

II. EVALUATION 38

APPENDIX B: HISTORIC PROPERTIES TREATMENT PLAN(S) 40

I. HISTORIC PROPERTIES TREATMENT PLAN(S) provide for the resolution or mitigation of effects to historic properties as a result of the project. 40

II. COORDINATION WITH ENERGY COMMISSION MEASURES UNDER CEQA 41

III. PERFORMANCE STANDARDS FOR NHPA SECTION 106 AND CEQA MITIGATION 41

IV. HISTORIC PROPERTY TREATMENT PLANS (HPTP) 45

APPENDIX C: HISTORIC PROPERTIES MANAGEMENT PLAN 46

APPENDIX D: PROJECT DESCRIPTION 47

APPENDIX E: PROJECT MAPS AND ILLUSTRATIONS 49

2. Illustration Map showing configuration and layout of proposed project and components. 49

4. Illustrations of Solar Parabolic Trough Assemblies. 49

Map 1 Showing the Northern Portion of the Area of Potential Effect and Survey Buffers 50

Map 2 Showing Southern Portion of the Area of Potential Effect: 51

Illustration Map showing configuration and layout of proposed project and components. 52

Illustration of the Power Block Arrangement 53

Illustrations of Solar Parabolic Trough Assemblies 54

Project Rendition: View Looking North From Corn Springs Road with Palen Mountains in Background 56

APPENDIX F: SUMMARY OF CULTURAL RESOURCES INVESTIGATIONS 57

APPENDIX G: AGENCY FINDINGS AND DETERMINATIONS 61

APPENDIX H: CULTURAL RESOURCES IDENTIFIED DURING CLASS III SURVEY 62

APPENDIX I: DOCUMENTATION OF TRIBAL CONSULTATION 67

APPENDIX K: EXAMPLE NAGPRA PLAN OF ACTION 123

INTRODUCTION

The purpose of this Programmatic Agreement (Agreement) is to provide the processes whereby the Bureau of Land Management (BLM), in consultation with the California State Historic Preservation Officer (SHPO), Advisory Council on Historic Preservation (ACHP), Indian Tribes and other consulting parties, take into account the effects of the Palen Solar I, LLC – Palen Solar Power Project on historic properties and provide the ACHP a reasonable opportunity to comment as required by Section 106 of the National Historic Preservation Act (Section 106). The California Energy Commission (Energy Commission) intends to use this Agreement to satisfy the requirements of the California Environmental Quality Act.

The BLM, in consultation with the consulting parties to this Agreement, will consider and incorporate within the Section 106 consultation process the performance standards (desired future condition), range of mitigation measures and commitment to mitigate, and monitoring requirements of the Energy Commission's Staff Assessment for the Palen Solar I, LLC – Palen Solar Power Project (Application for Certification 09-AFC-7). The BLM and the Energy Commission will endeavor to make the historic properties treatment and management provisions of this Agreement as it applies to the project as consistent as possible with the objectives and terms of the Presiding Member Proposed Decision (PMPD) and Environmental Impact Statement (EIS) within the context of the consultation process required by Section 106.

Government agencies, consulting parties, and the public identified in the scoping and public notification process for the Staff Assessment and Environmental Impact Statement were advised in the Supplemental Staff Assessment and Final Environmental Impact Statement (FEIS) that historic properties associated with the Palen Solar I, LLC – Palen Solar Power Project would be treated consistent with the mitigation measures or performance standards identified in the Staff Assessment and adopted by the Energy Commission, and consistent with the stipulations of this Agreement. A proposed final draft of this Agreement was circulated for public comment as an attachment to the FEIS. The Signatories have consulted with the Invited Signatories, Concurring Parties and Tribes on this Agreement, and have taken into consideration the views and comments received regarding the draft Agreement in preparing this final Agreement.

Appendices to this Agreement provide additional information about the Project or guidance. The Appendices can also include examples or drafts of planning documents that may be required and tiered from this Agreement and for which Section 106 consultation will continue to develop a final version.

PROGRAMMATIC AGREEMENT
AMONG THE
BUREAU OF LAND MANAGEMENT-CALIFORNIA,
THE CALIFORNIA ENERGY COMMISSION,
PALEN SOLAR I, LLC, AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER,
REGARDING THE PALEN SOLAR POWER PROJECT- RIVERSIDE COUNTY, CALIFORNIA

WHEREAS, Palen Solar I, LLC (Applicant) has applied for a right of way (ROW) grant on public lands managed by the Bureau of Land Management (BLM) and has submitted a Plan of Development (POD) to construct, operate and maintain a solar energy electrical generating plant (hereinafter referred to as the Palen Solar Power Project), including construction of two independent 250 MW units (Units #1, #2), a 230 kilovolt (kV) transmission line, a propane tank, paved arterial roads and parking areas, unpaved perimeter roads, and unpaved access routes, laydown and staging areas, and support facilities and infrastructure which are more fully described in Appendix D: Project Description and illustrated in Appendix E: Project Maps and Illustrations attached hereto and incorporated by this reference; and

WHEREAS, the BLM has determined that since it requires the issuance of a ROW to the Palen Solar I, LLC (PSI) in accordance with the Federal Land Policy and Management Act (FLPMA) (Public Law 940-579; 43 U.S.C 1701), the Project is an Undertaking subject to Section 106 of the National Historic Preservation Act (NHPA), 16 USC 470(f), and its implementing regulations under 36 CFR Part 800 (2004) (Section 106); and

WHEREAS, in August 2005, the United States Congress enacted the Energy Policy Act of 2005 (Public Law 109-58). In Section 211 of that Act, Congress directed that the Secretary of the Interior ("Secretary") should, before the end of the 10-year period beginning on the date of enactment of the Act, seek to have approved non-hydropower renewable energy projects located on the public lands with a generation capacity of at least 10,000 megawatts of electricity; and

WHEREAS, by Secretarial Order No. 3285 issued March 11, 2009, the Secretary stated as policy that encouraging the production, development, and delivery of renewable energy is one of the Department of Interior's (DOI) highest priorities and that agencies and bureaus within the DOI will work collaboratively with each other, and with other federal agencies, departments, states, local communities, and private landowners to encourage the timely and responsible development of renewable energy and associated transmission while protecting and enhancing the Nation's water, wildlife, and other natural resources; and

WHEREAS, the BLM, in consultation with the California State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP), pursuant to 36 C.F.R. 800.4(b)(2), seek to phase final identification and evaluation of historic properties for the project pursuant to 36 C.F.R. 800.4(b)(2) because the alternatives under consideration consist of large

land areas. In accordance with the requirements of 36 C.F.R. 800.4(b)(2), the BLM is preparing this Agreement to set forth the process for completing phased compliance with Section 106 of the NHPA; and

WHEREAS, the BLM has consulted with the SHPO and the ACHP, pursuant to 36 C.F.R. 800.14(b)(3) and following the procedures outlined at 36 C.F.R. 800.6, and are in the process of considering alternatives for the Project that have the potential to adversely affect historic properties and may reach a decision regarding approval of the ROW for the Project before the effects of the Project's implementation on historic properties have been fully determined, the BLM chooses to continue its assessment of the undertaking's potential adverse effect and resolve any such effect through the implementation of this Agreement; and

WHEREAS, in accordance with regulations at 36 CFR 800.14(b)(3) BLM has notified and invited the ACHP per 36 CFR 800.6(a)(1)(C) to participate in consultation to resolve the potential effects of the Undertaking on Historic Properties, and as per their letter dated March 11, 2010, the ACHP has elected not to participate in this Agreement; and

WHEREAS, the California Energy Commission (Energy Commission) may certify the Project located on both public and private lands pursuant to Section 25519, subsection (c) of California's Warren-Alquist Act of 1974 and, for the purposes of consistency, proposes to manage all historical resources in accordance with the stipulations of this Agreement, and has participated in this consultation and is an Invited Signatory to this Agreement; and

WHEREAS, the BLM has prepared the *Draft Environmental Impact Statement and Draft California Desert Conservation Area Plan Amendment, Palen Solar Power Project (2010)* and the Energy Commission has prepared the *Staff Assessment Palen Solar Power Project, Application for Certification (09-AFC-7) Riverside County (2010)* to identify the Project alternatives for purposes of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), and have comparatively examined the relative effects of the alternatives on known historic properties; and

WHEREAS, the Applicant has participated in this consultation per 36 C.F.R. 800.2(c)(4) and, will be the entity to whom the BLM may grant a ROW related to Project activities, and has the responsibility for carrying out the specific terms of this Agreement under the oversight of the BLM, and therefore is an Invited Signatory to this Agreement; and

WHEREAS, pursuant to the special relationship between the Federal government and Indian tribes, and Section 101(d)(6)(B) of the NHPA, 36 C.F.R. 800.2(c)(2)(ii), the American Indian Religious Freedom Act (AIRFA), Executive Order 13175, and Section 3(c) of the Native American Graves Protection and Repatriation Act (NAGPRA), the BLM is responsible for government-to-government consultation with federally recognized Indian Tribes and is the lead federal agency for all Native American consultation and coordination; and

WHEREAS, the BLM has formally notified and invited Federally recognized tribes including the Morongo Band of Mission Indians, the Fort Yuma Quechan Indian Tribe, the San Manuel

Band of Mission Indians, the Torres-Martinez Desert Cahuilla Indians, the Fort Mojave Tribal Council, the Twentynine Palms Band of Mission Indians, the Agua Caliente Band of Cahuilla Indians, the Augustine Band of Mission Indians, the Ramona Band of Mission Indians, the Chemehuevi Tribal Council, and the Colorado River Tribal Council (Tribes) to consult on this Project and participate in this Agreement as a Concurring Party. BLM has documented its efforts to consult with the Tribes and a summary is provided in Appendix I to this Agreement; and

WHEREAS, through consultation, Tribes have expressed their views and concerns about the importance and sensitivity of specific cultural resources to which they attach religious and cultural significance. Tribes have expressed the connection of these resources to the broader cultural landscape within and near the Project area; and

WHEREAS, the BLM shall continue to consult with the Tribes throughout the implementation of this Agreement regarding the adverse effects to historic properties to which they attach religious and cultural significance. BLM will carry out its responsibilities to consult with Tribes that request such consultation with the further understanding that, notwithstanding any decision by these Tribes to decline concurrence, BLM shall continue to consult with these Tribes throughout the implementation of this Agreement; and

WHEREAS, the BLM, in coordination with the Energy Commission, has authorized the Applicant to conduct specific identification efforts for this Project including a review of the existing literature and records, cultural resources surveys, ethnographic studies, and geo-morphological studies to identify historic properties that might be located within the APE; and

WHEREAS, the BLM has defined the APE in which the Project may directly or indirectly adversely affect historic properties pursuant to the definition of APE at 36 C.F.R. 800.16(d). The basis of the APE is described in greater detail in Stipulation II of this Agreement; and

WHEREAS, the Applicant has retained an archaeological consultant to complete all of the investigations necessary to identify and evaluate the National Register of Historic Places (NRHP) eligibility for cultural resources located within the APE for both direct and indirect effects. The consultant has completed a review of the existing historic, archaeological and ethnographic literature and records to ascertain the presence of known and recorded cultural resources in the APE and buffered study area; conducted an intensive field survey for 4,594 acres of land, including all of the lands identified in APE for direct effects for all Project alternatives; and completed intensive field surveys for alternatives on lands that are no longer part of the Project. The consultant has also submitted a cultural resources inventory report (*Class III Survey Report, for the Proposed Palen Solar Power Project, Riverside County, California*, prepared by AECOM, January 2010) that presents the results of identification efforts and was submitted to the BLM and Energy Commission. The BLM has provided the report to the interested parties and Tribes for review and comment; and

NOW, THEREFORE, the BLM and SHPO (hereinafter "Signatories) and the Energy Commission and Applicant (hereinafter "Invited Signatories"), agree that the Project shall be implemented in accordance with the following stipulations in order to take into account the

adverse effect of the undertaking on historic properties, resolve such adverse effects through the process set forth in this Agreement, and provide the ACHP with a reasonable opportunity to comment in compliance with Section 106.

STIPULATIONS

The BLM shall ensure that the following measures are implemented:

I. DEFINITIONS

The definitions found at 36 C.F.R. 800.16 and in this section apply throughout this Agreement except where another definition is offered in this Agreement.

a) ***Area of Potential Effect.*** The APE is defined as the total geographic area or areas within which the Project may directly or indirectly cause alterations in the character or use of historic properties per 36 C.F.R. 800.16(d). The APE is influenced by the scale and nature of an undertaking and includes those areas which could be affected by a project prior to, during and after construction.
b) ***Concurring Parties***. Collectively refers to consulting parties with a demonstrated interest in the Project, who agree, through their signature, with the terms of this Agreement. Concurring Parties may propose amendments to this Agreement.
c) ***Cultural Resource.*** A cultural resource is an object or definite location of human activity, occupation, use, or significance identifiable through field inventory, historical documentation, or oral evidence. Cultural resources are prehistoric, historic, archaeological, or architectural sites, structures, buildings, places, or objects and locations of traditional cultural or religious importance to specified social and/or culture groups. Cultural resources include the entire spectrum of objects and places, from artifacts to cultural landscapes, without regard to eligibility for inclusion on the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR).
d) ***Consulting Parties.*** Collectively refers to the Signatories, Invited Signatories and Concurring Parties who have signed this Agreement.
e) ***Historic Properties.*** Properties (cultural resources) that are included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior and per the NRHP eligibility criteria at 36 CFR60.4 and may include any prehistoric or historic district, site, building, structure, traditional cultural property or object. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the NRHP criteria. The term "eligible for inclusion in the NRHP" refers both to properties formally determined as such in accordance with regulations of the Secretary of the Interior and all other properties that meet the NRHP criteria.
f) ***Historical Resources.*** Historical resources are cultural resources that meet the criteria for listing on the CRHR as provided at California Code of Regulations Title 14, Chapter 11.5, Section 4850 and may include, but are not limited to, any object, building, structure,

site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.

g) ***Invited Signatories.*** Invited Signatories are parties that have specific responsibilities as defined in this Agreement. Those Invited Signatories who actually sign this Agreement have the same rights with regard to seeking amendment or termination of this Agreement as the Signatory Parties, but whose signatures are not required for execution of the Agreement. Invited Signatories to this Agreement are the Energy Commission and Applicant.

h) ***Lands Administered by the U.S. Department of Interior, Bureau of Land Management*** (BLM) means any federal lands under the administrative authority of the BLM.

i) ***Literature Review.*** A literature review is one component of a BLM class I inventory, as defined in BLM Manual Guidance 8100.21(A)(1), and is a professionally prepared study that includes a compilation and analysis of all reasonably available cultural resource data and literature, and a management-focused, interpretive, narrative overview, and synthesis of the data. The overview may also define regional research questions and treatment options.

j) ***Records Search.*** A records search is one component of a BLM class I inventory and an important element of a literature review. A records search is the process of obtaining existing cultural resource data from published and unpublished documents, BLM cultural resource inventory records, institutional site files, State and national registers, interviews, and other information sources.

k) ***Signatories.*** Signatories are parties that have the sole authority to execute, amend or terminate this Agreement. Signatories to this Agreement are the BLM and SHPO.

l) ***Traditional Cultural Property.*** A traditional cultural property is defined generally as a property that is important to a living group or community because of its association with cultural practices or beliefs that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. It is a place, such as a traditional gathering area, prayer site, or sacred/ceremonial location, that may figure in important community traditions. These places may or may not contain features, artifacts, or physical evidence, and are usually identified through consultation. A traditional cultural property may be eligible for inclusion in the NRHP and the CRHR.

m) ***Tribes.*** The federally recognized Indian Tribes that BLM is consulting with on this Project.

n) ***Tribal Organizations.*** The non Federally recognized Indian tribes and Native American organizations that BLM is consulting with on this Project.

o) ***Windshield Survey.*** A windshield survey is the driving or walking of surveyors along streets and roads of a community in order to observe and record the buildings, structures, and landscape characteristics seen from those vantage points. A windshield survey is a method commonly utilized in reconnaissance surveys to identify built-environment resources, such as buildings, objects, and structures.

II. AREA OF POTENTIAL EFFECTS

a) The BLM has defined the APE for the Project based on both the direct and indirect impacts, to be a 15 mile radius around the block area of the Project. Below is a discussion about the APE and the methodology used to so define, and the survey methodology utilized within each APE. See Appendix E for APE map and Project illustrations.

i) The area within which historic properties could sustain direct effects as a result of the Project is defined to include:

(1) The block area of installation of the proposed Phase I and Phase II components of the Project, which includes approximately 2,970 acres of public lands. The area is generally bounded by Interstate 10 to the south, Desert Center-Rice Road to the west, The Palen Mountains to the east, and Palen Dry Lake to the North. Per Energy Commission requirements, a 200-foot wide buffer around the APE was included in the survey for cultural resources within the block area. This buffer is deemed sufficient to include any Project-related activity conducted near the edge of the Project footprint.

(2) All linear elements of the Project including:

(a) A 30-foot wide ROW for temporary or permanent access roads required outside the plant footprint. The survey corridor for cultural resources for this linear element included a 50-foot wide buffer on either side of the center line (100-foot wide corridor) to allow for changes in the ROW to avoid cultural resources.

(b) A ROW for the 230 kV transmission line is approximately 125-feet wide and 6.9 miles long and extends from the Project area to the proposed Southern California Edison (SCE) Red Bluff Substation. The survey corridor for cultural resources for this linear element was established as a 150-foot wide buffer on either side of the center line (300-foot wide corridor) to allow for changes in the ROW to avoid cultural resources.

ii) The area within which historic properties could sustain indirect effects, including visual, auditory, atmospheric, and contextual, as a result of the Project includes:

(1) Historic properties or cultural resources within a 15 mile radius of the direct effects APE that are identified through a review of existing literature and records search, information or records on file with the BLM or at the Eastern Information Center (EIC), interviews or discussions with local professional or historical societies and local experts in history or archaeology. For example, specific areas of concern or cultural resources that were identified include:

(a) Cultural resources in the Alligator Rock, Area of Critical Environmental Concern (ACEC), and the Palen Dry Lake ACEC.

(b) South Chuckwalla Mountains Petroglyph District (Site: CA-RIV-1383)
(c) Historic properties or cultural resources identified through archaeological or other field investigations for this Project that, as a result of Project redesign to avoid direct effects to cultural resources, are no longer within the Project area.

(2) Historic properties or cultural resources within a 15 mile radius of the direct effects APE that are included in the Native American Heritage Commission Sacred Lands Files, identified through a literature review or records search, or identified by a Tribe or Tribal organization, through consultation as having religious or cultural significance. Specific places or cultural resources that have been identified through tribal consultation include:

(a) Alligator Rock (a geological feature)
(b) Alligator Rock ACEC
(c) Palen Dry Lake Shoreline
(d) Palen Dry Lake ACEC
(e) South Chuckwalla Mountains Petroglyph District (Site: CA-RIV-1383)

(3) Historic properties or cultural resources within a 15 mile radius of the direct effects APE that have been identified by a consulting party, organization, governmental entity, or individual through consultation or the public commenting processes as having significance or being a resource of concern. Areas identified through consultation to date include:

(a) The Desert Training Center California-Arizona Maneuver Area (DTC/C-AMA).
(b) South Chuckwalla Mountains Petroglyph District (Site: CA-RIV-1383)

(4) Built-environment resources located within one-half mile of the Project footprint,

(a) whose historic settings could be adversely affected. Specific areas of concern or cultural resources have been identified both south and north of the Project location and include:

(i) Historic Highway 60-70 (or the current "Chuckwalla Valley Road")
(ii) Interstate Highway 10

(b) On private property, historic properties or cultural resources within one-half mile of the direct effects APE that are identified through surveys, where access was granted, and windshield surveys, where access was not granted.

b) The APE, as currently defined, encompasses an area sufficient to accommodate all of the proposed and alternative Project components under consideration as of the date of the execution of this Agreement. If it is determined in the future that the Project may directly or indirectly affect historic properties located outside the currently defined APE, then the

BLM, in consultation with the Signatories, Invited Signatories, and Concurring Parties, shall modify the APE using the following process:

i) Any consulting party to this Agreement may propose that the APE established herein be modified. The BLM shall notify the other Signatories, Invited Signatories, and Concurring Parties of the proposal and consult for no more than 15 days to reach agreement on the proposal.

ii) If the Signatories agree to the proposal, then the BLM will prepare a description and a map of the modification to which the Signatories agree. The BLM will keep copies of the description and the map on file for its administrative record and distribute copies of each to the other Signatories, Invited Signatories and Concurring Parties within 30 days of the day upon which agreement was reached.

iii) Upon agreeing to a modification to the APE that adds a new geographic area, the BLM shall follow the processes set forth in Stipulation III to identify and evaluate historic properties in the new APE, assess the effects of the undertaking on any historic properties in the new APE, and provide for the resolution of any adverse effects to such properties, known or subsequently discovered, per Stipulations IV and V.

iv) If the Signatories cannot agree to a proposal for the modification of the APE, then they will resolve the dispute in accordance with Stipulation XII.

III. IDENTIFICATION AND EVALUATION

a) The BLM, in coordination with the Energy Commission, has authorized the Applicant to conduct specific identification efforts for this undertaking including, but not limited to, a literature review, records search, cultural resources surveys, ethnographic studies, and geo-morphological studies to identify historic properties that might be located within applicable specific APE.

i) The Applicant has prepared and submitted a cultural resources inventory report (AECOM January 2010) to the BLM and the Energy Commission that presents the results of the Applicant's identification efforts. The report is currently under review by the BLM and Energy Commission to assess whether the report conforms with the field methodology and site description template required under BLM 3-year Cultural Use Permit (CA-09-31), BLM Fieldwork Authorization FA # 66.24 10-03, Fieldwork Authorization FA # 66.24 09-12, and Fieldwork Authorization FA# 66.24 09-20, and Energy Commission Docket number 09-AFC-7.

ii) The BLM, in consultation with the Energy Commission, may require additional field investigations to be conducted by the Applicant to ensure the accuracy of site recordation and to provide additional information to support site evaluations and the

assessment of effects. However, the BLM and Energy Commission, separately or together, have the right and the discretion, under this Agreement, to request additional field studies.

iii) The BLM is consulting with interested Tribes, Tribal organizations or tribal individuals regarding the identification of historic properties within the APE to which they attach religious or cultural significance and shall respond to any additional request to consult with Tribes, Tribal organizations or tribal individuals.

b) The BLM shall make determinations of eligibility consistent with 36 C.F.R. 800.4 prior to the Record of Decision (ROD) to the extent practicable, and will make any remaining determinations as soon as possible afterwards, on those cultural resources within the APE, and make the agency's determinations available to the consulting parties, Tribes and the public for a 45 day review and comment period.

i) The BLM will respond to any request for consultation on its determinations from a consulting party to this Agreement or a Tribe.

ii) A consulting party may provide its comments directly to the SHPO with a copy to the BLM within the 45 day comment period.

iii) The BLM will forward to the SHPO all comments regarding its determinations received during the 45 day comment period.

iv) After the 45 day comment period, the BLM may request SHPO concurrence for those determinations and findings for which there is no disagreement.

(1) SHPO will have 15 days in which to comment.
(2) Should SHPO not comment, BLM shall document that SHPO has elected not to comment and may proceed in accordance with its proposed determinations.
(3) If the BLM and SHPO disagree on a determination, BLM shall seek a determination from the Keeper of the National Register.

v) Where a consulting party or Tribe objects to the BLM's determination for a specific cultural resource within the 45 day review period, the BLM shall consult with the objecting party and the SHPO regarding the nature of the objection and reconsider its determinations.

(1) If the objection is not resolved, the BLM shall further consult with the SHPO and follow the processes provided at 36 C.F.R. 800.4(c)(2).
(2) The BLM may proceed with determinations for all cultural resources not subject to objection.

vi) The BLM and the Energy Commission shall coordinate to the extent feasible and practicable on determinations of eligibility for the NRHP and CRHR.

vii) If adverse effects to a cultural resource can be avoided, the BLM may choose to prescribe avoidance without making an eligibility determination of that cultural resource.

c) In only the following circumstances, the BLM may defer the final evaluation of significance of cultural resources

i) where BLM has determined significance is limited to scientific, prehistoric, historic or archaeological data and where testing or limited excavation is recommended to determine whether a site would be eligible under Criterion D for inclusion on the NRHP.

ii) where additional evaluation efforts are required to assess the scientific, prehistoric, historic or archaeological data values of a property, the BLM and Energy Commission shall ensure that such properties located within the APE are evaluated for the NRHP and CRHR pursuant to Stipulation III and the guidelines provided in Appendix A of this Agreement.

IV. ASSESSMENT OF EFFECTS

a) The BLM shall make determinations of effect consistent with 36 C.F.R. 800.4(d) and identify the type of adverse effect for each affected property in accordance with the criteria established in 36 C.F.R. 800.5(a)(1) and (2)(i)-(vii) prior to the ROD to the extent practicable on those cultural resources within the APE that are listed on or determined eligible for the NRHP, and provide the SHPO, Tribes, and the consulting parties with the results of this finding.

iii) The Applicant shall submit to the BLM:

(1) a list of the cultural resources that the Project appears likely to affect.
(2) a list of the cultural resources that the Project has no potential to affect.
(3) a list of the cultural resources that the Applicant commits to avoiding through the implementation of formal avoidance measures.
(4) a list of the cultural resources that cannot be avoided and will need to be evaluated and/or treated by implementing the prescriptions of the Historic Properties Treatment Plan (HPTP) required in Stipulation V of the Agreement.

b) The BLM shall issue a finding of effect, based on the BLM's own evaluation of the Applicant's analysis, and provide Tribes and consulting parties to this Agreement an opportunity to review the BLM's finding and the analysis to support its finding.

i) The BLM shall attempt to make its determinations and findings to the extent possible in a single consolidated decision and may submit findings of effect to the SHPO

concurrently with its determinations of eligibility per Stipulation III(b), otherwise, the consulting parties shall have 30 days to comment on BLM findings of effect.

ii) The BLM will forward to the SHPO all comments regarding its findings of effect received during the comment period.

iii) After the comment period, the BLM may request SHPO concurrence for those findings for which there is no disagreement.

(1) SHPO will have 15 days in which to comment.
(2) Should SHPO not comment, BLM shall document that SHPO has elected not to comment and may proceed in accordance with its proposed determinations.
(3) Should SHPO disagree with BLM's finding, they shall continue to consult to resolve the agreement within a 30 day review period.
(4) If the SHPO and BLM are not able to resolve the disagreement within the review period, BLM will request ACHP review of the finding pursuant to 36 C.F.R. 800.5(c)(3)(i).

iv) Where a consulting party or Tribe objects to the BLM's findings, the BLM shall consult with the objecting party and the SHPO regarding the nature of the objection and reconsider its findings.

(1) If the objection is not resolved, the BLM shall further consult with the SHPO and follow the processes provided at Stipulation IV(b)(iii).

c) The Applicant, at the direction of the BLM and Energy Commission, may prepare the analysis required above in phases that correspond to the proposed sequence of development, provided that analyses are ultimately prepared for the entirety of the APE.

d) If adverse effects to such cultural resources will not be avoided, the BLM must resolve the adverse effect by implementing the prescriptions of the HPTP. When developing these HPTPs, BLM does not need to consider those cultural resources that it has evaluated and determined are not eligible for inclusion in the NRHP consistent with the process under 36 C.F.R. 800.4.

e) Where additional identification and evaluation efforts are required due to changes in the project and the APE, the BLM and Energy Commission shall ensure that cultural resources located within the APE are identified and evaluated for the NRHP and CRHR pursuant to Stipulation III of this Agreement.

V. TREATMENT AND MANAGEMENT OF HISTORIC PROPERTIES

a) BLM will ensure the resolution of identified adverse effects to historic properties through avoidance, minimization, or mitigation and shall be described in one or more HPTP(s) that shall be written and finalized as described below and included in Appendix B.

i) The BLM and Applicant, in consultation with the consulting parties and Tribes, shall develop a draft HPTP(s), prior to the ROD if feasible, or as soon as possible thereafter.

(1) Prior to the issuance of any Notice to Proceed by the BLM to initiate the Project or any component of it that may affect historic properties, the Applicant shall develop and submit to the BLM one or more HPTPs for the BLM's approval.
(2) The HPTP(s) will be implemented after the ROW is granted by the BLM and prior to the issuance of a Notice to Proceed for construction in those portions of the Project addressed by the HPTP. The process for developing the HPTPs is further described below in this stipulation.
(3) The BLM may authorize the phased implementation of the HPTP(s) (per Stipulation X), or if appropriate, the development of HPTPs for individual cultural resources, or HPTPs that are related to specific issues or geography.

ii) The BLM and Energy Commission, consistent with the guidelines provided in Appendix B(2), shall make every effort within the legal limits imposed on each party to incorporate into the Historic Properties Management Plan (HPMP) and any HPTP the intent of the treatment or mitigation measures in the Energy Commission's Conditions of Certification and BLM's ROD. The purpose of this effort is to evidence that due consideration of the intent inherent in the Energy Commission's Conditions of Certification were fully considered and incorporated when possible. If the BLM and Energy Commission cannot agree to proposed treatment measures, then they will resolve the dispute in accordance with Stipulation XII(c)(iii).

iii) The BLM shall submit the HPTP(s) to the consulting parties and Tribes for a 30-day review period. BLM will consider timely comments when finalizing the HPTP(s). A consulting party may provide its comments directly to the SHPO with a copy to the BLM within the 30-day comment period. The BLM will forward to the SHPO all comments regarding the HPTP(s) received during the comment period.

(1) Where an HPTP specifically addresses treatment for adverse effects to historic properties to which Tribes attach religious or cultural significance, the BLM shall submit the HPTP to the Tribes and seek their views and comments through consultation, regardless of the status of a Tribe as a Concurring party to this Agreement. BLM shall consult with involved Tribe(s) on the distribution to other consulting parties of any HPTP(s) that specifically addresses treatment for adverse effects to historic properties to which the Tribes attach religious or cultural significance. Such a specific HPTP(s) shall be governed by the consultation time frames as provided in Section V(a)(iii) and (iv).

iv) BLM will provide the consulting parties with written documentation indicating whether and how the draft HPTP will be modified in response to any timely comments received. If the HPTP is revised in response to comments received within

that 30 day period, BLM shall submit the revised HPTP to all parties for a final, 15 day review period. BLM will consider any timely comments in finalizing the HPTP and provide the consulting parties and Tribes with a copy.

b) BLM shall ensure that any HPTP developed in accordance with this Stipulation and Appendix B of this Agreement is completed and implemented. A finalized HPTP will be included in Appendix B of this Agreement

c) BLM shall ensure that a HPMP, which provides for the protection and management of historic properties during the operational life and decommissioning of the solar energy power plant, is developed and implemented in accordance with Appendix C of this Agreement. A finalized HPMP will be included in Appendix C of this Agreement.

d) An amendment to an HPTP or HPMP will go into effect when agreed to in writing by the Signatories. If the Signatories do not agree on an HPTP or HPMP amendment proposed by another Signatory, the disagreement will be resolved pursuant to the procedures in Stipulation XII of this Agreement.

VI. DISCOVERIES AND UNANTICIPATED EFFECTS

a) The BLM, in consultation with the consulting parties and Tribes, will seek to develop a monitoring and discovery plan for the Project pursuant to 36 C.F.R. 800.13(a)(1). A finalized monitoring and discovery plan will be included as Appendix J to this Agreement.

b) If the BLM determines that implementation of the Project or a HPTP will affect a previously unidentified property that may be eligible for the NRHP, or affect a known historic property in an unanticipated manner, and a monitoring and discovery plan has not been finalized, the BLM, in coordination with the Energy Commission, will address the discovery or unanticipated effect by following the procedures at 36 C.F.R. 800.13(b)(3) where a process has not been yet been agreed to pursuant to 36 C.F.R. 800.13(a)(1).

c) The BLM at its discretion may assume any discovered property to be eligible for inclusion in the NRHP. The BLM's compliance with this stipulation shall satisfy the requirements of 36 C.F.R. 800.13(a)(1).

VII. TREATMENT OF HUMAN REMAINS OF NATIVE AMERICAN ORIGIN

a) The BLM shall ensure that any that Native American burials and related items discovered on BLM administered lands during implementation of the terms of the Agreement will be treated in accordance with the requirements of the NAGPRA. The BLM will consult with concerned Tribes, Tribal organizations, or individuals in accordance with the requirements of Sections 3(c) and 3(d) of the NAGPRA and implementing regulations found at 43 C.F.R. Part 10 to address the treatment of Native American burials and related cultural items that may be discovered during implementation of this Agreement.

b) In consultation with the Tribes, the BLM shall seek to develop a written plan of action pursuant to 43 C.F.R. 10.5(e) to manage the inadvertent discovery or intentional excavation of human remains, funerary objects, sacred objects, or objects of cultural patrimony. The finalized plan of action shall be included as Appendix K to this Agreement.

c) The BLM shall ensure that Native American burials and related cultural items on private lands are treated in accordance with the applicable requirements of the California Public Resources Code at Sections 5097.98 and 5097.991, and of the California Health and Human Safety Code at Section 7050.5(c).

VIII. STANDARDS AND QUALIFICATIONS

a) PROFESSIONAL QUALIFICATIONS. All actions prescribed by this Agreement that involve the identification, evaluation, analysis, recordation, treatment, monitoring, and disposition of historic properties and that involve the reporting and documentation of such actions in the form of reports, forms or other records, shall be carried out by or under the direct supervision of a person or persons meeting, at a minimum, the Secretary of the Interior's Professional Qualifications Standards (PQS), as appropriate (48 Fed. Reg. 44739 dated September 29, 1983). However, nothing in this stipulation may be interpreted to preclude any party qualified under the terms of this paragraph from using the services of persons who do not meet the PQS, so long as the work of such persons is supervised by someone who meets the PQS. Tribal consultants who are available to perform monitoring duties are assigned and approved of by each Tribe.

b) DOCUMENTATION STANDARDS. Reporting on and documenting the actions cited in this Agreement shall conform to every reasonable extent with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 Fed Reg. 44716-40 dated September 29, 1983), as well as, the BLM 8100 Manual, the California Office of Historic Preservation's Preservation Planning Bulletin Number 4(a) December 1989, Archaeological Resource Management Reports (ARMR): Recommended Contents and Format (ARMR Guidelines) for the Preparation and Review of Archaeological Reports, and any specific and applicable county or local requirements or report formats.

c) CURATION STANDARDS. On BLM-administered land, all records and materials resulting from the actions cited in Stipulation III, IV, V and VI of this Agreement shall be curated in accordance with 36 C.F.R. Part 79, and the provisions of the NAGPRA, 43 C.F.R. Part 10, as applicable. To the extent permitted under Sections 5097.98 and 5097.991 of the California Public Resources Code, the materials and records resulting from the actions cited in Stipulations III though V of this Agreement for private lands shall be curated in accordance with 36 C.F.R. Part 79. The BLM will seek to have the materials retrieved from private lands donated through a written donation agreement. The BLM will attempt to have all collections curated at one local facility where possible unless otherwise agreed to by the consulting parties.

IX. REPORTING REQUIREMENTS

a) Within twelve (12) months after the BLM, in consultation with the Energy Commission, has determined that all fieldwork required by Stipulations III through V has been completed, the BLM will ensure preparation and concurrent distribution to the consulting parties and Tribes a draft report that documents the results of implementing the requirements of each Stipulation. The consulting parties and Tribes will be afforded 45 days following receipt of each draft report to submit any written comments to the BLM. BLM will consider timely comments when making revisions to the draft report. A revised draft will be provided for a 14 day review. The BLM will consider timely comments in making final changes to the report. Thereafter, the BLM may issue the reports in final form and distribute these documents in accordance with Stipulation IX(b).

b) Unless otherwise requested, the BLM will distribute one copy of final reports documenting the results of implementing the requirements of Stipulations III through V to each consulting party, Tribes and to the California Historical Resources Information System (CHRIS) Regional Information Center.

c) The BLM shall ensure that any draft document that communicates, in lay terms, the results of implementing Stipulations III through V to members of the interested public is distributed for review and comment concurrently with and in the same manner as that prescribed for the draft technical report prescribed by Stipulation IX(a). If the draft document prescribed is a publication, such as a report or brochure, the BLM shall distribute the publication upon completion to the consulting parties and to other entities that the consulting parties may deem appropriate.

X. IMPLEMENTATION OF THE UNDERTAKING

a) The BLM may authorize construction activities and manage the implementation of HPTP(s) in phases corresponding to the construction phases of the Project.

   i) Upon approval of the HPTP(s) and implementation of the components of the HPTP(s) subject to determinations of compliance by the BLM for Phase I of the Project, BLM may authorize a Notice to Proceed for construction activities within the Phase I area only.

      (1) An HPTP(s) for Phase II or other phases of the Project may be developed and implemented after approval of the HPTP(s) and issuance of the Notice to Proceed described above for the Phase 1 component.

b) The BLM may authorize construction activities, including but not limited to those listed below, to proceed in specific geographic areas of the Project's APE where there are no historic properties; where there will be no adverse effect to historic properties; where a monitoring and discovery process or plan is in place per Stipulation VI(b); or where an HPTP(s) has been approved and initiated. Such construction activities may include:

i) demarcation, set up, and use of staging areas for the Project's construction,
ii) conduct of geotechnical boring investigations or other geophysical and engineering activities, and
iii) grading, constructing buildings, and installing parabolic solar trough assemblies.

c) Initiation of any construction activities on federal lands shall not occur until after the BLM issues the ROD, ROW grant, and Notice(s) to Proceed.

XI. AMENDMENTS TO THE AGREEMENT

a) This Agreement may be amended only upon written agreement of the Signatories.

i) Upon receipt of a request to amend this Agreement, the BLM will immediately notify the other consulting parties and initiate a 30 day period to consult on the proposed amendment, whereupon all parties shall consult to consider such amendments.

ii) If agreement to the amendment cannot be reached within the 30 day period, resolution of the issue may proceed by following the dispute resolution process in Stipulation XII.

b) This Agreement may be amended when such an amendment is agreed to in writing by all Signatories.

c) Amendments to this Agreement shall take effect on the dates that they are fully executed by the Signatories.

d) Modifications, additions, or deletions to the appendices made as a result of continuing consultation among the consulting parties do not require the Agreement to be amended.

XII. DISPUTE RESOLUTION

a) Should the Signatories or Invited Signatories object at any time to the manner in which the terms of this Agreement are implemented, the BLM will immediately notify the other Signatories and Invited Signatories and consult to resolve the objection.

b) If the objection can be resolved within the consultation period, the BLM may authorize the disputed action to proceed in accordance with the terms of such resolution.

c) If the objection cannot be resolved through such consultation, the BLM will forward all documentation relevant to the objection to the ACHP. Any comments provided by the ACHP within 30 days after its receipt of all relevant documentation will be taken into account by the BLM in reaching a final decision regarding the objection. The BLM will notify the other Signatories, Invited Signatories, and Concurring Parties in writing of its final decision within 14 days after it is rendered.

d) The BLM's responsibility to carry out all other actions under this Agreement that are not the subject of the objection will remain unchanged.

e) At any time during implementation of the terms of this Agreement, should an objection pertaining to the Agreement be raised by a Concurring Party or a member of the interested public, the BLM shall immediately notify the Signatories, Invited Signatories, and other Concurring Parties, consult with the SHPO about the objection, and take the objection into account. The other consulting parties may comment on the objection to the BLM. The BLM shall consult with the objecting party/parties for no more than 30 days. Within 14 days following closure of consultation, the BLM will render a final decision regarding the objection and proceed accordingly after notifying all parties of its decision in writing. In reaching its final decision, the BLM will take into account all comments from the parties regarding the objection.

XIII. TERMINATION

a) If any Signatory or Invited Signatory to this Agreement determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation XI above. If within sixty (60) days an amendment cannot be reached;

   i) a Signatory or Invited Signatory may terminate the Agreement upon written notification to the other Signatories and Invited Signatories.

b) If the Agreement is terminated, and prior to work continuing on the Project, the BLM shall continue to follow the process provided at 36 C.F.R. 800.4 – 6 until (a) a new Agreement is executed pursuant to 36 C.F.R. 800.6 or (b) the agency's request, take into account, and respond to the comments of the ACHP under 36 C.F.R. 800.7. The BLM shall notify the Signatories and Invited Signatories as to the course of action it will pursue.

XIV. ADDITION/WITHDRAWAL OF PARTIES FROM/TO THE AGREEMENT

a) Should conditions of the Project change such that other state, Federal, or tribal entities not already party to this Agreement request to participate, the BLM will notify the other consulting parties and invite the requesting party to participate in the Agreement. The Agreement shall be amended following the procedures in Stipulation XI.

b) Should a Concurring Party determine that its participation in the Project and this Agreement is no longer warranted, the party may withdraw from participation by informing the BLM. The BLM shall inform the other consulting parties to this Agreement of the withdrawal.

XV. DURATION OF THIS AGREEMENT

a) This Agreement will expire if the Project has not been initiated and the BLM ROW grant expires or is withdrawn, or the stipulations of this Agreement have not been initiated, within five (5) years from the date of its execution. This Agreement will also expire 30 years after its execution. At such time, and prior to work continuing on the Project, the BLM shall continue to follow the process provided at 36 C.F.R. 800.4 – 6 until either (a) a new memorandum of agreement or programmatic agreement is executed pursuant to 36 C.F.R. 800.6, or (b) the BLM requests, takes into account, and responds to the comments of the ACHP under 36 CFR 800.7. The BLM shall notify the Signatories as to the course of action they will pursue within 30 days.

b) The Signatories and Invited Signatories shall consult at year 4 to review this Agreement and every 5 years subsequently. Additionally, the Signatories and Invited Signatories shall consult not less than one year prior to the expiration date to reconsider the terms of this Agreement and, if acceptable, have the Signatories extend the term of this Agreement. Reconsideration may include continuation of the Agreement as originally executed or amended, or termination. Extensions are treated as amendments to the Agreement under Stipulation XI.

c) Unless the Agreement is terminated pursuant to Stipulation XIII, another agreement executed for the Project supersedes it, or the Project itself has been terminated, this Agreement will remain in full force and effect until BLM, in consultation with the other Signatories, determines that implementation of all aspects of the Project has been completed and that all terms of this Agreement and any subsequent tiering requirements have been fulfilled in a satisfactory manner. Upon a determination by BLM that implementation of all aspects of the undertaking have been completed and that all terms of this Agreement and any subsequent tiered agreements have been fulfilled in a satisfactory manner, BLM will notify the consulting parties of this Agreement in writing of the agency's determination. This Agreement will terminate and have no further force or effect 30 days after BLM so notifies the Signatories to this Agreement, unless BLM retracts its determination before the end of that period.

XVI. EFFECTIVE DATE

This Agreement and any amendments shall take effect on the date that it has been fully executed by the Signatories. The Agreement and any amendments thereto shall be executed in the following order: (1) BLM, (2) SHPO.

Execution and implementation of this Agreement is evidence that the BLM have taken into account the effect of this Project on historic properties, afforded the ACHP a reasonable opportunity to comment, and that the BLM have satisfied their responsibilities under Section 106. The Signatories and Invited Signatories to this Agreement represent that they have the authority to sign for and bind the entities on behalf of whom they sign.

SIGNATORY PARTIES

U.S. BUREAU OF LAND MANAGEMENT

BY: _____ DATE: OCT 0 4 2010

John Kalish
Manager, Palm Springs-South Coast Field Office

CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

BY: _____ DATE: 7 OCT 2010

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

INVITED SIGNATORY PARTIES

California Energy Commission
Palen Solar I, LLC

Invited Signatory

CALIFORNIA ENERGY COMMISSION

BY: _____ DATE: _____

TITLE: _____

Invited Signatory

PALEN SOLAR I, LLC

BY: _____ DATE: _____

TITLE: _____

CONCURRING PARTIES

MORONGO BAND OF MISSION INDIANS
RAMONA BAND OF MISSION INDIANS
FORT YUMA QUECHAN INDIAN TRIBE
SAN MANUEL BAND OF MISSION INDIANS
TORRES-MARTINEZ DESERT CAHUILLA INDIANS
FORT MOJAVE TRIBAL COUNCIL
TWENTYNINE PALMS BAND OF MISSION INDIANS
AGUA CALIENTE BAND OF CAHUILLA INDIANS
AUGUSTINE BAND OF MISSION INDIANS
CHEMEHUEVI TRIBAL COUNCIL
COLORADO RIVER TRIBAL COUNCIL

Concurring Party

MORONGO BAND OF MISSION INDIANS

BY: _____ DATE: _____

TITLE: _____

Concurring Party

RAMONA BAND OF MISSION INDIANS

BY: _____ DATE: _____

TITLE: _____

Concurring Party

FORT YUMA QUECHAN INDIAN TRIBE

BY: _____ DATE: _____

TITLE: _____

Concurring Party

SAN MANUEL BAND OF MISSION INDIANS

BY: _____ DATE: _____

TITLE: _____

Concurring Party

TORRES-MARTINEZ DESERT CAHUILLA INDIANS

BY: _____ DATE: _____

TITLE: _____

Concurring Party

FORT MOJAVE TRIBAL COUNCIL

BY: _____ DATE: _____

TITLE: _____

Concurring Party

TWENTYNINE PALMS BAND OF MISSION INDIANS

BY: _____ DATE: _____

TITLE: _____

Concurring Party

AGUA CALIENTE BAND OF CAHUILLA INDIANS

BY: _____ DATE: _____

TITLE: _____

Concurring Party

AUGUSTINE BAND OF MISSION INDIANS

BY: _____ DATE: _____

TITLE: _____

Concurring Party

CHEMEHUEVI TRIBAL COUNCIL

BY: _____ DATE: _____

TITLE: _____

Concurring Party

COLORADO RIVER TRIBAL COUNCIL

BY: _____ DATE: _____

TITLE: _____

APPENDIX A: IDENTIFICATION AND EVALUATION

I. IDENTIFICATION

a) The BLM will ensure that all cultural resources identified during cultural resources survey are recorded on new or updated California Department of Parks and Recreation Form DPR 523 (Series 1/95), using the "Instructions for Recording Historical Resources" (Office of Historic Preservation, March 1995).

   i) Previously unrecorded cultural resources which have religious or cultural significance to Tribes identified during cultural resources investigations and/or through consultations with Tribes may be recorded on the California DPR Form 523, unless a Tribe, Tribal organization, or an individual from a Tribe objects. If such objection arises, the properties may be recorded on a form and in a manner that is in accordance with the recommendations of the Tribe, Tribal organization, or of the individual. If the traditional cultural property is also a historical or archaeological site, those components of site will be recorded on the appropriate DPR form and filed with the California Historical Resources Information System (CHRIS).

b) The cultural resources contractor will obtain permanent site numbers from CHRIS regional information center.

c) The BLM, in consultation with the Energy Commission and the SHPO, shall review all site records for accuracy, adequacy of information, and completeness and determine whether they are sufficient to support agency determinations and findings. Final approved site records shall be submitted to the CHRIS. Permanent site numbers shall then be used in all final reports and other documents prepared pursuant to the requirements of this Agreement.

d) The BLM, in consultation with the Energy Commission will ensure that cultural resources survey reports are responsive to Energy Commission Data Requests.

II. EVALUATION

a) The BLM shall authorize field investigations by the Applicant for the purposes of evaluation of the potential site types identified in the APE listed below (but not limited to) and evaluation of the information potential and significance of the cultural resources in the APE.

   Prehistoric Archaeological Resources
   Chipped Stone Deposits
   Sparse Lithic Scatters
   Chipped and Ground Stone Deposits
   Ceramic Deposits
   Archaeological Deposits that Include FAR Concentrations
   Trail Segments

Historical Archaeological Resources
Surveying Monuments
Historic Refuse Deposits
Pebble and Cobble Concentrations
Transportation and Trail segments
Potential Early Twentieth Century Mining Landscape

Unique Archaeological Resources
Desert Training Center/California-Arizona Maneuver Area (DTC/C-AMA)
South Chuckwalla Mountains Petroglyph District (Site: CA-RIV-1383)

b) BLM shall consult with the Tribes and seek the views and comments of Tribal organizations and individual tribal members regarding any unevaluated cultural resource to which they may attach religious or cultural significance in order to ascertain the status of these places relative to NRHP and CRHR eligibility criteria.

APPENDIX B: HISTORIC PROPERTIES TREATMENT PLAN(S)

I. *HISTORIC PROPERTIES TREATMENT PLAN(S) provide for the resolution or mitigation of effects to historic properties as a result of the project.*

a) Any HPTP tiered from the Agreement shall include but is not limited to:

i) A list of the historic properties subject to the HPTP, determined or treated as eligible for project management purposes, in the APE that the construction of the Project will unconditionally avoid,

ii) The measures that the Applicant will take to avoid, minimize, or mitigate the adverse effects on historic properties,

iii) If a separate monitoring and/or discovery plan is not already in place, provide a plan for monitoring during construction, which would include the treatment of inadvertent discoveries and the participation of tribal cultural specialists. The following shall be considered during development of these plans:

(1) Qualifications of archaeological monitors
(2) participation of tribal cultural specialists in monitoring
(3) areas in the APE requiring monitoring
(4) authority of monitors to halt work
(5) protective measures for historic properties
(6) communication protocols
(7) safety and resource training
(8) procedures upon discovery
(9) evaluation of the inadvertent discoveries
(10) implementation of standard treatment measures
(11) field protocol upon discovery of human remains

iv) The proposed disposition of recovered materials and records shall be curated in accordance with Stipulation VIII(c).

v) The procedures for treatment and disposition of any human remains, funerary objects, sacred objects, and objects of cultural patrimony in accordance with NAGPRA and the California Health and Safety Code 7050.5 as appropriate.

vi) A research design which addresses significant themes and questions for the types of historic properties to receive treatment.

vii) A schedule for completing treatment measures, including analysis, reporting and disposition of materials and records, as well as a schedule for completing the draft and final data recovery report(s).

viii) A description of alternative treatments for adverse effects that are not data recovery and that may include (but is not limited to):

(1) Placement of construction within portions of historic properties that do not contribute to the qualities that make the resource eligible
(2) Deeding cemetery areas into open-space in perpetuity and providing the necessary long-term protection measures
(3) Public interpretation including the preparation of a public version of the cultural resources studies and/or education materials for local schools
(4) Access by Indian tribes to traditional areas in property after the project has been constructed
(5) Support by Applicant to cultural centers in the preparation of interpretive displays
(6) Consideration of other off-site mitigation

b) Any treatment plan tiered from this Agreement or the HPTP shall reflect the ACHP archaeological guidance at http://www.achp.gov/archguide/, the BLM 8100 Manual, and the Secretary of the Interior's Standards for the Treatment of Historic Properties.

II. COORDINATION WITH ENERGY COMMISSION MEASURES UNDER CEQA

a) Guidelines for implementation codified in the California Code of Regulations (CCR), Title 14, Chapter 3, Sections 15000 et seq., requires state and local public agencies to identify the environmental impacts of proposed discretionary activities or projects, determine if the impacts will be significant, and identify alternatives and mitigation measures that will substantially reduce or eliminate significant impacts to the environment. Pursuant to 13 CRR Section 15126.4(a)(1), feasible measures which could minimize adverse impacts must be described in the environmental assessment.

i) Section 15221(b) provides that because NEPA does not require separate discussion of mitigation measures, these points of analysis will need to be added, supplemented, or identified before the EIS can be used as an EIR.

ii) Section 15126.4(a)(1)(B) states that formulation of mitigation measures should not be deferred until some future time, but that measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way.

III. PERFORMANCE STANDARDS FOR NHPA SECTION 106 AND CEQA MITIGATION

a) Cultural mitigation measures and performance standards considered within the Section 106 consultation and CEQA process include, but are not limited to:

i) Avoidance

ii) For cultural resources, the preferred method of mitigation is avoidance of all cultural resources to the maximum extent practicable. Mitigation measures which could include avoidance are normally developed through consultation to reduce impacts to significant cultural resources. The BLM through the consultation process and development of the HPTP(s) will determine which mitigation measures are applied to specific cultural resources.

iii) Archaeological Data Recovery

(1) When data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provision for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken.

(2) Data recovery shall not be required for an historical resource if the lead federal agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource.

iv) Built-Environment Resources

(1) Documenting built-environment resources in accordance with the standards and guidelines provided by the Historic American Building Survey (HABS), Historic American Engineering Record (HAER), Historic American Landscapes Survey (HALS).

(2) Relocating or moving historic buildings, objects or structures out of the APE.

v) Properties of Sacred or Cultural Significance to Indian Tribes

(1) Cremation/Burial Sites

(a) Avoidance of cremation or burial sites is the preferred management alternative.

(b) Where avoidance of direct physical effects is not achievable, treatment shall follow the provisions of the NAGRPA Plan of Action as provided in Appendix K.

(2) Trails

(a) Avoidance of direct physical effects to trails is the preferred management alternative.

(b) Where avoidance of direct physical effects is not achievable, treatment shall follow the provisions of the HPTP. A study of trails may be carried out to determine the nature and extent of the trails beyond the APE and may be considered within the context of a HALS study.

(3) Geological landforms or other places of religious or cultural significance.

(a) BLM shall continue to seek information from the Tribe(s) or Tribal organizations to determine the character and use of places of religious or cultural significance.

(i) Maintenance of existing access to places of religious or cultural significance is the preferred management alternative.

(b) Engineering solutions to eliminate or minimize direct or indirect non-physical effects will be identified, including but not limited to, orienting the parabolic troughs to minimize glare, or erecting screens to eliminate glare.

vi) Discoveries

(1) Following the discovery of any resources determined by BLM to be eligible to the NRHP, the Applicant shall ensure that the designated cultural resources contractor prepares a research design and a scope of work for any necessary data recovery or additional mitigation. The Applicant shall submit the proposed research design and scope of work to the BLM and Energy Commission's Compliance Project Manager for review and approval.

(2) The proposed research design and scope of work shall include (but not be limited to): a discussion of the methods to be used to recover additional information and any needed analysis to be conducted on recovered materials; a discussion of the research questions that the materials may address or answer by the data recovered from the Project, and; discussion of possible results and findings.

vii) Monitoring

(1) Prior to the start of vegetation clearance or earth disturbing activities or Project site preparation, the Applicant shall provide the designated cultural resources monitors and the BLM and/or Energy Commission's CPM with maps and/or drawings showing the footprint of the power plant and all linear facilities. Maps provided will include USGS 7.5-minute topographic quadrangle maps. If the designated cultural resource specialist requests enlargements or strip maps for linear facility routes, the Applicant shall provide them. If the footprint of the power plant or linear facilities changes, the Applicant shall provide maps and drawings reflecting these changes, to the cultural resources specialist within five days. Maps shall show the location of all areas where surface disturbance may be associated with Project-related access roads, and any other Project components.

(2) The designated cultural resource specialist shall be available at all times to respond within 24 hours after pre-construction or construction activities have been halted due to the discovery of a cultural resource(s). The specialist, or representative of the Applicant shall have the authority to halt or redirect construction activities if previously undiscovered cultural resource materials are encountered during vegetation clearance or earth disturbing activities or project site preparation or construction. If such resources are discovered, the designated

cultural resource specialist shall be notified and the Applicant or Applicant's representative shall halt construction in order to protect the discovery from further damage and the BLM will be notified. Project construction may continue elsewhere on the Project if the BLM determines that it will not affect the cultural resource in question.

viii) Qualifications

(1) Prior to the start of construction-related vegetation clearance, or earth-disturbing activities or Project site preparation; or the movement or parking of heavy equipment onto or over the Project surface, the Applicant shall provide the BLM and/or the Energy Commission CPM with the name and statement of qualifications for its designated cultural resource specialist and alternate cultural resource specialist, if an alternate is proposed, who will be responsible for implementation of all BLM cultural resources conditions and Energy Commission cultural resources conditions of certification. The statement of qualifications for the designated cultural resource specialist and alternate shall include all information needed to demonstrate that the specialist meets at least the minimum qualifications specified by the National Park Service, Heritage Preservation Services.

(2) Training

(a) Prior to the start of vegetation clearance or earth disturbing activities or Project site preparation, the designated cultural resource specialist shall prepare an employee training program. The Applicant shall submit the cultural resources training program to the BLM, Energy Commission, and SHPO for review and written approval. If a video is used as part of the training program, the owner shall also submit the script for review and written approval.

(b) Prior to the start of vegetation clearance or earth disturbing activities or Project site preparation, and throughout the project construction period as needed for all new employees, the Applicant shall ensure that the designated cultural resource trainer(s) provide(s) approved cultural resources training to all Project managers, construction supervisors, or anyone coming on the construction site as an employee, contractor, subcontractor, or in any other capacity to complete work for the Applicant. The Applicant shall ensure that the designated trainer provides the workers with the approved a set of procedures for reporting any sensitive resources that may be discovered during Project-related ground disturbance. In addition, the Applicant shall communicate the work curtailment procedures that the workers are to follow if previously undiscovered cultural resources are encountered during construction.

IV. HISTORIC PROPERTY TREATMENT PLANS (HPTP)

a) Finalized HPTPs will be included as an attachment to this Appendix.

b) In developing the HPTPs, the HPTPs shall consider the following measures:

i) Prehistoric Period Historic Properties

(1) Avoidance

(2) Minimize

(a) Strategic placement of transmission towers in areas of a site that would not adversely affect the information values

(b) Data recovery for historic properties eligible under Criterion D only

(i) Research Design

ii) Historic Period Historic Properties

(1) Avoidance

(2) Minimize

(a) Data recovery for historic properties eligible under Criterion D only

(i) Research Design

(b) Historic built-environment Historic Properties with associative values

(i) Training Center/California-Arizona Maneuver Area (DTC/C-AMA)

(c) Resources of Native American religious and cultural significance and Traditional Cultural Properties

(i) Avoidance

(ii) Minimize

(iii) Monitor

(iv) Access

APPENDIX C: HISTORIC PROPERTIES MANAGEMENT PLAN

I. HISTORIC PROPERTIES MANAGEMENT PLAN

a) A Historic Properties Management Plan (HPMP) will be developed to further manage or prescribe additional treatment to historic properties within the APE during the future operation, long-term maintenance and decommissioning of the Project and consider effects to historic properties in relation to those actions. The HPMP will include but is not limited to monitoring requirements for those cultural resources within the APE that were avoided through project redesign.

b) The BLM shall submit the HPMP to the consulting parties to the Agreement and Tribes for a 60 day review period. Absent comments within this time frame, the BLM may finalize the HPMP. If comments are received, the BLM will provide the parties with written documentation indicating whether and how the draft HPMP will be modified. If the HPMP is revised in response to comments, the BLM shall submit the revised HPMP to all parties for an additional 30 day review period. Absent comments within this time frame, the BLM will finalize the HPMP. The BLM will provide each of the consulting parties and Tribes a copy of the final HPMP.

APPENDIX D: PROJECT DESCRIPTION

The Palen Solar Power Project ("Project") is a proposed 500-megawatt (MW) nominal solar energy power plant comprised of two independent 250MW units (Units #1 and #2). The Project applicant is seeking a right-of-way grant for approximately 5,200 acres of land administered by the Bureau of Land Management (BLM) in Riverside County, California, approximately ten miles east of Desert Center. The disturbance area for construction and operation of the project is currently about 2,970 acres, but will be revised accordingly to reflect the final transmission line, temporary construction power line and telecommunications line. The units would be developed in phases. The proposed Project includes the following components:

a) A solar thermal power plant facility located approximately 10 miles east of Desert Center, California in Riverside County, north of the Corn Springs Road Exit on I-10.

b) Major Components Overview:

- Unit #1 (east) Solar Field and Power Block;
- Unit #2 (west) Solar Field and Power Block;
- Access road from existing I-10 Corn Springs Road exit to site;
- Office and parking;
- Land Treatment Unit (LTU) for bioremediation/land farming of HTF-contaminated soil;
- Warehouse/maintenance building and laydown area;
- Onsite transmission facilities, including central internal switchyard;
- Telecommunication lines;
- Evaporation ponds;
- Fencing (Wind, Security, and Desert Tortoise);
- Dry wash rerouting; and
- Groundwater wells used for water supply.

The CEC and BLM process for project approval is considering two additional project alternatives (Alternative 2 and Alternative 3) submitted for consideration on July 6, 2010. The Major Components and Project Details in this Appendix described are still in the Alternatives, but the ROW will vary in size with the proposed alternative projects. Both alternatives are within the boundaries of the PSPP record search. (see Table 1, Appendix G).

c) Project Details:

i) Solar Fields: The proposed project would be constructed in 250 MW units using solar thermal parabolic trough technology. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation onto a receiver tube located at the focal point of the parabola. A heat transfer fluid (HTF) is heated to a high temperature (approximately 750 degrees Fahrenheit [°F]) as it circulates through the receiver tubes. The heated HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high-pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced.

ii) Power Blocks: Each power block unit would have its own solar field, composed of piping loops arranged in parallel groups, and its own power block, centrally located within the solar field. Each power block would have its own HTF pumping and freeze-protection system, solar steam generator, steam turbine generator, air-cooled condenser for cooling, transmission lines and related electrical system, and auxiliary equipment (e.g., water treatment system, emergency generators, evaporation ponds).

iii) Roads: There is an existing highway exit near the southwest boundary of the proposed project site. Access to the project would be via a new, 24-foot wide paved access road starting at the existing Corn Springs Road north of I-10. It is anticipated that no improvements to I-10 would be needed. Only a small portion of the overall plant site would be paved, primarily the site access road, the service roads to the power blocks, and portions of the power block (paved parking lot and roads encircling the STG and SSG areas). The remaining portions of the power block would be gravel surfaced. In total, the power block would be approximately 18.4 acres with approximately 6 acres of paved area. The solar field would remain unpaved and without a gravel surface in order to prevent rock damage from mirror wash vehicle traffic; an approved dust suppression coating would be used on the dirt roadways within and around the solar field. Roads and parking areas located within the power block area and adjacent to the administration building and warehouse would be paved with asphalt.

iv) Fencing and Security: The project solar field and support facilities perimeter would be secured with a combination of chain link and wind fencing. Chain link metal-fabric security fencing, 8 feet tall, with one-foot barbed wire or razor wire on top would be installed along the north and south sides of the facilities. Thirty-foot tall wind fencing, comprised of A- frames and wire mesh, would be installed along the east and west sides of each solar field. Tortoise exclusion fencing would be included. Controlled access gates would be located at the site entrance. The proposed drainage channels would be outside the plant facilities and the security fencing but still within the project ROW.

v) Drainage and Earthwork: The existing topographic conditions of the Project plant site show an average slope of approximately one foot in 75 feet (1.33%) toward the northeast. The applicant filed a Streambed Alteration Agreement for the purposes of altering the terrain and installing channels. This application is currently being reviewed.

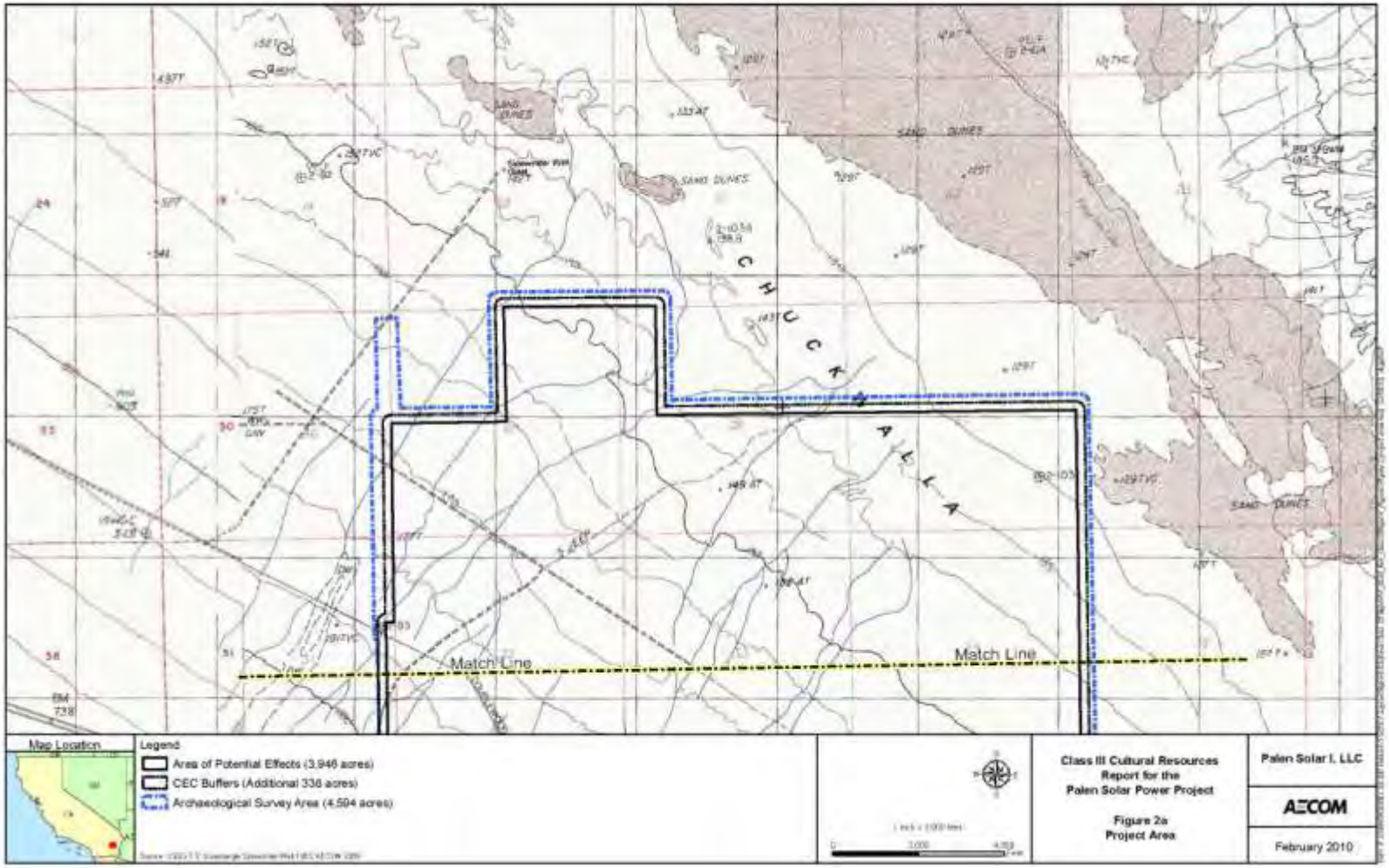
vi) Existing SCE Distribution: There is an existing Southern California Edison 161-kV Eagle Mountain-Blythe power line which runs in a northwesterly direction across the southwest portion of the proposed project site. The applicant is working with SCE to relocate the SCE line within the BLM ROW.

vii) Transmission System: The PSPP facility would be connected to the SCE transmission system at SCE's new Red Bluff substation. Currently, there are two locations proposed by SCE for the substation. The new single circuit, 230 kV generation tie line from PSPP to the proposed substation will be approximately 7.5 to 15 miles, depending upon which site is selected.

APPENDIX E: PROJECT MAPS AND ILLUSTRATIONS

1. Maps 1 and 2 showing Area of Potential Effect.
2. Illustration Map showing configuration and layout of proposed project and components.
3. Illustration of the Power Block Arrangement
4. Illustrations of Solar Parabolic Trough Assemblies.
5. Project Rendition: View Looking North From Corn Springs Road with Palen Mountains in Background

10 **Map 1 Showing the Northern Portion of the Area of Potential Effect and Survey Buffers**



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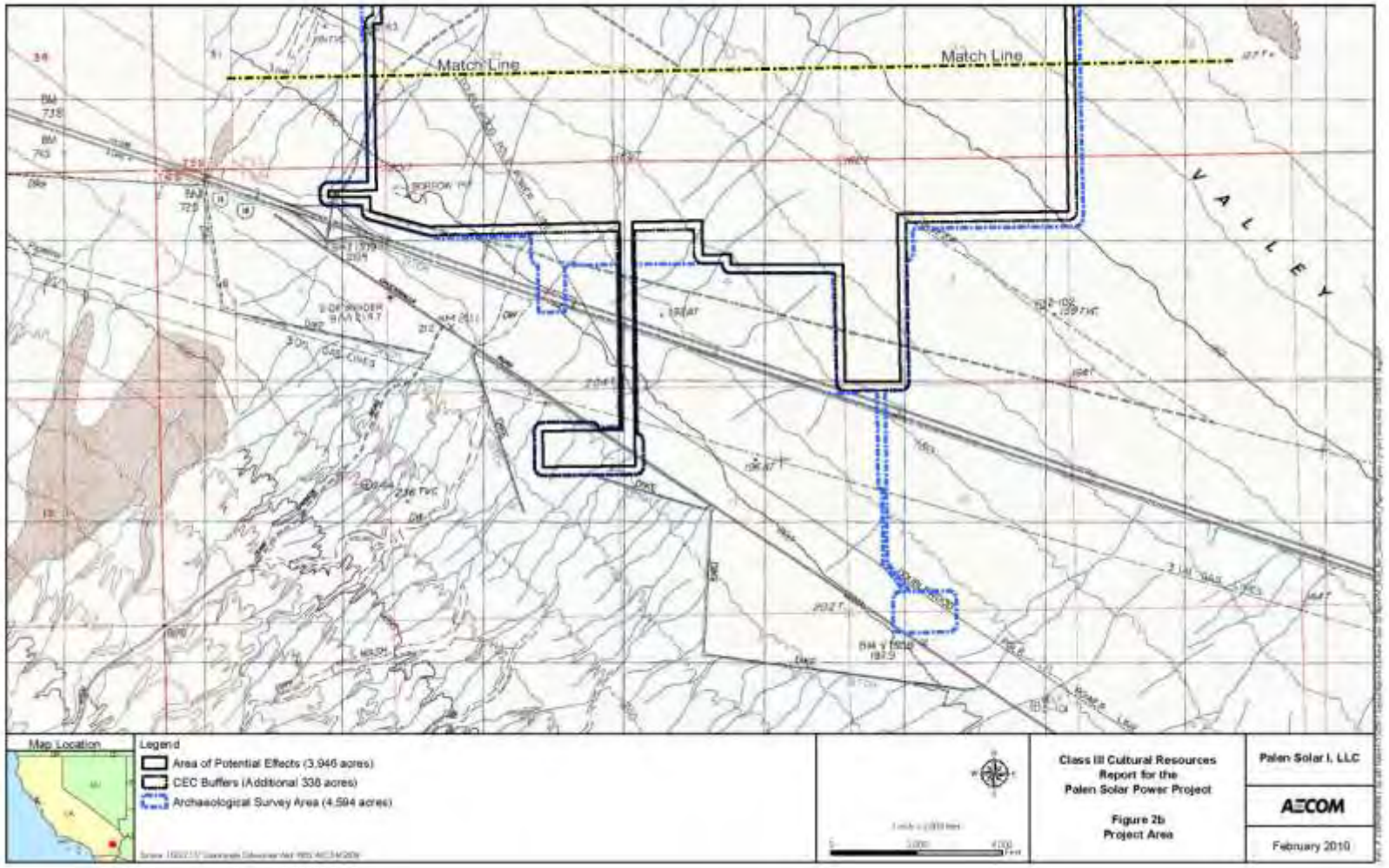
H-53

Map 2 Showing Southern Portion of the Area of Potential Effect:



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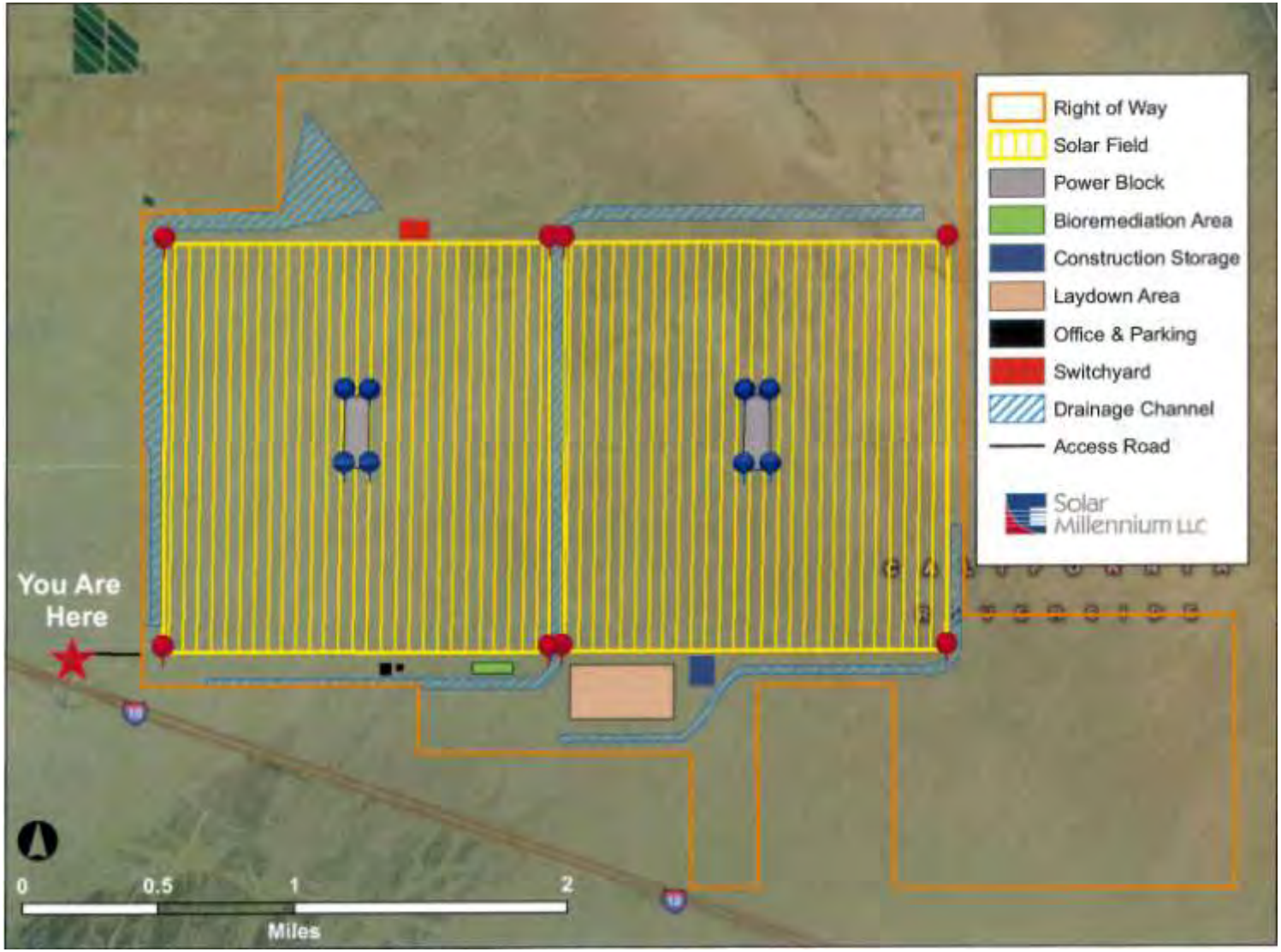
15 **Illustration Map showing configuration and layout of proposed project and components.**



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H-56

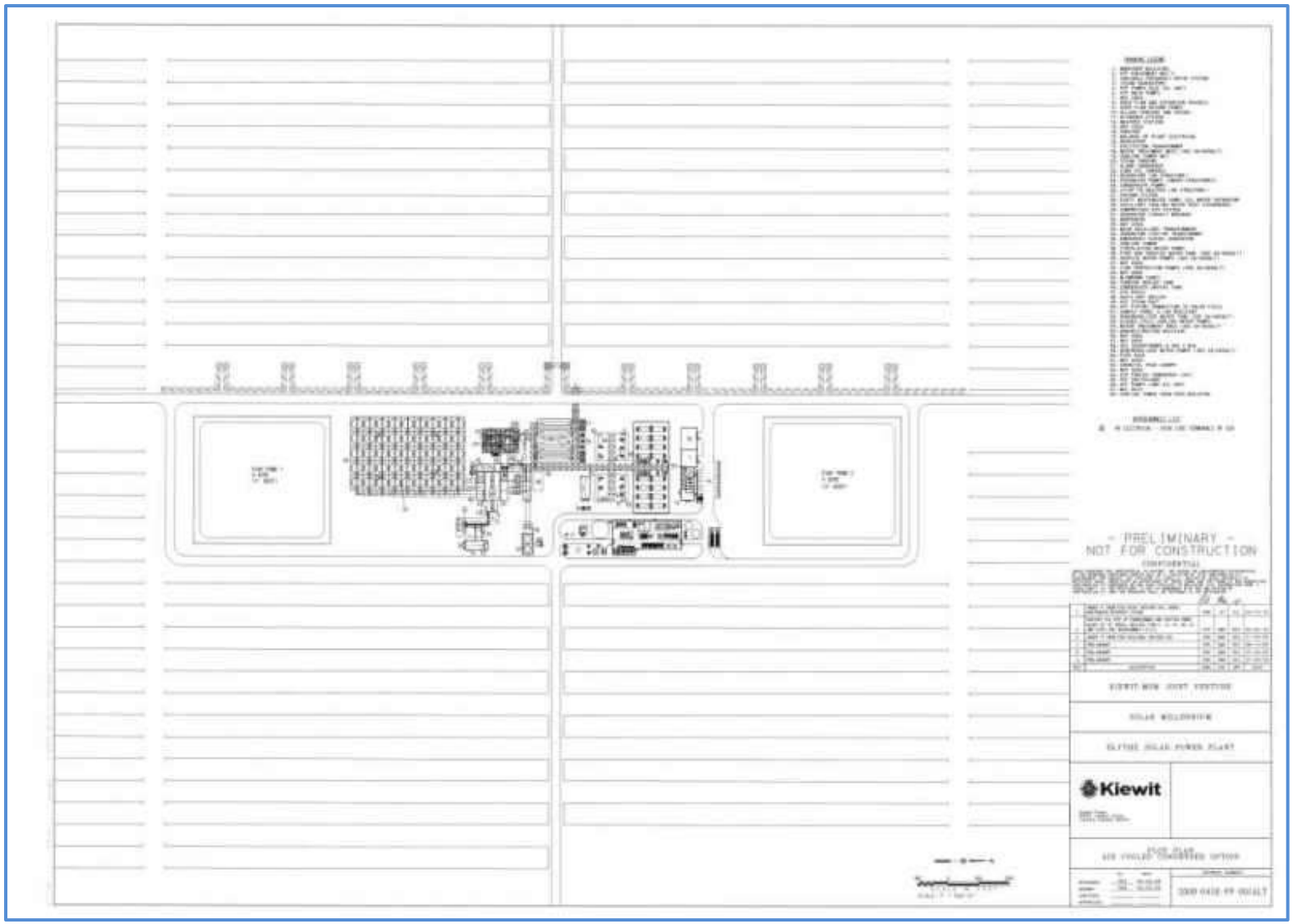
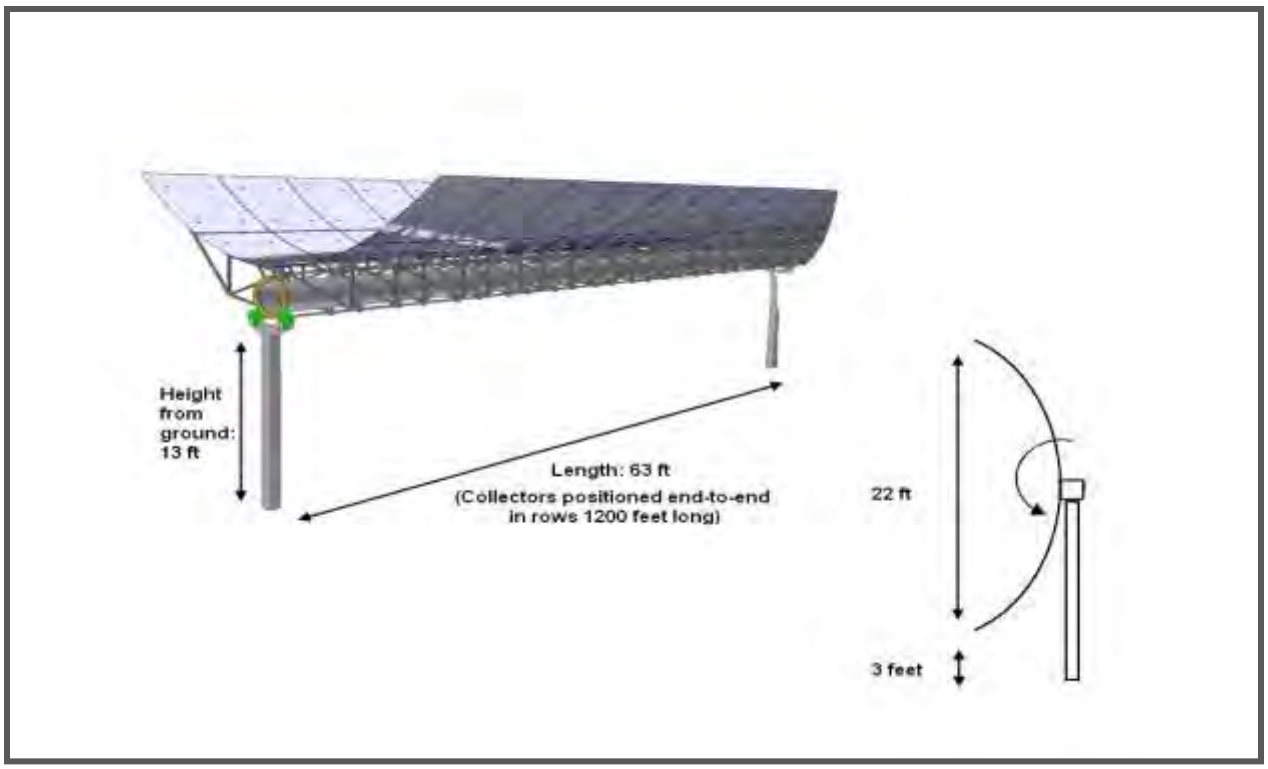


Illustration of the Power Block Arrangement

Illustrations of Solar Parabolic Trough Assemblies



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Project Rendition: View Looking North From Corn Springs Road with Palen Mountains in Background

H-59

APPENDIX F: SUMMARY OF CULTURAL RESOURCES INVESTIGATIONS

The BLM, in coordination with the Energy Commission, has authorized the Applicant to conduct specific identification efforts for this undertaking including a review of the existing literature and records, cultural resources surveys, ethnographic studies, and geomorphological studies to identify historic properties that might be located within the APE.

The Applicant has retained AECOM to complete all of the investigations necessary to identify and evaluate cultural resources located within the Area of Potential Effect (APE) for both direct and indirect effects. AECOM is authorized to conduct cultural resources investigations on lands managed by the BLM under Cultural Resources Use Permits No CA-09-31 and CA-06-20 issued by the BLM California State Office. AECOM is authorized to conduct specific field investigations for the Solar Millennium Palen Solar Power Project under BLM Fieldwork Authorization CA-660-24-09 12, Fieldwork Authorization CA-66-24-09-20 and Fieldwork Authorization CA-660-24-10-03

AECOM has completed a review of the existing historic, archaeological and ethnographic literature and records to ascertain the presence of known and recorded cultural resources in the APE, has conducted an intensive field survey for all of the lands identified in APE for direct effects for all project alternatives, and has completed intensive field surveys for alternatives on lands that are no longer part of the project. Approximately 4,284 acres of pedestrian survey to identify cultural resources within the APE has been completed. The ROW that BLM would issue encompasses approximately 6,251 acres of land, including the proposed 230-kV substation, the solar energy power plant, the Main Services Complex and associated electric and utility services, the sanitary system, access and entry roads, and corridors for the electric transmission line and the water supply pipeline.

A draft cultural resources report (*Cultural Resources Class III Report, for the Proposed Palen Solar Power Project, Riverside County, California February 2010),* , prepared by AECOM, February 2010) has been submitted by the Applicant that presents the results of identification efforts to the BLM, , and the Energy Commission. The BLM, and the Energy Commission are currently reviewing all documentation to determine whether the report conforms with the field methodology and site description template required by BLM and the Energy Commission and is adequate to support to determinations and findings the agencies will render pursuant to Section 106 of the NHPA.

AECOM conducted a records search at the, California. The Eastern Information Center (EIC) searched all relevant previously recorded cultural resources site records and previous investigations completed within the project area and a 1-mile search radius around it. Information reviewed included location maps for all previously recorded trinomial and primary prehistoric and historical archaeological sites and isolates; site record forms and updates for all cultural resources previously identified; previous investigation boundaries; and National Archaeological Database citations for associated reports, historical maps, and historical addresses. The literature and records search identified 12 records related to cultural resources investigations conducted within 1-mile of the Project area. Several of these records were for prior projects which overlap the boundaries of the Palen Solar Power Project (PSPP) APE. The

record search also identified approximately 12 previously recorded cultural resources within the APE and extended survey areas (Appendix F: Prior Investigations and Recorded Resources).

AECOM conducted an intensive cultural resources survey (also referred to as a BLM Class III survey) of the APE. In 2010, additional fieldwork took place over the course of a number of separate field efforts as directed by the BLM and CEC. The additional field work was conducted to develop additional documentation for sites within the APE for the components of the 500 MW solar energy plant. This work involved re-visiting and updating two sites recorded in 2009. Other project-related components included in the APE were also examined during the cultural resources investigations. These included the following:

- A small triangle-shaped area (5.8 acre) in the southwest corner of the Right-of-Way (ROW). This area will be used for relocating an existing 161 kV Southern California Edison transmission line and required step-down equipment.

- Two approximate 4.6 acre areas encompassing above-ground water tanks. One area is located in the northwest corner of the ROW outside of previously surveyed areas. The second area is encompassed in the surveys for the alternative site plans; therefore, it was not resurveyed. These areas will be used to construct water lines from the tanks to the Project disturbance area during construction. The total acreage surveyed for the northwest water tank area was 2.3 acres.

- A rectangular strip of land (approximately 35.9 acres) within the ROW, but immediately south of previously surveyed areas. This area is being added for contingency to allow for more room in the construction laydown area. The total acreage surveyed for this additional area including the 200-ft. CEC buffer was 42.5 acres.

- One alternative route for transmission lines that will tie into two potential substation locations. In addition, portions of the route are located within areas previously surveyed by First Solar. These areas are currently excluded from this report. The total length of survey area for the two transmission-line alternatives is approximately 8 miles. This also includes a 200-foot corridor width per direction from Solar Millennium. The total acreage for the transmission-line alternatives to be surveyed plus CEC-mandated buffers of 50-feet from each edge is approximately 341 acres.

- A proposed re-routing for the Blythe-Eagle Mountain transmission line. (4.4 acres plus a 4.6-acre CEC buffer) was surveyed for a total area of 9 acres.

The cultural resources survey of the proposed 500 MW solar energy plant APE identified 74 total cultural resource sites, of which 17 are prehistoric, 56 are historic, and 1 is a multi-component site.. Six hundred and three isolate finds were also identified.

The transmission line corridors were also surveyed within the project site and off-site locations that are associated with the project.

The following describes the data collected within the over 500-MW APE. includes the over 500-MW solar field, the proposed transmission line route, small portions of the ROW that were

previously unsurveyed (see above), and a proposed re-routing of the Blythe-Eagle Mountain transmission line. Prehistoric sites appear to be related to Palen Dry Lake, located to the north/northeast of the project APE. Historic sites may be related to activities associated with the World War II-era Desert Training Center, historic mining and minerals prospecting, or livestock ranching and rangeland activities.

To date, AECOM has surveyed 4,594 acres for the Palen Solar Power Project.
A complete list of cultural resources that are located within the APE for direct effects is provided in Appendix H. A tabular summary of the results of cultural resources investigations follows:

Table 1: Cultural resources Summary, Project Area (AECOM, 2010)

Project Component	Prehistoric	Historic	Multi-Component	Indeterminate	Isolated Finds	Total
PSPP Disturbance Area	5	21	0	0	107	133
GEN-TIE Corridor	0	10	1	0	13	24
Reconfiguration Alternative	0	13	0	0	70	83
CEC Buffer of PSPP Disturbance Area	2	3	0	0	16	21
CEC Buffer of GEN-TIE Corridor	0	0	0	0	4	4
CEC Buffer of Reconfiguration Alternative	0	2	0	0	10	12
PSPP Disturbance Area & Reconfiguration Alternative	2	11	0	0	158	171
PSPP Disturbance Area & Transmission Line Corridor	0	1	0	0	0	1
PSPP Disturbance Area & Reconfiguration Alternative & T-Line Corridor	0	1	0	0	0	1
PSPP Disturbance Area & CEC Buffer of Reconfiguration Alternative	0	4	0	0	19	23
CEC Buffer PSPP Disturbance Area & Reconfiguration Alternative	0	1	0	0	2	3
CEC Buffer PSPP Disturbance Area & CEC Buffer Reconfiguration Alternative	0	0	0	0	7	7
Out of Project Area	3	3	0	0	35	41
Total	12	70	1	0	441	524

In addition, AECOM completed an intensive historic architecture survey to account for the properties that appeared to be older than 45 years within the historic architecture APE, which extends one-half mile from the proposed project site and one-half mile on either side of its aboveground linear facilities. AECOM also completed a supplemental reconnaissance-level historic architectural survey for historic period properties located within a one-half-mile radius of the Palen Solar Power Project area. The historic-period properties included seven properties two bridges, four residences, and a communications tower.

APPENDIX G: AGENCY FINDINGS AND DETERMINATIONS

APPENDIX H: CULTURAL RESOURCES IDENTIFIED DURING CLASS III SURVEY

Primary No.	Site No.	Site Type	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Project Area Location
	SMP-H-1001	Historic Debris Scatter	Military	Low	CEC Buffer of Alternative 2 & 3
	SMP-H-1002	Historic Debris Scatter	Military	Low	CEC Buffer of Alternative 2 & 3
	SMP-H-1003	Historic Debris Scatter	Military	Low	PSPP Disturbance Area & CEC Buffer of Reconfiguration Alternative; Alternative 2 & 3
	SMP-H-1004	Historic Debris Scatter	Military	Low	PSPP Disturbance Area & Reconfiguration Alternative; Alternative 2 & 3
	SMP-H-1005	Historic Debris Scatter	Military	Low	PSPP Disturbance Area & Reconfiguration Alternative; Alternative 2 & 3
	SMP-H-1006	Historic Debris Scatter	Military	Low	PSPP Disturbance Area & Reconfiguration Alternative; Alternative 2 & 3
	SMP-H-1007	Historic Debris Scatter	Military	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-1008	Historic Debris Scatter	Military	Low	PSPP Disturbance Area & Reconfiguration Alternative; Alternative 2 & 3
	SMP-H-1009	Historic Debris Scatter	Military	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-1010	Historic Debris Scatter	Military	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-1011	Historic Debris Scatter	Military	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-1012	Historic Debris Scatter	Military	Low	CEC Buffer PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-1013	Historic Debris Scatter	Military	Low	PSPP Disturbance Area & Reconfiguration Alternative; Alternative 2 & 3
	SMP-P-1015	Lithic Scatter	Lithic Technology	Moderate	PSPP Disturbance Area
	SMP-P-1016	Lithic Scatter	Lithic Technology	Moderate	PSPP Disturbance Area
	SMP-P-1017	Hearth Feature	Prehistoric Settlement, Lithic Technology	Moderate to High	PSPP Disturbance Area
	SMP-P-1018	Hearth Feature	Prehistoric Settlement, Lithic Technology	Moderate	CEC Buffer PSPP of Disturbance Area

Primary No.	Site No.	Site Type	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Project Area Location
	SMP-P-1019A	Hearth Feature	Prehistoric Settlement	Moderate	Out of Project
	SMP-P-1019B	Hearth Feature	Prehistoric Settlement	Moderate	Out of Project
	SMP-H-1020	Historic Debris Scatter	Military	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-1021	Historic Debris Scatter	Military	Low	PSPP Disturbance Area & CEC Buffer of Reconfiguration Alternative; Alternative 2 & 3
	SMP-H-1022	Historic Debris Scatter	Military	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-1023	Historic Debris Scatter	Military	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-1024	Power Line and Access Road	Regional Development	Low	PSPP Disturbance Area & Reconfiguration Alternative & T-Line Corridor; Alternative 2 & 3
	SMP-H-1025	Survey Markers	Regional Development	Low	PSPP Disturbance Area & Reconfiguration Alternative; Alternative 2 & 3
	SMP-H-1026	Tank Tracks	Military	Low	PSPP Disturbance Area; Alternative 2 & 3
P-33-17766	SMP-H-1027	Historic Road	Transportation	Low	Alternative 2 & 3
	SMP-H-1032	Historic Road	Transportation	Low	PSPP Disturbance Area & Reconfiguration Alternative; Alternative 2 & 3
	SMP-H-2002	Historic Debris Scatter	Military	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-2003	Historic Debris Scatter	Military	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-2004	Historic Debris Scatter	Military	Low	PSPP Disturbance Area & CEC Buffer of Reconfiguration Alternative; Alternative 2 & 3
	SMP-H-2006	Historic Debris Scatter	Military	Low	PSPP Disturbance Area & CEC Buffer of Reconfiguration Alternative; Alternative 2 & 3
	SMP-H-2007	Historic Debris Scatter	Military	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-2008	Historic Debris Scatter	Military	Low	CEC Buffer PSPP Disturbance Area; CEC Buffer of Alternative 2 & 3
	SMP-H-2009	Tank Tracks	Military	Low	PSPP Disturbance Area & Reconfiguration Alternative; Alternative 2 & 3

Primary No.	Site No.	Site Type	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Project Area Location
	SMP-H-2010	Historic Debris Scatter	Military, Regional Development	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-2011/2012	Historic Debris Scatter with military components	Military	Low to Moderate	PSPP Disturbance Area & Reconfiguration Alternative; Alternative 2 & 3
	SMP-P-2013A	Temporary Camp	Prehistoric Settlement	Moderate	Out of Project
	SMP-P-2013B	Lithic Scatter	Lithic Technology	Moderate	CEC Buffer PSPP Disturbance Area
	SMP-P-2014	Lithic Scatter	Lithic Technology	Moderate	PSPP Disturbance Area & Reconfiguration Alternative
	SMP-P-2015	Lithic Scatter	Lithic Technology	Moderate	PSPP Disturbance Area & Reconfiguration Alternative
	SMP-H-2016	Historic Corral	Agriculture/Ranching	Low	PSPP Disturbance Area & Transmission Line Corridor; Alternative 2 & 3
	SMP-H-2017	Historic Debris Scatter	Military	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-P-2018	Lithic Scatter	Lithic Technology	Moderate	PSPP Disturbance Area; CEC Buffer of Alternative 2 & 3
	SMP-H-2019	Historic Debris Scatter	Military	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-2020	Tank Tracks	Military	Low	PSPP Disturbance Area & Reconfiguration Alternative; Alternative 2 & 3
	SMP-H-2021	Historic Debris Scatter	Military	Low	PSPP Disturbance Area & Reconfiguration Alternative; Alternative 2 & 3
	SMP-H-2022	Historic Debris Scatter	Military	Low	CEC Buffer PSPP Disturbance Area & Reconfiguration Alternative*; CEC Buffer of Alternative 2 & 3
	SMP-P-2023	Temporary Camp	Prehistoric Settlement, Lithic Technology	Moderate to High	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-3001	Historic Debris Scatter	Military	Low	CEC Buffer of Reconfiguration Alternative
	SMP-H-3002	Historic Debris Scatter	Military	Low	Reconfiguration Alternative

H-67

Primary No.	Site No.	Site Type	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Project Area Location
	SMP-H-3004	Historic Debris scatter	Military	Low	Reconfiguration Alternative; Alternative 3
	SMP-H-3005	Historic Debris Scatter	Military	Low	Reconfiguration Alternative; Alternative 3
	SMP-H-3006	Historic Debris Scatter	Military	Low	Reconfiguration Alternative
	SMP-H-4001	Historic Debris Scatter	Military	Low	Reconfiguration Alternative
	SMP-H-4002	Historic Debris Scatter	Military	Low	Reconfiguration Alternative
	SMP-H-4003	Historic Debris Scatter	Military	Low	Reconfiguration Alternative
	SMP-H-4005	Historic Debris Scatter	Military	Low	Reconfiguration Alternative
	SMP-H-4006	Historic Debris Scatter	Military	Low	Reconfiguration Alternative
	SMP-H-4007	Historic Debris Scatter	Military	Low	Reconfiguration Alternative
	SMP-H-4008	Historic Debris Scatter	Military	Low	CEC Buffer of Reconfiguration Alternative
	SMP-H-4009/4011	Historic Debris Scatter	Military	Low	Reconfiguration Alternative
	SMP-H-4010	Historic Debris Scatter	Military	Low	Reconfiguration Alternative
	SMP-H-4012	Historic Debris Scatter	Military	Low	Reconfiguration Alternative; CEC Buffer of Alternative 2
	SMP-H-JR-101	Historic Debris Scatter	Recreation Land Use	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-JR-102	Historic Debris Scatter	Military	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-JR-103	Historic Debris Scatter	Recreational Land Use	Low	PSPP Disturbance Area; CEC Buffer of Alternative 2 & 3
	SMP-H-JR-104	Historic Debris Scatter	Recreational Land Use	Low	PSPP Disturbance Area; Alternative 2 & 3
	SMP-H-JR-105	Historic Debris Scatter	Recreational Land Use	Low	PSPP Disturbance Area; Alternative 2 & CEC Buffer of Alternative 3
	SMP-H-JR-107	Historic Debris Scatter	Recreational Land Use	Low	PSPP Disturbance Area; Alternative 2 & CEC Buffer of Alternative 3

Primary No.	Site No.	Site Type	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Project Area Location
	SMP-H-JR-108	Historic Debris Scatter	Mining Claim	Low	PSPP Disturbance Area; Alternative 2 & CEC Buffer of Alternative 3
	SMP-H-JR-109	Historic Debris Scatter	Military	Low	Transmission Line Corridor; Alternative 2 & 3
	SMP-H-JR-110	Historic Debris Scatter	Military	Low	Transmission Line Corridor; Alternative 2 & 3
	SMP-H-TC-001	Historic Debris Scatter	Military	Low	Transmission Line Corridor
	SMP-H-TC-006	Historic Debris Scatter	Military	Low	Transmission Line Corridor
	SMP-H-TC-007	Historic Debris Scatter	Recreational Land Use	Low	Transmission Line Corridor
	SMP-H-TC-008	Historic Debris Scatter	Military	Low	Transmission Line Corridor; Alternative 2 & 3
	SMP-H-TC-009	Historic Debris Scatter	Military	Low	Transmission Line Corridor; Alternative 2 & 3
	SMP-H-TC-020	Historic Debris Scatter	Military	Low	Transmission Line Corridor; Alternative 2 & 3
	SMP-H-TC-022	Historic Debris Scatter	Military	Low	Transmission Line Corridor
	SMP-H-TC-032	Historic Debris Scatter	Military	Low	Transmission Line Corridor; Alternative 2 & 3
	SMP-M-MT-001	Historic Debris Scatter and Lithic Scatter	Military	Low	Transmission Line Corridor; Alternative 2 & 3
	SMP-H-RMA-1	Historic Encampment	Military	Low	CEC Buffer of PSPP Disturbance Area; CEC Buffer of Alternative 2 & 3

APPENDIX I: DOCUMENTATION OF TRIBAL CONSULTATION

Originator	Date	time	from	to	location	medium	Subj.
	07/01/09		J.Kalish, C.Dalu BLM PSSCFO	Chwmn Mary Resvaloso (Torres-Martines DCI)		cert Ltr.	Initial consultation
	07/01/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Timothy Williams (Ft. Mojave Tribal Council)		cert Ltr.	Initial consultation
	07/01/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Darrell Mike, (29Palms BMI)		cert Ltr.	Initial consultation
	07/01/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Richard Milanovich, (Agua Caliente BMI)		cert Ltr.	Initial consultation
	07/01/09		J.Kalish, C.Dalu BLM PSSCFO	Chprsn. Maryann Green (Augustine BMI)		cert Ltr.	Initial consultation
	07/01/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. James Ramos (San Manuel BMI)		cert Ltr.	Initial consultation
	07/01/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Robert Martin (Morongo)		cert Ltr.	Initial consultation
	07/01/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Charles Wood, (Chemehuevi TC)		cert Ltr.	Initial consultation
	07/01/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Eldred Enas, (Colorado River TC)		cert Ltr.	Initial consultation
	07/01/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Christobal Devers (Pauma)		cert Ltr.	Initial consultation
	07/01/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Joseph Hamilton (Ramona)		cert Ltr.	Initial consultation
	07/01/09		J.Kalish, C.Dalu BLM PSSCFO	Pres. Michael Jackson, (Ft. Yuma TC)		cert Ltr.	Initial consultation
	11/23/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Robert Martin (Morongo)		cert Ltr.	Fed reg. NOI
	11/23/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. James Ramos (San Manuel BMI)		cert Ltr.	Fed reg. NOI
	11/23/09		J.Kalish, C.Dalu BLM PSSCFO	Chwmn Mary Resvaloso (Torres-Martines DCI)		cert Ltr.	Fed reg. NOI

H-70

Originator	Date	time	from	to	location	medium	Subj.
	11/23/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Timothy Williams (Ft. Mojave Tribal Council)		cert Ltr.	Fed reg. NOI
	11/23/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Christobal Devers (Pauma)		cert Ltr.	Fed reg. NOI
	11/23/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Joseph Hamilton (Ramona)		cert Ltr.	Fed reg. NOI
	11/23/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Darrell Mike, (29Palms BMI)		cert Ltr.	Fed reg. NOI
	11/23/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Richard Milanovich, (Agua Caliente BMI)		cert Ltr.	Fed reg. NOI
	11/23/09		J.Kalish, C.Dalu BLM PSSCFO	Chprsn. Maryann Green (Augustine BMI)		cert Ltr.	Fed reg. NOI
	11/23/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn John James (Cabazon BMI)		cert Ltr.	Fed reg. NOI
	11/23/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Charles Wood, (Chemehuevi TC)		cert Ltr.	Fed reg. NOI
	11/23/09		J.Kalish, C.Dalu BLM PSSCFO	Chmn. Eldred Enas, (Colorado River TC)		cert Ltr.	Fed reg. NOI
	11/23/09		J.Kalish, C.Dalu BLM PSSCFO	Pres. Michael Jackson, (Ft. Yuma TC)		cert Ltr.	Fed reg. NOI
	01/25/10	8:00am	WAPA BLM CEC ESA		Blythe City Hall	meeting	Environ. Scoping Meeting and site visit (Rice, Blythe, Genesis, and Palen)
Quechan	02/10/10	10:00	Quechan/BLM	BLM	Winterhaven	meeting	Present project information (all proj's)
	03/03/10		Pres. Michael Jackson (Ft. Yuma Quechan)	John Kalish (PSSCFO)		letter	states concerns over time-frames of solar projects
	03/03/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. Robert Martin (Morongo)		cert. letter	Intent to develop PA for Sect. 106 reqmt.
	03/03/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. James Ramos (San Manuel BMI)		cert. letter	Intent to develop PA for Sect. 106 reqmt.

Originator	Date	time	from	to	location	medium	Subj.
	03/03/10		J.Kalish, G.Kline BLM PSSCFO	Chwmn Mary Resvaloso (Torres-Martines DCI)		cert. letter	Intent to develop PA for Sect. 106 reqmt.
	03/03/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. Timothy Williams (Ft. Mojave Tribal Council)		cert. letter	Intent to develop PA for Sect. 106 reqmt.
	03/03/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. Darrell Mike, (29Palms BMI)		cert. letter	Intent to develop PA for Sect. 106 reqmt.
	03/03/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. Richard Milanovich, (Agua Caliente BMI)		cert. letter	Intent to develop PA for Sect. 106 reqmt.
	03/03/10		J.Kalish, G.Kline BLM PSSCFO	Dir. Patricia Tuck THPO (Agua Caliente BMI)		cert. letter	Intent to develop PA for Sect. 106 reqmt.
	03/03/10		J.Kalish, G.Kline BLM PSSCFO	Chprsn. Maryann Green (Augustine BMI)		cert. letter	Intent to develop PA for Sect. 106 reqmt.
	03/03/10		J.Kalish, G.Kline BLM PSSCFO	Chmn John James (Cabazon BMI)		cert. letter	Intent to develop PA for Sect. 106 reqmt.
	03/03/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. Charles Wood, (Chemehuevi TC)		cert. letter	Intent to develop PA for Sect. 106 reqmt.
	03/03/10		J.Kalish, G.Kline BLM PSSCFO	Chwmn Sherry Cordova (Cocopah TC)		cert. letter	Intent to develop PA for Sect. 106 reqmt.
	03/03/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. Eldred Enas, (Colorado River TC)		cert. letter	Intent to develop PA for Sect. 106 reqmt.
	03/03/10		J.Kalish, G.Kline BLM PSSCFO	Pres. Michael Jackson, (Ft. Yuma TC)		cert. letter	Intent to develop PA for Sect. 106 reqmt.
	03/11/10	9:01	Nancy Brown (ACHP)	G. Kline, BLM		e-mail	Ltr dtd. 3/11/2010 - ACHP not participating in the PA
SCA	03/18/10	1:30pm	Agua Caliente	Patty Tuck	Riverside Conv. Center	meeting	Discussed coming events, current issues
G.Kline	03/24/10	12:40	G.Kline, BLM	A.Brierty, San Man.		e-mail	CEC Public Workshop meeting notification
G.Kline	03/24/10	12:40	G.Kline, BLM	B. Nash Ft.Yuma Quechan		e-mail	CEC Public Workshop meeting notification
G.Kline	03/24/10	12:40	G.Kline, BLM	A.Madrigal Sr.San Man		e-mail	CEC Public Workshop meeting notification

Originator	Date	time	from	to	location	medium	Subj.
G.Kline	03/24/10	12:40	G.Kline, BLM	A.Madrigal Jr. 29Palms		e-mail	CEC Public Workshop meeting notification
G.Kline	03/24/10	12:40	G.Kline, BLM	S.Milanovich, Agua Caliente		e-mail	CEC Public Workshop meeting notification
G.Kline	03/24/10	12:40	G.Kline, BLM	L.Otero Ft. Mojave		e-mail	CEC Public Workshop meeting notification
G.Kline	03/24/10	12:40	G.Kline, BLM	P.Tuck, Agua Caliente		e-mail	CEC Public Workshop meeting notification
	03/25/10	18:32	Ann Brierty, San Man.	G. Kline, BLM		e-mail	announcement of Tribal renewable energy symposium
	03/26/10	13:39	G.Kline, BLM	Ann Brierty, San. Man.		e-mail	Req. seat at the Tribal Symposium on renewable energy
	03/26/10	16:34	Ann Brierty, San Man.	G. Kline, BLM		e-mail	Confirmed attendance at planned Native American Tribes Symposium on renewable energy
	03/29/10	7:23	G.Kline BLM	Ann Brierty, San. Man.		e-mail	information on all solar projects
29 Palms	03/29/10	9:22	A. Madrigal Jr., 29 Palms BMI	G. Kline, BLM		e-mail	Wishes to participate in PA development for the Blythe, Palen, and Genesis projects
G.Kline	04/02/10	15:37	G.Kline BLM	S. Milanovich, Agua Caliente		e-mail	Notification of the PA Kick-off meeting
G.Kline	04/02/10	15:37	G.Kline BLM	P.Tuck Agua Caliente		e-mail	Notification of the PA Kick-off meeting
G.Kline	04/02/10	15:37	G.Kline BLM	A. Brierty, San Man. BMI		e-mail	Notification of the PA Kick-off meeting
G.Kline	04/02/10	15:37	G.Kline BLM	A.Madrigal Jr. 29 palms		e-mail	Notification of the PA Kick-off meeting
G.Kline	04/02/10	15:37	G.Kline BLM	A. Madrigal Sr. San Man		e-mail	Notification of the PA Kick-off meeting
G.Kline	04/02/10	15:37	G.Kline BLM	J.Ontiveros, Soboba		e-mail	Notification of the PA Kick-off meeting
G.Kline	04/02/10	15:37	G.Kline BLM	L.Otero Ft.Mojave		e-mail	Notification of the PA Kick-off meeting

Originator	Date	time	from	to	location	medium	Subj.
G.Kline	04/02/10	15:37	G.Kline BLM	Manfred Scott Ft. Yuma		e-mail	Notification of the PA Kick-off meeting
G.Kline	04/02/10	15:37	G.Kline BLM	Colorado R. Indian Tribes		e-mail	Notification of the PA Kick-off meeting
G.Kline	04/02/10	15:37	G.Kline BLM	Eldred Enas (CRIT Chair)		e-mail	Notification of the PA Kick-off meeting
G.Kline	04/05/10	8:18	G.Kline	Ann Brierty, San Man.		e-mail	PA Kick-off announcement meeting date established
G.Kline	04/05/10	8:18	G.Kline	M. Levias, Sr. Chemehuevi		e-mail	PA Kick-off announcement meeting date established
G.Kline	04/05/10	8:18	G.Kline	B. Nash, Ft. Yuma		e-mail	PA Kick-off announcement meeting date established
G.Kline	04/05/10	8:18	G.Kline	A. Madrigal Sr., San.Man		e-mail	PA Kick-off announcement meeting date established
G.Kline	04/05/10	8:18	G.Kline	Linda Otero, Ft. Mojave		e-mail	PA Kick-off announcement meeting date established
G.Kline	04/05/10	8:18	G.Kline	P. Tuck, Agua Caliente		e-mail	PA Kick-off announcement meeting date established
G.Kline	04/05/10	12:45	G.Kline	A.Brierty San Man.		e-mail	more meeting details…
	04/05/10	12:45	G.Kline	A. Madrigal Sr. San Man.		e-mail	more meeting details…
	04/05/10	12:45	G.Kline	A. Madrigal Jr. 29 Palms		e-mail	more meeting details…
	04/05/10	12:45	G.Kline	J.Ontiveros, Soboba		e-mail	more meeting details…
	04/05/10	12:45	G.Kline	B.Nash Ft. Yuma Quechan		e-mail	more meeting details…
	04/05/10	12:45	G.Kline	M. Levias Chemehuevi		e-mail	more meeting details…
	04/05/10	12:45	G.Kline	S. Milanovich, Agua Caliente		e-mail	more meeting details…
	04/05/10	12:45	G.Kline	L.Otero Ft.Mojave		e-mail	more meeting details…
G.Kline	04/05/10	12:55	G.Kline	J.Ontiveros, Soboba		e-mail	answered questions re: PA Meeting
	04/05/10	13:45	S. Milanovich, Agua Caliente	G.Kline BLM		e-mail	Question re: Notification of the PA Kick-Off Meeting
	04/05/10	14:52	G.Kline BLM	S. Milanovich, Agua Caliente		e-mail	Answered questions about PA meeting content.

H-74

Originator	Date	time	from	to	location	medium	Subj.
G. Kline	04/06/10	9:50	G.Kkline, BLM	Joe Ontiveros, Soboba		telephone	Will participate in PA, discussed meeting details for the April 23rd meeting.
G. Kline	04/06/10	9:50		Joe Ontiveros, Soboba		e-mail	Will participate in PA, discussed meeting details for the April 23rd meeting.
G. Kline	04/06/10	11:16	G.Kline BLM	Joe Ontiveros, Soboba		e-mail	Solar Project meetings sched. In the next few weeks…
G. Kline	04/06/10	13:11	G.Kline BLM	A. Brierty, San Man. BMI		e-mail	Solar proj. PA Kick-off announcement
G. Kline	04/06/10	13:11	G.Kline BLM	M. Levias Chemehuevi		e-mail	Solar proj. PA Kick-off announcement
G. Kline	04/06/10	13:11	G.Kline BLM	J.Ontiveros, Soboba		e-mail	Solar proj. PA Kick-off announcement
G. Kline	04/06/10	13:11	G.Kline BLM	B.Nash Ft. Yuma Quechan		e-mail	Solar proj. PA Kick-off announcement
G. Kline	04/06/10	13:11	G.Kline BLM	A. Madrigal Sr. San Man.		e-mail	Solar proj. PA Kick-off announcement
G. Kline	04/06/10	13:11	G.Kline BLM	A. Madrigal Jr. 29 Palms		e-mail	Solar proj. PA Kick-off announcement
G. Kline	04/06/10	13:11	G.Kline BLM	S. Milanovich, Agua Caliente		e-mail	Solar proj. PA Kick-off announcement
G. Kline	04/06/10	13:11	G.Kline BLM	L.Otero Ft.Mojave		e-mail	Solar proj. PA Kick-off announcement
G. Kline	04/06/10	13:11	G.Kline BLM	P.Tuck, Agua Caliente		e-mail	Solar proj. PA Kick-off announcement
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. Robert Martin (Morongo)		cert. letter	Solar proj. PA Kick-off announcement letter
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. James Ramos (San Manuel BMI)		cert. letter	Solar proj. PA Kick-off announcement letter
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Chwmn Mary Resvaloso (Torres-Martines DCI)		cert. letter	Solar proj. PA Kick-off announcement letter
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. Timothy Williams (Ft. Mojave Tribal Council)		cert. letter	Solar proj. PA Kick-off announcement letter

Originator	Date	time	from	to	location	medium	Subj.
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. Darrell Mike, (29Palms BMI)		cert. letter	Solar proj. PA Kick-off announcement letter
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. Richard Milanovich, (Agua Caliente BMI)		cert. letter	Solar proj. PA Kick-off announcement letter
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Dir. Patricia Tuck THPO (Agua Caliente BMI)		cert. letter	Solar proj. PA Kick-off announcement letter
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Chprsn. Maryann Green (Augustine BMI)		cert. letter	Solar proj. PA Kick-off announcement letter
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Chmn John James (Cabazon BMI)		cert. letter	Solar proj. PA Kick-off announcement letter
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. Charles Wood, (Chemehuevi TC)		cert. letter	Solar proj. PA Kick-off announcement letter
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Chwmn Sherry Cordova (Cocopah TC)		cert. letter	Solar proj. PA Kick-off announcement letter
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. Eldred Enas, (Colorado River TC)		cert. letter	Solar proj. PA Kick-off announcement letter
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Pres. Michael Jackson, (Ft. Yuma TC)		cert. letter	Solar proj. PA Kick-off announcement letter
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Chmn. Manuel Hamilon, (Ramona BMI)		cert. letter	Solar proj. PA Kick-off announcement letter
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Act. Chwmn. Rosemary Morillo (Soboba)		cert. letter	Solar proj. PA Kick-off announcement letter
	04/09/10		J.Kalish, G.Kline BLM PSSCFO	Rachael E. Koss (CURE)		cert. letter	Solar proj. PA Kick-off announcement letter
G. Kline	04/20/10	10:32	29 Palms BMI	Anthony Madrigal Jr.		telephone	Will attend Kick-off meeting
G. Kline	04/20/10	10:44	Agua Caliente BCI	Patti Tuck THPO		telephone	Will attend Kick-off meeting
Cabazon	04/20/10	12:55	Cabazon BMI	Judy Stapp		telephone	Returned Telephone Message, Will not attend PA Kick-off meeting
G. Kline	04/21/10	10:40	San Manuel BMI	Ann Brierty		telephone	Will not be able to attend PA Kick-off, but requests follow-up info.
G. Kline	04/21/10	11:20	Augustine BMI	David Saldivar		telephone	Will not be attending PA Kick-off Mtg.

H-76

Originator	Date	time	from	to	location	medium	Subj.
G. Kline	04/21/10	11:31	Chemehuevi T. C.	Charles Wood (Office)		telephone	Will not be attending PA Kick-off Mtg.
G. Kline	04/21/10	2:44	CURE	Rachael Koss		telephone	Left Msg inq. Attendance at PA Kick-off.
San Man	04/22/10	4:23pm	San Manuel BMI	Anthony Madrigal		e-mail	Plans to Attend PA Mtg
G. Kline	04/23/10	9:30-16:00	BLM staff	A. Madrigal Jr, 29 Palms A. Madrigal Sr. San Manuel, P.Tuck, Agual Caliente	UCR Rivside	meeting	PA Kickoff meeting
CEC	04/26/10	13:15	G.Kline BLM	P.Tuck, Agua Caliente		e-mail	relay notice of meeting RE: SA/DEIS Workshop
CEC	04/26/10	13:15	G.Kline BLM	A. Brierty, San Man. BMI		e-mail	relay notice of meeting RE: SA/DEIS Workshop
CEC	04/26/10	13:15	G.Kline BLM	M. Levias Chemehuevi		e-mail	relay notice of meeting RE: SA/DEIS Workshop
CEC	04/26/10	13:15	G.Kline BLM	B.Nash Ft. Yuma Quechan		e-mail	relay notice of meeting RE: SA/DEIS Workshop
CEC	04/26/10	13:15	G.Kline BLM	A. Madrigal Jr. 29 Palms		e-mail	relay notice of meeting RE: SA/DEIS Workshop
CEC	04/26/10	13:15	G.Kline BLM	A. Madrigal Sr. San Man.		e-mail	relay notice of meeting RE: SA/DEIS Workshop
CEC	04/26/10	13:15	G.Kline BLM	S. Milanovich, Agua Caliente		e-mail	relay notice of meeting RE: SA/DEIS Workshop
CEC	04/26/10	13:15	G.Kline BLM	J.Ontiveros, Soboba		e-mail	relay notice of meeting RE: SA/DEIS Workshop
CEC	04/26/10	13:15	G.Kline BLM	L.Otero Ft.Mojave		e-mail	relay notice of meeting RE: SA/DEIS Workshop
CEC	04/28/10	9:00 - 17:00	CEC	P.Tuck, Agua Caliente B. Nash, Ft. Yuma(via tel.) A.Brierty San.Man G.Kline, BLM also: CEC, AECOM.	BLM, PS	meeting	CEC SA/DEIS Workshop

H-77

Originator	Date	time	from	to	location	medium	Subj.
CEC	04/29/10	9:00 - 17:00	CEC	P.Tuck, Agua Caliente B. Nash, Ft. Yuma(via tel.) A.Brierty San.Man G.Kline, BLM also: CEC, AECOM.	BLM, PS	meeting	CEC SA/DEIS Workshop
Agua Cal.	05/17/10	12:59	Agua Caliente BCI	Patti Tuck THPO		e-mail	Send cult reports via FTP (Blythe, Palen, Ford DL.)
P.Tuck	05/17/10	12:59	P.Tuck Agua Caliente BCI	G.Kline BLM		e-mail	set up FTP for transferring cult report
G. Kline	05/24/10	1:10pm	Agua Caliente BCI	Patti Tuck THPO		T&E	Send cult reports via FTP (Blythe, Palen, Ford DL.)
G. Kline	05/24/10	1:10pm	Agua Caliente BCI	Patti Tuck THPO		T&E	Send cult reports via FTP (Blythe, Palen, Ford DL.)
P.Tuck	05/24/10	13:11	P.Tuck Agua Caliente BCI	G.Kline BLM et. al.		e-mail	Question re; CEQA/CEC
Sol. Millennium	05/25/10	9:30-14:00	Alice Harron/Sol. Millennium	S.Weidlich, and M. Tennyson of AECOM J. Kalish, and G. Kline, BLM P.Tuck and S. Milanovich, Agua Caliente B. Nash (via telephone) Ft Yuma Quechan	BLM Palm Sprs.	meeting	Informational meeting on the technology and cultural resources for Blythe and Palen Projects.
P.Tuck	05/26/10	10:42	P.Tuck, Agua Caliente	S. Weidlich Matt Tennyson (AECOM) A. Harron (Sol mill.) G.Kline, BLM		e-mail	req. additional info from previous day's meeting.
G.Kline	05/27/10	12:20	G. Kline BLM	P. Tuck, Agua Caliente		e-mail	Answers to meeting questions and requested information.
	06/01/10	1:20	P.Tuck Agua Caliente BCI	G. Kline, BLM		e-mail	verification of receipt of Cultural reports
P.Tuck	06/01/10	1:23	P.Tuck Agua Caliente BCI	G. Kline, BLM		e-mail	further verification of receipt of Cultural reports
	06/07/10	2:11	B.Nash Ft. Yuma Quechan	G.Kline BLM		e-mail	have not received reports for Genesis and Palen
G.Kline	06/07/10	3:26	G. Kline BLM	B.Nash Ft. Yuma Quechan		e-mail	Reports in the Mail
G.Kline	06/08/10	8:17	G.Kline	B.Nash Ft. Yuma Quechan		e-mail	notification of sending Palen and Genesis reports via USPS

Originator	Date	time	from	to	location	medium	Subj.
G. Kline	6/23/2010		J. Kalish	Chprsn. Maryann Green, Augustine Band of Mission Indians		letter	Draft PA development. Ltr and copy of Draft PA, with list of proposed CR eligibilities sent.
G. Kline	6/23/2010		J. Kalish	Chmn. Timothy Williams Ft. Mojave TC		letter	Draft PA development. Ltr and copy of Draft PA, with list of proposed CR eligibilities sent.
G. Kline	6/23/2010		J. Kalish	Chmn. Robert Martin Morongo BMI		letter	Draft PA development. Ltr and copy of Draft PA, with list of proposed CR eligibilities sent.
G. Kline	6/23/2010		J. Kalish	Chwmn. Mary Resvaloso Torres-Martinez Desert Cahuilla Indians		letter	Draft PA development. Ltr and copy of Draft PA, with list of proposed CR eligibilities sent.
G. Kline	6/23/2010		J. Kalish	Chmn. Richard Milanovich Agua Caliente Band of Cahuilla Indians		letter	Draft PA development. Ltr and copy of Draft PA, with list of proposed CR eligibilities sent.
G. Kline	6/23/2010		J. Kalish	Chmn. Eldred Enas Colorado River Indian Tribal Council		letter	Draft PA development. Ltr and copy of Draft PA, with list of proposed CR eligibilities sent.
G. Kline	6/23/2010		J. Kalish	President Michael Jackson Ft. Yuma Quechan Tribal Council		letter	Draft PA development. Ltr and copy of Draft PA, with list of proposed CR eligibilities sent.
G. Kline	6/23/2010		J. Kalish	Chmn Manuel Hamilton Ramona BMI		letter	Draft PA development. Ltr and copy of Draft PA, with list of proposed CR eligibilities sent.
G. Kline	6/23/2010		J. Kalish	Chmn. James Ramos San Manuel BMI		letter	Draft PA development. Ltr and copy of Draft PA, with list of proposed CR eligibilities sent.
G. Kline	6/23/2010		J. Kalish	Chmn. Charles Wood Chemehuevi TC		letter	Draft PA development. Ltr and copy of Draft PA, with list of proposed CR eligibilities sent.
G. Kline	6/23/2010		J. Kalish	Chmn Darrell Mike Twenty-Nine palms BMI		letter	Draft PA development. Ltr and copy of Draft PA, with list of proposed CR eligibilities sent.
G. Kline	6/23/2010	2:10	G. Kilne	P. Tuck Agua Caliente THPO		e-mail	Draft PA development. Ltr and copy of Draft PA, with list of proposed CR eligibilities sent.
B. Nash	6/23/2010		B. Nash	G. Kline		e-mail	Confirm receipt of project maps
G. Kline	7/7/2010	12:09	G. Kline	B. Nash Ft. Yuma Quechan		e-mail	

H-79

APPENDIX J: EXAMPLE MONITORING AND DISCOVERY PLAN

DRAFT EXAMPLE
MONITORING AND DISCOVERY PLAN

IMPERIAL VALLEY SOLAR PROJECT
IMPERIAL COUNTY, CALIFORNIA

Submitted to:

Bureau of Land Management

1661 South 4th Street

El Centro, CA 92243

Prepared by:

LSA Associates, Inc.

703 Palomar Airport Road Suite 260

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May 26, 2010

And

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August 13, 2010

table of contents

1.0 INTRODUCTION 81

1.1 PROJECT description 81

1.2 Regulatory Context 82

1.3 PROFESSIONAL QUALIFICATIONS 82

1.4 Key Personnel 83

1.5 DEFINITION OF RESOURCE TYPES 84

2.0 AVOIDANCE AND PRESERVATION 89

2.1 environmentally sensitive areas 89

2.2 Plan of ESA establishment and Designation 89

3.0 monitoring plan 92

3.1 Monitoring 92

4.0 DISCOVERY PLAN96

4.1 Plan of Treatment of Discoveries 96

5.0 DATA MANAGEMENT and CURATION 101

5.1 TECHNICAL REPORT PREPARATION AND DISSEMINATION 101

5.2 CURATION IN PERPETUITY 101

ATTACMENTS

A Specific Field and Analytical Methods

B Daily Monitoring Log

C Contact List

LIST OF TABLES

Table 1 Discovery Notification Procedures 94

INTRODUCTION

Tessera Solar is proposing to construct the Imperial Valley Solar Project (IVSP or Project) in Imperial County on lands under the jurisdiction of the Bureau of Land Management (BLM), and cultural resources have been documented in the Project's area of potential effects (APE). Efforts are being made to design the Project to avoid known cultural resources eligible for listing in the National Register of Historic Places (NRHP) and/or the California Register of Historic Resources (CRHR). The following will be discussed in this Monitoring and Discovery Plan:

- The measures necessary to avoid potential impacts to recorded cultural resources, including Environmentally Sensitive Areas (ESAs)
- Professional standards
- Monitoring plan
- Discovery plan
- Avoidance/protection procedures
- Cultural resources training
- Curation

The entire surface of the APE of the proposed Project has been surveyed. Multiple prehistoric and historic resources have been identified.

PROJECT DESCRIPTION

The IIVSP will construct a proposed 750-megawatt (MW) solar energy plant on approximately 6,500 acres of public lands in California administered by BLM California Desert District and the El Centro Field Office. Imperial Valley Solar will use existing roads and construct new roads in the Project area.

The Project is located in western Imperial County, California, immediately east of the town of Ocotillo, west of the town of Seeley, and north and south of Interstate 8 (I-8). The Project will utilize the SunCatcher technology of Stirling Energy Services. Each SunCatcher consists of a 25-kilowatt solar power electric-generating system. The system is designed to track the sun automatically and to focus solar energy onto a Power Conversion Unit, which generates electricity. The system consists of an approximate 38-foot-high by 40-foot-wide solar concentrator dish that supports an array of curved glass mirror facets. The 300-MW Phase I of the Project will consist of approximately 12,000 SunCatchers. The 450-MW Phase II portion of the Project will include approximatley18,000 SunCatchers.

The Project will include the construction of a new 230-kilovolt (kV) substation approximately in the center of the Project. A Main Services Complex, where key buildings and parking areas will be located, will be constructed at the northeastern end of

the Phase I Project. Main roads will be constructed with a combination of roadway dips and elevated sections across the dry washes on the Project.

The full Phase II expansion of the Project will require the construction of the 500-kV Sunrise Powerlink transmission line that San Diego Gas & Electric (SDG&E) has proposed. A 230-kV transmission line that will be built for Phase I will parallel the current transmission line corridor for the Southwest Powerlink transmission line within the existing right-of-way (ROW). The main entry for truck traffic to the Project during construction will be from I-8 to the Project entrance on Evan Hewes Highway. During Project operation, the secondary and emergency access will be from Dunaway Road.

REGULATORY CONTEXT

The proposed Project requires authorization and issuance of an ROW grant by BLM. The proposed Project is a federal undertaking. Therefore, compliance with 36 Code of Federal Regulations (CFR) Part 800, regulations implementing the National Historic Preservation Act (as amended), is required. In addition, BLM and the California Energy Commission (CEC), together, have prepared the *Staff Assessment and Draft Environmental Impact Statement and Draft California Desert Conservation Area Plan Amendment, SES Solar Two Project,* and *Application for Certification (08-AFC-5) Imperial County (2010)* to identify Project alternatives for purposes of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), and have comparatively examined the relative effects of the alternatives on known historic properties. Therefore, cultural resources on the Project are evaluated subject to criteria of both the federal NRHP and CEQA CRHR. As the Project may have an adverse effect on historic properties (resources eligible for or listed in the NRHP and/or CRHR), BLM prepared a Programmatic Agreement (PA) stipulating measures that will be implemented prior to construction. The preparation of a Monitoring and Discovery Plan is stipulated in the PA.

PROFESSIONAL QUALIFICATIONS

BLM shall ensure that all work is under the supervision of personnel meeting the *Secretary of the Interior's Standards and Guidelines* (as amended and annotated)*, Professional Qualifications Standards*. The requirements are those used by the National Park Service, and have been previously published in the Code of Federal Regulations (36 CFR Part 61). The qualifications define minimum education and experience required to perform identification, evaluation, registration, and treatment activities. BLM shall obtain résumés of prospective consultants and verify credentials of supervisory personnel and staff, as necessary.

ARCHAEOLOGY

The minimum professional qualifications for supervisory personnel in archaeology shall be a graduate degree in archaeology, anthropology, or closely related field plus the following:

- At least 1 year of full-time professional experience or equivalent specialized training in archaeological research, administration, or management;
- At least 4 months of supervised field and analytic experience in general North American archaeology; and
- Demonstrated ability to carry research to completion.

In addition to these minimum qualifications, a professional in prehistoric archaeology shall have at least 1 year of full-time professional experience at a supervisory level in the study of archaeological resources of the prehistoric period. A professional in historic archaeology shall have at least 1 year of full-time professional experience at a supervisory level in the study of archaeological resources of the historic period.

KEY PERSONNEL

Personnel involved in the archaeological monitoring, testing, and data recovery efforts will be responsible primarily for conducting the monitoring; archaeological fieldwork and laboratory analysis; report preparation; and (as necessary) coordination with BLM, construction contractors, and Native American consultants. The responsibilities of key personnel are outlined below.

PRINCIPAL INVESTIGATOR/CULTURAL RESOURCES SPECIALIST

The Principal Investigator (PI)/Cultural Resources Specialist (CRS) will have overall responsibility for the testing and data recovery investigations and will be the primary point of contact between the archaeological consultant and BLM for these programs. The PI will also be responsible for the analysis and the overall quality of the technical report of these investigations. The PI will meet the Secretary of the Interior's Qualification Standards for Archaeologists and be on the BLM Cultural Resources Use Permit.

MONITORING SUPERVISOR

The Monitoring Supervisor will have overall responsibility for the cultural resources monitoring program and will be the primary point of contact between the archaeological consultant and BLM for this program. The Monitoring Supervisor will also be responsible for the content and the overall quality of the monitoring report. The Monitoring Supervisor will meet the Secretary of the Interior's Qualification Standards for Archaeologists.

FIELD MONITORS

Field monitors will conduct the daily archaeological construction monitoring and will be responsible for making the initial discoveries, subsequent initial notifications, equipment diversions, preparing daily monitoring notes and logs, and recording and mapping for initial discovery documentation.

FIELD DIRECTOR

The Field Director will be responsible for the day-to-day activities of the testing and data recovery investigations, including management of field personnel and coordination of crews. The Field Director will also be responsible for compiling and ensuring the quality of the field data on a daily basis. Additionally, the Field Director will coordinate the work of subconsultants or other contractors participating in the archaeological field investigations, and will be responsible for implementing the requirements of the Health and Safety Plan, including daily safety briefings. The Field Director will also meet the Secretary of the Interior's Qualification Standards for Archaeologists and be on the Cultural Uses Permit.

CREW CHIEFS

The Crew Chiefs will, in consultation with the Field Director, be responsible for implementing the field strategies at individual sites. The Crew Chief will direct field crew, lay out excavations, and compile collections and field documentation on a daily basis. Additionally, the Crew Chief will be responsible for implementing on-site safety procedures.

FIELD CREW

Field crew members will conduct surface examinations and hand excavations, and monitor mechanical test investigation excavations. Each crew member will operate under the direct supervision of the Crew Chief and will conduct basic documentation of field operations, including completing excavation-level records, bag labeling, and trench monitoring forms.

LABORATORY DIRECTOR

The Laboratory Director will be responsible for directing all phases of laboratory processing of the data recovery collections, including check-in, cleaning, sorting, cataloguing, analyzing, distributing special samples, and preparing for curation. The Laboratory Director will coordinate closely with the PI and Monitoring Supervisor to ensure that the appropriate data are documented and compiled.

1.5 DEFINITION OF RESOURCE TYPES

Below are examples of archaeological site types that might be encountered in the Project APE during construction or additional surveys.

PREHISTORIC

HABITATION SITES. Sites have, at a minimum, flaked stone tools and evidence of food processing and fire affected rock/hearths. Sites contain a wide variety of artifacts and materials. Habitation sites within the IVSP area may include flakes, tools, groundstone, ceramics, fire-affected rocks, midden, rock features (domestic and storage), and human remains.

– Temporary camp: flaked stone tools, evidence of food processing, fire affected rock/hearths

– Long-term: multiple artifact categories, evidence of use of fire, midden

RESOURCE EXTRACTION/PROCESSING SITES. Sites contain artifacts associated with specific resource extraction or processing activities. Processing/extraction sites within the IVSP include the following:

– Plant processing: Associated artifacts include groundstone, manos, metates, pestles, bedrock storage facilities, and bedrock milling features. Groundstone was also used to process fish, small animals, and pigments, and for hide-tanning. Flaked lithics were also used for cutting/harvesting plants prior to grinding or for preparing vegetal construction materials.

– Animal processing: associated artifacts include lithics, fish traps, and faunal bone

– Lithic reduction: associated artifacts include lithic tools, flakes, debitage, cores, and blanks

– Lithic processing: evidence of heat treatment; associated artifacts include flakes, debitage, and/or cores

– Groundstone production: associated artifacts or features include sandstone and granite outcrops, basalt boulders, etc.

TRAVEL SITES. Trails/footpaths, including trail markers.

CERAMICS SITES. These sites can include both scatters of ceramics and single pot locales or "pot drops."

ROCK FEATURES SITES. These sites contain cairns, rock alignments, rock rings, and/or cleared circles.

OTHER. All other prehistoric sites that do not fit into the above categories.

HISTORIC

HABITATION SITES. In addition to food-related refuse, these are sites that contain evidence of domestic activity. Features may include tent pads, cleared areas, campfire rings, foundations, or other evidence of more than casual use.

HISTORIC REFUSE. These sites contain primary or secondary refuse deposit or concentrations of debris.

– Food containers: primarily cans

– Beverage containers: bottles and cans

– Mixed domestic: in addition to food and beverage containers, a variety of materials such as crockery, glassware, buttons, wire, toys, etc.

– Construction: cement, milled lumber, nails, paint, tile, etc.

– Target practice: shell casings, fragmentary bullets, etc.

GRAVEL EXTRACTION/MINING. These sites are characterized by pits, scraping scars, rock piles, and/or access roads.

SURVEYING. These sites consist of trash piles associated with surveying activities and historic survey markers.

TRANSPORTATION. These sites are linear features designed to facilitate the transportation of people.

– Roads: unpaved

– Trails: wagon trails and footpaths

MILITARY. Any site associated with military activities.

ROCK FEATURES. Cairns, rock alignments, and/or rock rings.

WATER CONVEYANCE. Any subsurface feature or device constructed to transport water over a distance (irrigation canals, ditches, flumes, pipes, etc.) not associated or addressed as part of the built environment.

OTHER. All other sites that do not fit into the above categories.

BUILT ENVIRONMENT

HABITATION. Standing residential buildings.

INDUSTRIAL. Standing processing or manufacturing plant.

TRANSPORTATION. Existing linear feature designed to facilitate the transportation of people.

– Roads: paved

– Railroads: with intact crossties and rails

WATER CONVEYANCE. Any existing feature or device constructed to transport water over a distance: irrigation canals, ditches, flumes, pipes, etc.

2.0 AVOIDANCE AND PRESERVATION

Avoidance of all cultural resources is preferred and is the goal of BLM. If cultural resources are discovered during construction and they are determined eligible for listing in the NRHP and/or the CRHR, implementation of a data recovery program may be necessary. If avoidance and minimization alternatives are not feasible, then data recovery through archaeological excavation may be warranted. Archaeological sites are most often determined eligible for the NRHP under Criterion D ("have yielded or may be likely to yield, information important in prehistory or history"), and/or the CRHR under Criterion 4 ("potential to yield information important to the prehistory or history of the local area, California or the nation"). The important information can often be characterized by the physical data, the artifacts, and features in the ground. Archaeological excavations may recover this information. This form of mitigation is called data recovery and includes scientific analyses and the preparation of a technical report. The purpose of conducting excavation as mitigation is to recover, analyze, and document in written form the important information contained within an archaeological site. The report must meet professional standards discussed later in this plan.

As stated above, avoidance of cultural resources during construction is preferred. Whenever practicable, an archaeological site that is determined eligible for listing in the NRHP and/or CRHR should be left in place and preserved from damage. Avoidance and minimization alternatives should be also considered as the first option for sites not evaluated. Avoidance measures may include limiting the size of the undertaking to reduce the effect, modifying the undertaking through redesign, and monitoring ground-disturbance activities to record significant archaeological remains if they are encountered.

2.1 ENVIRONMENTALLY SENSITIVE AREAS

Newly discovered and previously known prehistoric and historic archaeological sites located within the Project's APE shall be designated as ESAs. Construction personnel will be instructed on how to avoid ESAs.

All construction personnel will be trained regarding the recognition of possible buried cultural remains, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbing activities. BLM will complete training for all construction personnel. Training will inform all construction personnel of the procedures to be followed upon the discovery of archaeological materials, including Native American burials.

2.2 PLAN OF ESA ESTABLISHMENT AND DESIGNATION

1. The archaeological consultant shall flag and/or fence cultural resources.
2. The lead Construction Manager and all supervisory personnel shall be informed by the BLM archaeologist and/or its representative of the presence and location of all ESAs within the Project area and the need to maintain integrity of the ESAs.

3. The BLM archaeologist and/or its representative shall convey the archaeological sensitivity of the resource to the construction personnel.
4. Construction personnel shall be informed that ESAs are strictly off-limits to construction, and entrance is not allowed at any time. ESAs shall not be described as archaeological sites. The exact location of cultural resources will be confidential.
5. For prehistoric resources, the BLM archaeologist shall consult with interested Native American tribes regarding the sensitivity of the area and any new discoveries. BLM shall make a reasonable and good faith effort to address concerns. BLM shall consider the role of Native Americans regarding supporting the monitoring of significant Native American resources within and adjacent to Project impact areas.
6. Archaeological monitors shall maintain flagging/staking for ESAs to identify these as areas where no ground-disturbing activities are to take place. Results of this effort shall be presented in the monitoring report for the Project.
7. Archaeological monitors shall immediately report all violations to BLM.

If a resource cannot be avoided, then the resource will be evaluated for eligibility for listing in the NRHP and/or CRHR.

TRAINING

BLM will provide a background briefing for supervisory construction personnel describing the potential for exposing cultural resources, the location of any potential ESA, and procedures to treat unexpected discoveries. An IVSP training document has been prepared and will be provided to construction personnel in support of the on-site training described below. The training document provides prehistoric, historic, and regulatory contexts, the roles of BLM and the archaeological monitors, the responsibilities and authority of the monitors, an outline of discovery protocols, and examples of artifacts. The cultural resources training shall include the following:

1. A summary of the archaeological and cultural sensitivity of the area.
2. The regulatory context and BLM protocols.
3. Project roles and responsibilities for the BLM archaeologist and the archaeological monitors.
4. Authority of archaeological monitors to halt work.
5. Basic artifact recognition.
6. The understanding that if construction personnel observe cultural material or what appears to be a cultural resource, the BLM archaeologist and/or representative shall be contacted immediately. Construction personnel shall have the requisite contact information.
7. The explicit understanding that cultural resources and human remains are not to be disturbed.
8. The procedures to follow if cultural material or human burials are observed:

- Work halts immediately.
- The location is secured and made off-limits to ground-disturbing activities.
- The construction foreman and BLM archaeologist are called immediately.
- Work does not re-commence until authorized by the BLM archaeologist.

3.0 MONITORING PLAN

3.1 MONITORING

A consultant will be retained to provide archaeological monitors. An archaeological monitor or monitors will be present during construction. Additionally, monitoring of ground-disturbing activities within 50 feet of a known cultural resource is required. Monitors are to ensure that ESAs are properly (and adequately) marked and protected. A Native American monitor is required at all sensitive prehistoric resource locations. Safety is paramount, and all monitors will undergo safety briefings and abide by all Occupational Safety & Health Administration (OSHA) and Project safety requirements. Monitors have the authority to halt work. BLM will maintain a record of the safety briefings and require that all monitors participate. The following list outlines the qualifications and responsibilities of the archaeological monitors.

1. The qualifications of monitors shall be confirmed by BLM. The consultant shall provide résumés and references. The monitors must be familiar with the types of historic and prehistoric resources within the study area.
2. Monitors shall maintain a daily work log (see Appendix B) that includes the following:
    a. Date and time of work
    b. Area of work
    c. Type of work and equipment present
    d. Construction activities performed
    e. Monitoring activities performed (e.g., protection of ESA)
    f. Cultural resources present
    g. Name of Native American monitor (if present)
3. Color digital photographs shall be taken, as appropriate, to document monitoring activities. All ESAs, at a minimum, shall be photographically documented prior to, during, and after construction in their vicinity. If previously unknown or inadequately documented cultural resources are encountered during monitoring, BLM and the monitors shall follow the procedures presented in the section titled *Discovery Treatment Plan*.
4. Monitors shall provide daily updates to the Monitoring Supervisor, who shall provide a summary to the BLM archaeologist. Written memo updates shall be provided weekly. The weekly memos shall identify the monitors present, dates worked, and their locations for that week. The memo shall present the results of monitoring for that week. Once monitoring is complete, a monitoring report shall be drafted for review and approval by the BLM archaeologist. The monitoring report shall present the following:
    a. All monitoring activities
    b. Location of monitoring

c. Dates of monitoring

d. Personnel participating and their qualifications

e. Resources (ESAs) satisfactorily protected

f. Damaged resources, including the effects and the significance

g. Discovered resources and their significance (if any)

h. Management and treatment measures implemented

The report shall be reviewed and approved by the BLM archaeologist and shall be prepared per *Archaeological Resources Management Reports* (*ARMR*)*: Recommended Contents and Format* guidelines (OHP 1990).

5. Monitors shall maintain the flagging and staking to make sure that all ESAs are avoided and protected. This includes verification that the current conditions of known significant resources do not change as part of this Project. If protected sites exhibit physical changes, then protection measures need to be immediately changed and improved under direction from the BLM archaeologist. Earthmoving within 50 feet of a significant resource may be halted.

6. If individual artifacts are exposed during monitoring, they shall be mapped in situ with a submeter accuracy, global positioning system (GPS) unit, collected, analyzed in the consultant's laboratory, cataloged, and curated. A curation agreement shall be established with a curation facility that meets federal standards.

7. If a feature (cluster of in situ artifacts, intact hearth, historic foundation, etc.) is exposed during monitoring, construction activities shall be diverted briefly until the Monitoring Supervisor has had the opportunity to assess the find and make appropriate recommendations. Consultant recommendations shall be provided to BLM and in accordance with the *Discovery Treatment Plan* provided later in this document. Avoidance is preferred and, if a resource cannot be avoided, then it first must be evaluated. If the resource is significant, then avoidance must be considered. If a significant resource cannot be avoided, then treatment measures (including possibly data recovery) must be implemented prior to recommencing construction. The details of this process are also discussed in the *Discovery Treatment Plan* provided later in this document. During the field implementation of archaeological studies, earthmoving within 50 feet may be halted.

   After mitigation of site impacts are complete, and if additional cultural material is exposed by grading in the same site, additional hand-excavation will not be required unless the additional material represents a new kind of data not recovered during previous data recovery at that site. Such new data would consist of artifact classes and features not recovered during previous mitigation. Features may include hearths, refuse pits, and burials. Even if no additional hand-excavation is required, the newly exposed material shall be mapped and collected.

8. If human remains are encountered, a course of action following the requirements set forth in 43 CFR 10 and the BLM Native American Graves Protection and Repatriation Act (NAGPRA) as presented in the NAGPRA Plan of Action shall be followed. This includes stopping work in the exclusion area for a period of no more than 30 days while the consultation requirements of NAGPRA are completed. Work on the undertaking can proceed outside of the exclusion area. Should these BLM NAGPRA protocols not be followed, a violation of NAGPRA and the Archaeological Resources Protection Act (ARPA) may take place. The ARPA allows the government to assess civil fines and to proceed with criminal prosecution depending on the nature of the violation.

9. Notification Procedures

   When a potential discovery not involving human remains is made during construction monitoring, the cultural resources monitor shall temporarily halt or redirect the work at that location and create a temporary exclusion area (Table 1). The monitor shall then notify the on-site Native American monitor (if not present) if the find is prehistoric (or potentially prehistoric) and the Monitoring Supervisor, who shall inspect the find and perform an initial assessment. If the find appears to represent a potentially significant cultural resource, the Monitoring Supervisor shall notify BLM. BLM shall then notify the Construction Manager, who will issue a temporary stop work order for the location of the find. A list of contact information is provided in Appendix C.

   If human remains or fragmentary bones that are suspected to be human are encountered during construction activities, work at that location shall be suspended. The archaeological monitor shall notify BLM and the Native American monitor on-site (if not present at the discovery location) immediately. This notification will be the initial step in the consultation procedures under the NAGPRA. The remains shall be left in place and exclusionary fencing shall be placed in a 50-foot radius around the discovery. Decisions regarding additional identification procedures and the continuation or permanent suspension of work at the discovery location shall then be made by BLM.

Table 1 Discovery Notification Procedures

Resource Type	Definition (in a 25 m^2 area)	Procedure
Isolated find	Fewer than three artifacts	Monitor to record, photograph, map with GPS
Archaeological site	Three or more artifacts; feature	Monitor to redirect construction, contact Monitoring Supervisor, erect exclusionary flagging/fencing, and record; Monitoring Supervisor to assess

Potentially human remains		Monitor to redirect construction, and contact BLM, Native American monitor (if not present), and Monitoring Supervisor; erect exclusionary flagging/fencing

4.0 DISCOVERY PLAN

4.1 PLAN OF TREATMENT OF DISCOVERIES

This Discovery Plan addresses the actions to be taken should discoveries occur during Project implementation. Potential discoveries in the IVSP area are divided into two categories, each requiring distinct management procedures: treatment of previously unknown artifacts, features, site components, or sites; and treatment of human remains discoveries. The procedures to be followed should such discoveries be made during the treatment program or during Project implementation are reviewed below.

If human remains are encountered, the course of action will follow the requirements set forth in 43 CFR 10 and the BLM NAGPRA Protocols. This includes stopping work in the exclusion area while the consultation requirements of NAGPRA are completed. Work on the undertaking can proceed outside of the exclusion area. Should these BLM NAGPRA Protocols not be followed, a violation of the NAGPRA and ARPA may take place. The ARPA allows the government to assess civil fines and to proceed with criminal prosecution depending on the nature of the violation.

Whereas the protocols below apply to all discoveries, specific management and treatment measures may vary according to the resource type discovered, the discovery location within the Project area, and anticipated Project effects. Specific field and laboratory methods are presented in Appendix A.

MANAGEMENT OF PREVIOUSLY UNKNOWN SITES, SITE COMPONENTS, OR FEATURES

Previously unknown artifacts, features, site components, or even sites may be encountered during archaeological monitoring. The spatial distribution of features and their functional types are important aspects of the research design, both in terms of intrasite structure and spatial organization, and in the distribution of features associated with the desert cultural landscape. Some potential for buried remains occurs within depositional environments present within the APE.

Recovery and documentation of cultural materials will, at minimum, include mapping the discovery location and may also include one or more of the following: photographs; illustrations of artifacts, features, or soil profiles; surface artifact collection; and test or data recovery excavations. The procedures outlined below will be adhered to should there be archaeological discoveries during construction monitoring for the Project. A discussion of the disposition and

curation of recovered artifacts is presented later in the section titled *Data Management and Curation*.

Guidelines for the treatment of new discoveries within the Project area are as follows:

- The archaeological monitor shall have the authority to halt work in discovery vicinities and redirect heavy equipment away from the discovery site.
- All ground-disturbing activities that would adversely impact a newly discovered cultural resource shall be halted. The horizontal and vertical limits of the resource within the impact area shall be determined. The resource shall be protected by physical barriers and the presence of monitors to ensure that further disturbance to the resource is avoided and to minimize impacts.
- BLM shall apply the criteria for listing in the NRHP:

  (A) It is associated with events that have made a significant contribution to the broad patterns of history and cultural heritage;

  (B) It is associated with the lives of persons important in our past;

  (C) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; and/or

  (D) It has yielded, or may be likely to yield, information important in prehistory or history.

  Properties found eligible for the NRHP are assumed to be eligible for the CRHR.
- If the cultural resource is determined by BLM to be a historic property (eligible for the NRHP), consultation shall take place to determine the appropriate treatment measures.
- BLM shall consult with Native American groups or other interested parties regarding the treatment of the find.
- As needed, a data recovery plan shall be developed by the consultant under direction and in coordination with BLM and to recover the significant values contained by newly discovered resources. Recovered data shall be processed, analyzed, and reported concurrent with other sites addressed during the treatment program. Refer to the specific field and laboratory methods in Appendix A.
- If individual non-diagnostic artifacts are exposed during monitoring or construction, they shall be mapped in situ. If diagnostic artifacts are exposed, they shall be mapped using a sub-meter accuracy GPS unit, collected, analyzed in the consultant laboratory, catalogued, and curated.
- If a feature (e.g., cluster of in situ artifacts, intact hearth, or foundation) is exposed during monitoring, construction activities shall be diverted until the find can be assessed and appropriate recommendations made. If excavation is required, it shall be accomplished expediently. Features shall be exposed and recovered using standard excavation techniques,

with care taken to maintain the provenance of the feature as a distinct unit. The feature shall be photographed and mapped in place prior to recovery. Samples shall be recovered for special analyses (e.g., radiocarbon, macrobotanical, palynological, or faunal) as appropriate to the character of the feature. Artifacts collected shall be analyzed in the consultant's laboratory, cataloged, and temporarily curated.

- A determination shall be made as to whether a new discovery is part of an existing site or a previously unknown cultural resource. Based on that determination, either new Department of Parks and Recreation (DPR) forms will be created or the existing DPR forms shall be updated to include the discovery. The potential significance of newly discovered sites or site components shall be evaluated relative to the research design.
- If a new site or significant component of a previously recorded site is discovered, construction activities will be halted in the area until an assessment of the find can be made. If it is determined that the site has the potential to yield important data that can address research questions, a sample of the site area shall be hand-excavated using the standard archaeological procedures described in Appendix A. BLM shall be informed by the consultant as to the estimated time necessary for an NRHP/CRHR eligibility determination. The assessment shall include mapping the locations and elevations of new discoveries. To the extent possible, boundary definition, assessment of content and integrity, and assessment of eligibility shall be accomplished with shovel test pit (STP) excavations. At minimum, the evaluation shall include recording, excavating, and reporting major features or artifact concentrations uncovered, and recovery/curation of a sample of uncovered artifacts where practicable.
- Construction activities in the discovery area shall not resume until the site evaluation is completed. The consultant shall prepare a brief report of the findings and eligibility evaluation, and propose avoidance measures and provisions to minimize impacts specific to that discovery. This shall be submitted to BLM for review and concurrence. If further disturbance cannot be minimized, then the cultural resources contractor shall provide justification and recommendations for data recovery to BLM. If BLM determines that disturbance is justified, then recommendations for data recovery shall be reviewed by BLM for adequacy and to evaluate the cost of treatment versus the cost of Project redesign. Interested Native American community members shall be consulted if the resource contains a Native American context. Only after BLM review and approval of a site-specific data recovery plan shall such excavation be performed. Data recovery shall collect a representative sample of the deposits that would be destroyed.
- The discovery of human remains during Project implementation shall require special procedures, as discussed below.
- If additional cultural material is exposed by construction, after mitigation of site impacts has been performed per the Discovery Treatment Plan, additional hand-excavation will not be required unless the material represents a new type of data. Such new cultural material would consist of artifact classes and features not recovered in previous excavations. However, even if no additional excavation is required, the newly exposed material shall be mapped and collected.
- Discoveries and their treatment relative to the research shall be reported in the final monitoring report for the Project. A separate report of findings and interpretation relative to a research design shall be prepared if data recovery excavations are employed for mitigative site treatment.

MANAGEMENT AND TREATMENT OF HUMAN REMAINS

Human remains may be discovered in situ during the field excavation program, which includes the test unit excavations. Additionally, human remains may be discovered during the laboratory processing and analysis phases of the treatment program. Archaeological monitoring both within and outside site areas is also planned, during which isolated or disarticulated human remains may be uncovered. One of the objectives of archaeological monitoring is to identify such remains while they are still in place so they and their context can be managed in a manner that is sensitive to the Native American community or other ancestors and to address existing regulations.

If human remains are encountered, the course of action will follow the requirements set forth in 43 CFR 10 and the BLM NAGPRA Protocols as presented in the NAGRPA Plan of Action. This includes stopping work in the exclusion area for a period of no more than 30 days while the consultation requirements of the NAGPRA are completed. Work on the undertaking can proceed outside of an exclusion area defined by BLM. Should these BLM NAGPRA Protocols not be followed, a violation of the NAGPRA and ARPA may take place. The ARPA allows the government to assess civil fines and to proceed with criminal prosecution depending on the nature of the violation.

While it is hoped that human remains will not be encountered during the treatment program, the possibility exists that such a discovery can occur, and procedures are included herein to address such an event. When skeletal remains that may be human are encountered, the following steps will be taken:

- For Project construction activities (as described in the Monitoring Section), if definite or suspected human remains are encountered, the archaeological monitor shall halt work in the discovery vicinity and redirect heavy equipment away from the discovery site to avoid ground-disturbing activities that could adversely impact the remains. The monitor shall also immediately contact/notify the on-site Native American monitor, the consultant Monitoring Supervisor, and BLM. BLM shall then direct the procedures for identification and/or verification of the remains as human. The horizontal and vertical extent of occurrence of the remains within the impact area shall be determined. The remains shall be protected by physical barriers and the presence of monitors to ensure that further disturbance to the remains is avoided. Subsequent to verification of the remains, as previously indicated, the course of action shall follow the requirements set forth in 43 CFR 10 and the BLM NAGPRA Protocols.
- For archaeological investigations, activities in the discovery area shall cease and the field supervising archaeologist shall notify the on-site Native American monitor and the Principal Investigator, who shall notify BLM. As with a discovery during construction, BLM shall then

direct the procedures for the identification and/or verification of the remains as human. Subsequent to verification of the remains, as previously indicated, the course of action shall follow the requirements set forth in 43 CFR 10 and the BLM NAGPRA Protocols.

- Human remains shall be treated with respect and dignity, with care taken to limit disturbance and maintain the association of the remains with any accompanying funerary items and their physical setting. Archaeological investigations or Project development work shall not resume in the discovery area until the appropriate recovery and management actions have been completed.
- The specific location of the discovery shall be withheld from public disclosure, as will the location of any reburial site.
- No excavation of human remains shall be put on public display in any manner, nor photographed, except for the purpose of scientific documentation. No photographs of human remains shall be distributed to the public or published.

For laboratory situations, where small bone or fragments may be identified as sensitive, similar notification and management procedures to field discovery will be followed, and strict provenance controls will be maintained. As with the field, the initial step is expert identification which shall proceed as directed by the BLM. Subsequent to verification of the remains, the course of action will follow the requirements set forth in 43 CFR 10 and the BLM NAGPRA Protocols, including consultation with tribes and preparation of a written plan for management of the remains.

5.0 DATA MANAGEMENT AND CURATION

5.1 TECHNICAL REPORT PREPARATION AND DISSEMINATION

Reports regarding training, monitoring, consulting, evaluating, and data recovery (if necessary), will be responsive to contemporary professional standards. This will include the *Secretary of Interior's Standards for Archaeological Documentation* (NPS 1983).

A comprehensive technical report may be required that will present the results of monitoring, evaluation, and treatment programs completed in relation to the Imperial Valley Solar Project. The production and dissemination of the technical report is the final step in treatment. The consultant is responsible for technical report preparation, with BLM oversight and final document approval. The technical report and ancillary studies will also be responsive to contemporary professional standards and consistent with *ARMR* (OHP 1990). Precise locational data may be provided in a separate appendix if it appears that its release could jeopardize archaeological sites.

The draft report(s) will contain cultural background; the results of Native American consultation; a description of the physical environment; research design, methods, and results sections; and a discussion of meaning (interpretation). Results of laboratory and specialized analyses will be given along with a discussion of spatial and temporal distributions, as appropriate to the individual report. At a minimum, final technical report(s) resulting from actions pursuant to this treatment plan will be provided by BLM to the South Coastal Information Center.

5.2 CURATION IN PERPETUITY

Following completion of cataloging and analytical procedures, Project collections will be prepared for permanent curation according to Smithsonian Institution guidelines and the requirements of the permanent curatorial facility. Materials to be curated include archaeological specimens and samples, site catalogs, field notes, field and analysis forms, feature and burial records, maps, plans, profile drawings, photo logs, photographic negatives, consultants' reports or special studies, and two copies of the final technical report. These materials will be curated at a facility that meets federal standards as promulgated at 36 CFR Part 79, *Curation of Federally Owned and Administered Archaeological Collections*.

REFERENCES

National Park Service (NPS)

1983 *Secretary of Interior's Standards for Archeological Documentation*. Washington, DC.

Office of Historic Preservation (OHP)

1990 *Archaeological Resources Management Report (ARMR): Recommended Contents and Format*. California Office of historic Preservation, Sacramento, CA.

APPENDIX A

SPECIFIC FIELD AND ANALYTICAL METHODS

ATTACHMENT A

SPECIFIC FIELD AND ANALYTICAL METHODS

Standard archaeological field, laboratory, and analysis methods that are consistent with current scientific and regional procedures will be used for the Imperial Valley Solar Project (IVSP or Project). This appendix addresses newly discovered sites that cannot be avoided by Project construction. Upon unanticipated discovery of intact cultural deposits, including features, these resources will be evaluated for listing in the National Register of Historic Places (NRHP) and/or the California Register of Historic Resources (CRHR).

Strategies will include controlled excavations, which consist primarily of Shovel Test Pits (STPs) that measure 0.5 by 1 meter (m), Test Excavation Units (TEUs) that measure 1 by 1 m, and/or larger block exposures that are hand-excavated with strict provenance controls using shovels, trowels, picks, and other tools. Supervised mechanical excavations may also be used, where appropriate, as well as remote sensing surveys.

Archaeological resources are normally determined eligible under NRHP Criterion D or CRHR Criterion 4, potential for important information. The resource must clearly demonstrate the potential and must exhibit the requisite physical integrity. The presence of diagnostic (datable) material and/or artifacts allowing the opportunity to date the site is imperative. Resources in disturbed contexts with no opportunity to be dated are often ineligible for the NRHP. If a resource is eligible and cannot be avoided by construction, the Bureau of Land Management (BLM) may decide to conduct data recovery and excavate a representative sample of the site employing the excavation strategies below.

FIELD METHODS

SURFACE SCRAPES

Surface scrapes are employed in areas of dense vegetation and involve scraping the ground with a shovel in large units to expose the surface for examination.

SHOVEL TEST PITS

STPs are preliminary tests for the presence of subsurface cultural deposits. It is expected that they will be used to delineate the boundaries of previously unknown sites, site components, or large diffuse features, should they be discovered during archaeological fieldwork or monitoring. STPs normally measure approximately 35 centimeters (cm) in diameter and are excavated in incremental 10-cm levels. The number and distribution of STPs depend on the size and geomorphic setting of each site. Each STP is excavated to bedrock or to soil strata that are clearly not of a culturally relevant age, with the ground surface serving as reference for depth

measurements. Excavated soil is reduced by dry-screening through ⅛-inch mesh hardware cloth, and recovered artifacts are collected and bagged by level, with reference numbers assigned and typical labeling information provided. Stockpiled dirt is returned to the STP upon completion; shovel test forms are completed for each unit.

TEST EXCAVATION UNITS

Manually excavated TEUs afford larger subsurface exposures than STPs and are used to recover representative samples of subsurface artifacts with controlled depth information. In general, TEUs measure 0.5 square meter (0.5 by 1 m) to 4 square meters (2 by 2 m); however, dimensions may vary according to circumstances, and adjacent units may be excavated in various configurations to develop block exposures. For example, site depth is a determinant for defining unit size. Unit depths greater than 1.5 m (5 feet) require the opening of an adjacent unit for health and safety issues, as well as for facility of excavation and recording. Also, additional exploration and exposure of a feature that extends beyond the boundaries of a TEU may be necessary. Excavation proceeds by 10-cm arbitrary contour levels unless natural or cultural strata are present; then, levels are subdivided to maintain these distinctions. Contour levels are maintained by measuring depth from the existing surface. An excavation level record is completed for each level. As appropriate, other records are completed, including plan views, profiles of test units, and descriptions of features. In addition, test units are selectively photographed during excavation to show artifact and/or stratigraphic associations, profiles, features, or other data.

Test units will be numbered by a sequential designation. The highest corner of each test pit is designated the unit's datum for elevation control. This corner will be marked with a pin flag labeled with the test unit's number. Depths of units are determined by empirical site stratigraphy. In alluvial or aeolian deposits, units can range up to several meters below the surface of the site. Whenever possible, units will be excavated to bedrock or to sediments that are clearly not of a culturally relevant age.

Hand-excavation of test units will normally be accomplished using shovels, trowels, breaker bars, and picks, depending on the composition of the soil and the nature of the cultural deposits. In feature contexts, trowels, brushes, and other small implements may be most appropriate. Special methods are used in the excavation of features, including sample collections suitable for special study. Charcoal (for radiocarbon assay) is collected when present. Depending on excavation context and research design issues, other samples that may be collected include bulk sediment for humate analysis and/or chemical analysis, pollen and/or phytolith, and flotation. Excavated soils are typically dry-screened through ⅛-inch mesh to reduce sediment volume and bagged and tagged as previously described.

AUGER EXCAVATION

Auger excavations are used to define soil stratigraphy, to locate bedrock, or to test for the presence of cultural remains at greater depth, including potentially buried deposits. With extension handles, this procedure can accurately locate and trace soil strata at depths of several meters. Augers can be placed in the bottom of STPs or other excavation units to further test for depth of deposit when additional excavation is otherwise impossible. However, the small volume of most auger borings limits the usefulness of this procedure for mapping the absence of subsurface cultural deposits with certainty. Auger excavations may or may not proceed using arbitrary levels (e.g., 10 cm or 20 cm), depending on the circumstances. Augered soils are typically screened through ⅛-inch mesh to recover cultural remains. On each site, auger tests are sequentially numbered, and recovered materials are bagged, labeled, transported, and processed in the same manner as other excavated materials. Reference log numbers are assigned to each provenance unit, and an auger form is completed. Auger test locations are plotted on the site plan views, and auger holes are covered upon completion with the dirt available from the initial screening reduction.

TRENCHING

Where trenching is conducted, an archaeologist and/or geoarchaeologist will direct backhoe operation. The duties of this person include selecting trench locations and their dimensions, monitoring the backhoe while in operation, and examining profiles. Depths of trenches are determined by the site context. For safety, trenches deeper than 1.5 m (5 feet) should be double width or shored. This is an Occupational Safety & Health Administration (OSHA) requirement. Trench walls are photographed and profiled, and stratigraphic units are described. To facilitate accurate sketching, elevation-control stakes are placed at 20-m intervals along the excavated portions of the trench. Trench profiles will be cleaned and examined at least every 5 m. The depth of stratigraphic boundaries is measured from the surface, with strata boundaries extrapolated between mapping points. Standard sedimentary and soil variables are recorded for each stratum. Recorded variables may include (1) description of contacts; (2) soil color; (3) textures; (4) boulder and gravel content; (5) large clast angularity (gravel size and larger); (6) large clast lithology; (7) soil structure, consistency, and plasticity; (8) root content and form; (9) sedimentary structure; (10) disturbance; and (11) organic content. Standard data on soils and sediments are recorded on the Soil Worksheet. As warranted, diagnostic artifacts and special samples may be collected from trench profiles. These collections will be point provenanced and assigned individual numbers.

Back dirt from the trenches will be sample screened at no less than 5-m intervals through ⅛-inch mesh. All features encountered will be exposed by hand. Features will be recorded and mapped on feature forms and photographically documented.

Each trench is marked with a wooden stake labeled with the trench designation. A master list of trenches with their locations, dimensions, and general observations is maintained, and trench locations are included on the site map. Backfilling of trenches is done by backhoe after manual excavations on a site are complete. The wooden stakes marking trench locations will be left in place for mapping.

FEATURE EXCAVATION

Features will be exposed in plain view. If necessary, additional excavation units will be opened as a block. All feature components will be mapped and photographed. If appropriate, the feature will be bisected and profiled, and soil samples will be collected to allow the studies discussed below.

GEOMORPHOLOGY

The use of geomorphology in archaeological excavations has increased substantially over the last decade. A trained geomorphologist/geoarchaeologist will determine and discuss landform context and site formation processes, including the issue of disturbance, and will profile select trenches and excavation units. The geomorphologist will also help determine where trenches should be placed to obtain the best cross-section of the site stratigraphy.

REMOTE SENSING

There are several types of remote sensing techniques that are useful to locate buried features and other anomalies on archaeological sites. These techniques are noninvasive and, when used in combination with hand-excavation, can greatly increase the efficiency of the latter by indicating areas worthy of investigation. Such techniques may be employed in circumstances where they can provide information not otherwise obtainable.

Ground Penetrating Radar (GPR). GPR is a geophysical method that has been developed over the past 30 years for shallow, high-resolution, subsurface investigations of the ground. GPR uses high-frequency pulsed electromagnetic waves to acquire subsurface information. Energy is propagated downward into the ground and is reflected back to the surface from boundaries where there are electrical property contrasts. GPR is a method that is commonly used for environmental, engineering, archeological, and other shallow investigations.).

Resistivity Survey. Another method, soil-resistivity survey, uses an electrical current introduced into the soil to locate anomalies. The ease or difficulty with which this current flows within the soil is then measured, and resistant areas are mapped. Results are useful when the resistivity contrasts between the archaeological record and the surrounding soil matrix.

Magnetic-Field Gradient Survey. Magnetic-field gradient survey consists of mapping deviations from the uniformity of Earth's magnetic field.. This technique is based on the magnetic field gradient being consistently zero, with deviations from this uniformity indicating archaeological features. Magnetic-field gradient surveys are particularly useful in detecting remnant magnetization that originates from heating iron oxides found in most soils in features such as hearths, fire pits, and ceramic concentrations.

MAPPING METHODS

Point Provenance Method. The point provenance method is employed to map the locations of diagnostic artifacts, tools, and other items or significant features prior to collection or excavation, or to collect the surface of low-density sites. The Global Positioning System (GPS) units with sub-meter accuracy are used for point provenance mapping of monitoring finds, surface scatters of artifacts, and collecting isolated diagnostic cultural materials. Monitors and field mapping personnel will use hand-held GPS units to map finds and to collect surface materials. Materials collected will be assigned sequential reference numbers that are logged on GPS recording forms for the location of each item or feature documented. The reference number is used to prepare a site or item location map and in the presentation of tabled data and artifact illustrations provided in the technical report.

Electronic Distance Measurer Method. During testing and data-recovery program, where provenance accuracy is critical for meaningful interpretation of cultural resources, the electronic distance measurer (EDM) method is typically used. The EDM method provides precise locational data in three dimensions. Because each mapping shot records the vertical azimuth, distance, and bearing, site topography can also be easily documented. To make maximum use of the precision afforded by this mapping technique, data are linked to AutoCAD and geographic information system (GIS) software data and downloaded or entered into an electronic mapping program for output. When the mapping data are plotted, the result is a precise scaled map.

An electronic total station is used for the EDM method, and a single primary mapping station is located in a central area of each property. Sub-data are established, as needed, especially on large sites or those with diverse topography. Stations are established with a well-embedded 9-inch-long nail, and demarked with black-and-pink striped surveyor's flagging. Station labeling includes the station number, site number (permanent designation if available, field number if not), research organization, and date. At large properties, secondary mapping data can be established, keyed to the primary datum, and properly labeled to facilitate recordation of cultural, topographic, and other data.

PHOTOGRAPHS AND ILLUSTRATIONS

Photographic documentation will include color digital photographs taken throughout the monitoring program and during all phases of individual site treatment activities such as testing and/or data recovery. Photographs taken during monitoring will used to document the activities monitored and the initial recordation of any discoveries or finds made. During testing and/or data recovery activities, photographs will include site overviews to show a site's physiographic and environmental setting, hand and mechanical excavations in action, and features and unit wall profiles. Photographs will be recorded on standard photographic logs identifying the frame, day, month, year, time, subject, and direction of view. Illustrative photographs will be included in the draft technical report.

Sketches or illustrations of unique features and artifacts are also beneficial in depicting details that are sometimes not evident in photographs. These techniques will be used, as determined necessary, and also included in the draft technical report.

CATALOGING AND ANALYTICAL METHODS

Collected artifacts will be inventoried and organized during and following fieldwork and prior to sorting and detailed attribute recording. The Reference Number Log (bucket/bag log) that is completed in the field is submitted to the laboratory with the bagged and labeled residues. The Reference Number Log is the primary inventory document and serves as the list against which artifacts and forms are crosschecked when transferred to the laboratory. Checking assures that (1) collections and data forms are present; (2) the provenance designations (e.g., site, test unit, depth) on each collection bag match those on the data forms and in the Reference Number Log; and (3) other required data sheets (e.g., feature records or special sample forms) are present, accurate, and complete. Data sheets with incomplete or unclear information and those that contradict other data sheets for the same property are returned to the appropriate field personnel (e.g., crew chief, field monitor) for correction.

CLEANING

Prior to cataloging and analysis tasks, most artifacts and specimens will be cleaned and stabilized, either at the wet-screening station or in the laboratory. Specimens that will *not* be cleaned include (1) wood or fiber; (2) fragile/friable bone, antler, or shell; (3) selected groundstone (for possible pollen wash or immunological analysis); (4) selected lithic tools (for blood residue analysis); and (5) possible baked clay or ceramic items.

For other artifacts, adhering dirt will be removed by washing or dry brushing. Flaked stone, groundstone, and shell are typically cleaned using water. Depending on its condition, bone may be either dry brushed or quickly immersed in water, gently brushed, and then quickly rinsed. To

prevent accidental contamination between provenances, artifacts from a single provenance will be cleaned and/or stabilized at the same time, and washing should proceed one unit at a time. Once dry, individual artifacts from each provenance will be placed in clean polyethylene bags along with identification tags produced on archivally stable cardstock. Radiocarbon samples will be placed in either aluminum foil pouches or in glass vials, which will then be placed in clean polyethylene bags. Flotation, pollen, sediment, and other bulk samples will be left in double polyethylene bags until they are processed.

SORTING AND CATALOGING

Sorting and cataloging methods will follow the requirements of the curation standards for a facility that will meet minimum federal requirements as published in 36 Code of Federal Regulations (CFR) Part 79. Specific curation requirements at the facility selected to curate the Project materials will also be ascertained and followed.

Recovered data are separated hierarchically into material class, artifact type, material, quantity, and weight. Material class separates artifacts and other data into such major categories as stone, ceramic, bone, shell, glass, metal, and others. The second ordering variable (artifact type) places the artifact into a category such as debitage, biface, mano, or awl. Material is sorted by toolstone (e.g., chalcedony, obsidian, volcanic, quartzite, or granite), bone, shell, etc.

This information is recorded on the master catalog form with the following additional data: count, weight, locus, unit coordinates, depth/level, unit type, unit designation, and curation box number. Stone, bone, and shell artifacts are counted; unmodified shell, bone, and charcoal are not. Special samples and ecological data (ecofacts) are recorded on the same catalog form, with the same information required for artifacts. Where appropriate, feature number, sampling stratum designation, soil stratum (stratigraphic) designation, and screening mesh size are also included for each catalog entry. Attributes for cores, debitage, flaked stone tools, groundstone, bifaces or projectile points, and prehistoric ceramics are recorded on the corresponding sub- or detail catalogs.

After the information has been recorded, an artifact is given a three-part catalog number, with each part separated by a dash. The first part of the catalog number is the site number, the second part is the year excavated, and the third part is assigned consecutively in the order of entry. After assigning catalog numbers, the artifacts will be placed in clean polyethylene bags with the catalog number and provenance written with archival-quality black ink markers. Identification tags will be generated on adhesive archival-quality labels and applied to the interior of the bags. The tags will include, at a minimum, catalog number, artifact type, and provenance information. Each tag will show the catalog number along with other pertinent

information, such as site number and selected provenance information. Bagged artifacts are stored in 6-inch-square boxes, which are incorporated into the temporary boxing system. The catalog will be entered into the computerized data management system for ease in sorting and manipulating data within and between sites.

TEMPORARY CURATION METHODS

Processed artifacts will be physically organized by artifact type and grouped using archival bags and boxes. The boxes will be temporarily stored at the AECOM processing facility until transfer to the designated curation facility. The boxing system is set up by site, class, and project number. After cataloging, the artifacts are placed in appropriately sized boxes. These boxes will be labeled with the box number and the item type (e.g., debitage, groundstone, bone, soil samples). Smaller archival-quality boxes or plastic film canisters may be used for small or unusual artifacts that need further protection. The boxed artifacts are then placed in a 12- by 15- by 10-inch archival banker's box. The boxes are recorded on an Inventory Spread Sheet.

For a discussion of long-term curation and artifact disposition, refer to the chapter *Data Management and Curation*.

ARTIFACT AND ECOFACT ANALYSES METHODS

Following initial processing and interim curation, artifact and sample analyses will proceed. The recovered chipped and groundstone assemblages, bone and shell artifacts, shell and faunal assemblages, and other items will be subject to a variety of morphological, functional, technological, and typological analyses as appropriate to the data class and research goals. Brief overviews of standard analysis methods are provided in the following sections.

Chipped Stone. The analysis of chipped stone items is directed toward developing classes (and types) of artifacts that are based on morphological, functional, and technological attributes.

Bifaces. Finished bifacial tools include such formal items as points, knives, and drills. The trajectory of biface reduction yields progressively smaller flakes and an objective piece that becomes thinner and takes on a planned form. The objective piece can include the original cobble/core or any detached flake modified using the bifacial strategy. At any point in the production sequence, an incomplete or broken biface can be used as a tool. Bifaces are classified according to the stage of manufacture represented. Biface reduction/production is recognized as a continuum, and the stages reflect arbitrary divisions within this continuum. Biface reduction can be performed on flakes, cobbles, or split cobbles, and can result in cores, tools, and rejected items.

The following data will be recorded for analyzed bifaces: manufacturing stage; lithic material; color, condition, and portion present; overall shape; base shape; transverse cross-section; longitudinal cross-section; and maximum dimensions (length, width, and thickness). The stages of biface manufacture include the following:

- *Stage 1: Edging.* Deep and wide cortical removals originate from natural lateral surfaces. Twenty percent or more of the cortex is retained. The cross-section is irregular or blocky. The width-to-thickness ratio is greater than 3:1.
- *Stage 2: Primary Thinning.* Primary thinning includes second-row and some third-row flaking, loss of natural surface platform angles, prepared platforms, straightened edges, and the most prominent masses and ridges removed. Minimal cortex is retained by the end of Stage 2. The biface begins to form an ovate shape, but the cross-section is rectangular, trapezoidal, or very thick lenticular. The width-to-thickness ratio is less than 3:1.
- *Stage 3: Secondary Thinning.* Overlapping flake scars form opposing lateral margins, no cortex remains, and the biface assumes the desired shape. The cross-section is becoming more lenticular, and the width-to-thickness ratio is about 4:1. Often, change to soft hammer percussion techniques takes place during this stage.
- *Stage 4: Shaping to Preform Tool.* Shaping results in regular flake removals and uniform lateral edges. The cross-section is very lenticular, and optimal width-to-thickness ratios are reached (between 4:1 and 5:1). Optionally, a change to pressure flaking may be made for tool shaping.
- *Stage 5: Finishing.* The preform is finished by notching or fluting, basal grinding, or minor retouch and shaping, if necessary, accomplished through pressure flaking. Stage 5 bifaces can be further subdivided into morphological types.
- *Stage 6: Tool Maintenance and Resharpening.* Continued use of the tool results in dulled edges. Resharpening by pressure flaking reduces the size of the tool and produces a characteristic S-shaped edge cross-section.

Projectile Points. Projectile points are finished bifaces and are a morphologic variation of this chipped stone category. Points exhibit a wide range of styles that are chronologically and culturally diagnostic and are, therefore, treated in greater detail. Typological analysis of projectile points provides diagnostic artifact characteristics to the items and increases their importance for chronological, settlement, subsistence, and technological research.

Projectile points are well-shaped (although not always symmetrical) thin bifaces with uniform cross-sections, regular and non-sinuous edges, little to no cortex, and minute edge alteration and retouch. They often have a deliberately prepared haft element oriented near the center of one end. From the distal to proximal ends, attributes of points include the tip, blade, and stem, but reflect considerable morphological variability in tip form, blade edges,

shoulder/barb configurations, notch location and orientation, stem shape, tang morphology, and base configuration.

The attribute stage of analysis recognizes three subclasses: “dart” points/shafted knives, “arrow” points, and indeterminate points. Points are further classified into named types (where possible). The attributes recorded for projectile points include lithic material, condition and portion present, blade edge form, blade shape, base shape, shoulder form, stem form, presence of serration, presence of basal notching, presence of side notching, cross-section, actual maximum dimensions (length, width, and thickness), length at longitudinal axis, actual width, position of maximum width, maximum blade width, basal width, maximum stem width, position of maximum stem width, shoulder height, proximal shoulder angle, distal shoulder angle, notch opening, side notch width, basal notch width, side notch depth, and basal notch depth.

Cores. This class of artifacts refers to bulky objective pieces used in the preparation of chipped stone tools. Most of these items are pieces representing a wide range of lithic reduction strategies, with the main goal oriented toward testing the quality of material or producing large serviceable flakes suitable for use or for modification into formal tools. Cores can be minimally described by core type, maximum dimensions (length, width, and thickness), lithic material, total observable flake removals, and percentage of cortex.

Cores can be separated into the following categories:

- Test blocks largely reflect the morphology of the original cobble and have a high percentage of cortex. They are characterized by a minimum amount of flaking (usually fewer than five flake scars), which was used to assess the texture and knapping quality of the stone and to determine whether vugs or impurities are present. Test blocks tend to represent rejected materials (i.e., those excluded from tool production trajectories).
- Split cobble/pebbles are the result of splitting cobbles or pebbles into half sections for further reduction. A minimum number of flake scars may be present. The specimens are not shaped and have thick, irregular cross-sections approaching plano-convex. Cortex covers more than 50% of the dorsal surface. Some secondary flaking may occur around the perimeter of the split edge, but the modification has not substantially changed the morphology of the split sections. The edges may or may not be sinuous.
- Biface cores are virtually indistinguishable from Stage 1 and 2 bifaces, described previously.

- Unidirectional cores primarily have a single striking platform from which a series of flakes has been detached. The flake removal can reflect direct percussion or bipolar technique, but the vast majority of flakes should originate from the single platform.
- Bipolar cores resemble single platform cores, but differ in the existence of a second platform on the opposite end of the core. The orientation of flake removal is from both ends of the core along a single axis.
- Bidirectional cores are similar to bipolar cores, but differ in the location of the second striking platform. In bidirectional cores, the platforms are not in opposable locations.
- Multidirectional (also labeled amorphous or unpatterned cores) have multiple platforms and flake scar orientation that may either coincide with the ridges on the original cobble or lens geometry or utilize appropriate edge angles from previous flake scar removals. The flake scar removal patterning may appear haphazard and random.

Unifaces. Unifaces are shaped tools or incidentally shaped flakes or blades that have been retouched or display continuous modification along one or more edges of one face. Flakes with modification along different edges on alternate faces are also regarded as unifaces. Edge modification can occur on the dorsal or ventral surfaces. During analysis, unifaces will be typed according to existing morphological categories (e.g., keeled scraper, beaked scraper, or concave scraper). In addition, the following observations may be recorded for each specimen: material, shape, cross-section, longitudinal cross-section, condition, location of worked edge(s), maximum dimensions (length, width, and thickness), and edge angle. Unifaces can be subdivided into the following subclasses:

- Formally shaped unifaces are tools with extensive retouching that has substantially modified the morphology of the tool. The retouching consists of a continuous series of flake scars knapped from the edge and extend from at least one-quarter to the entire face of the tool. The tool morphology may or may not be symmetrical, but the modification is relatively extensive and clearly patterned.
- Informally shaped unifaces are tools with incidental edge modification or retouching not substantially modifying the outline morphology of the flake. These items are regarded as expedient tools selected for their natural morphology or edge characteristics and are believed to have been used for a limited number of tasks. The shape of the original flake is largely evident. Edge modification is restricted to a series of five or more continuous flake scars along the edge. Discontinuous nicks randomly occurring along the edge are not regarded as modified flake tools.

Debitage. This category of artifacts refers to unmodified, discarded knapping residues resulting from the production and maintenance of chipped stone tools. Represented are a wide range of remains, including complete and broken flakes, angular waste, and heat spalls and potlids from errors in heat treatment. The attributes recorded for debitage include lithic material, manufacturing stage, completeness, presence and percentage of cortex, evidence

of heat treatment, and size. Debitage generally can be defined within the following six categories:

- Core flakes have definable dorsal/ventral surfaces and predominantly unfaceted platforms with steep platform/dorsal edge angles. The dorsal surface flake scar patterns may have unidirectional or multidirectional orientations. Flake cross-sections may be thick, angular, and irregular. Cortex commonly occurs on platforms and/or dorsal faces of these specimens.
- Biface flakes have definable dorsal/ventral surfaces and predominantly faceted platforms, acute platform/dorsal edge angles, and dorsal surface flake scar patterns with mostly multidirectional orientations. Flake cross-sections tend to be thin and concave/convex. Cortex does not occur on platforms and is rarely present on dorsal faces of these specimens. Biface reduction may have resulted in cores or tools.
- Unidentified flakes are flakes or flake fragments that possess insufficient characteristics to be classified as either core or biface flakes. They have definable dorsal and ventral orientations, but platforms are generally absent. This subclass is a general "catch-all" category for non-diagnostic flakes.
- Blades are a special form of long, relatively thin flakes characterized by unidirectional flake scar patterns on the dorsal face and a length-to-width ratio in excess of 2:1.
- Angular waste consists of irregular pieces of knapping debris that do not possess sufficient morphological attributes to permit classification into a specific flake category. Most are angular and blocky without discernible platforms or dorsal/ventral surface orientations.
- Heat spalls and potlid flakes are derived from thermal damage and are morphologically distinct from knapping debitage. Heat spalls are often characterized by crazed exterior surfaces and sometimes thermally discolored lithic materials. Typically, the dorsal surface of heat spalled debris displays cortex or compression rings from previous flake removals. Potlids are plano-convex spalls, where the planar surface is the dorsal side and the convex surface is the ventral. Potlids and heat spalls are formed from different expansion/contraction of stone materials under extreme thermal conditions; they characteristically lack the compression rings of force. This type of debris is usually derived from failed attempts at heat treatment or accidental exposure to fire.

Because debitage is generally the most frequent artifact class on prehistoric sites, and because minimal additional key conclusions can be obtained using size data on numerous individual specimens, size sorting of debitage can be accomplished. Debitage analysis is also useful for determining whether heat treatment was a phase in tool production. Characteristic heat treatment attributes or damage such as differential luster and crazed surfaces will be recorded during debitage analysis.

Groundstone. Groundstone is defined as lithic material whose shape is modified by repeated friction of stone against stone, as opposed to chipping. Groundstone is recorded using simple

morphological and technological attributes based on size and shape. For groundstone specimens, type, lithic material, number of ground surfaces, and maximum measurements (length, width, thickness, and weight) are recorded. In addition, evidence of formal shaping, rejuvenation, secondary use, and the presence and distribution of peck marks, polish, and striations can be recorded.

Common groundstone artifacts include the following:

- Milling stones or metates are large, tabular pieces of stone that exhibit flat to concave ground surfaces on one or both faces. They served as the surface against which materials were ground. They are separated into slab, block, and amorphous forms based on thickness and cross-section. Those that have rectangular cross-sections and are 6 cm or less in thickness are termed slab milling stones. Those with rectangular cross-sections but are greater than 6 cm in thickness are termed block metates. Milling stones with irregular, long cross-sections, without consideration of their thickness measurements, are termed amorphous. Surfaces may be classified as Type A (planar) or Type B (concave).
- Handstones or manos are handheld grinding stones used to mill food grains or other items against a metate. Typically, they are slabs or cobbles of a size to fit in one or two hands and exhibit a flattened, ground surface on one or more of their faces. Type 1 manos include amorphous to subrectangular handstones with no indication of intentional shaping. Type 2 manos are those that have been shaped into a regularized form. This type is further subdivided on the basis of size into one-handed and two-handed varieties, with two-handed manos defined as those greater than 15 cm along their longest axis.
- Mortars are deeply concave stones in which material was ground and/or pounded. They may be either bowl or bedrock forms.
- Pestles are handheld grinding stones used to press against and into a mortar. They are typically long, cylindrical, and rounded at one or both ends.
- Discoidals/cogstones are thick circular items that served an unknown function, but are associated with the Milling Stone tradition in California archaeological contexts.
- Abrading stones show parallel striations oriented longitudinally (rather than transversely) on one or more faces. Battering may also be present.
- Pendants/gorgets are extensively ground on both surfaces and may have evidence of a biconically drilled hole.
- Unidentified groundstone are fragments that are too small to distinguish morphology or function. These have one or more ground/faceted surfaces, but the remaining portion is too small to infer artifact type.

Hammerstones. Typically, these artifacts are unmodified cobbles, initially reduced cores, or broken cores that exhibit battering on one or more edges. Three subclasses may be defined, two indicating the state of reduction of the artifact and the third indicating the degree of wear. The first subclass includes cobbles that lack signs of modification except for obvious battering at one

or more points on the cobble surface. The second subclass is cores that show battering on one or more previously flaked edges. The third subclass is pecking stones: pebbles or cobbles with lighter and more localized wear, often on a pointed projection of the cobble. For these specimens, lithic material, number of modified surfaces, and maximum measurements (length, width, thickness, and weight) can be recorded.

FAUNAL ANALYSES

A minimum number of individuals indexed will be developed for the vertebrate sample. The purpose of vertebrate faunal analysis is twofold: (1) to identify the variety of fauna present in the local environment over a long period of time, and (2) to identify the species of animals and birds that were included in the human diet, and their ratios diachronically. Both aspects—environmental change and subsistence base—are integral to understanding prehistoric adaptations and historic uses of the area. Special attention to the possibility of faunal remains related to the Anza expedition will be included in the analysis.

SPECIAL STUDIES

Special studies to be completed for the treatment program, as data facilitate, include the following:

- *Radiometric Analysis.* Selected charcoal and shell samples and other remains containing carbon (e.g., organics and bone) from key contexts will be submitted for radiocarbon assay. Approximately 10 samples will be submitted to establish the chronology of paleolandscapes for the paleoenvironmental reconstruction historic context, and another 10 will be submitted to date the chronology of sites and site components should sufficient data be recovered during the treatment program.
- *Obsidian Sourcing Analyses and Hydration.* Obsidian sourcing analysis is used for providing an idea of the regional exchange system within which prehistoric site occupants operated. Obsidian hydration analysis by source is useful for assigning relative chronological ages to the sites and associated materials.
- *Flotation, Pedological, and Chemical Analyses of Sediments.* Flotation analysis of cultural features, including subsequent macrobotanical identification, as necessary, is an important aspect of the evaluation program. Data can be used to address subsistence, site function, seasonality of occupation, internal site structure, and settlement type. Pedological and chemical analyses are useful for geomorphic studies, paleoenvironmental reconstructions, and postformation processes.
- *Ceramic Analyses.* Ceramic thin sectioning (sourcing).
- *Other Analyses and Assays.* Other types of artifact analyses and sample assays may be performed if sufficient data are recovered during the treatment program. These include (1) blood residue (immunological) analysis of selected lithic tools, (2) microscopic use/wear analysis of the edges of selected lithic tools, and (3) stable carbon isotope assay of bone samples from various taxa.

ATTACHMENT B

DAILY MONITORING LOG

DATE:

ARCHAEOLOGICAL MONITOR: _____

FACILITY: _____

ARRIVAL: _____ **LUNCH:** _____ **DEPARTURE:** _____

PROJECT AREA(S): (Location**)** _____

_____

_____

TYPE OF WORK AND EQUIPMENT: _____

_____

SUMMARY OF CONSTRUCTION ACTIVITIES PERFORMED: _____

_____

_____

MONITORING ACTIVITIES PERFORMED (e.g., protection of ESA)**:** _____

_____

_____

_____

CULTURAL RESOURCES PRESENT: _____

_____

_____

NATIVE AMERICAN MONITOR (If present): _____

NON-COMPLIANCE: _____

_____

COMMENTS: _____

_____

_____

LOG FILED WITH MONITORING SUPERVISOR: _____

ATTACHMENT C

CONTACT LIST

CONTACT LIST

AFFILIATION	NAME	TELEPHONE	EMAIL
Bureau of Land Management Cultural Resources			
California Energy Commission			
Tessera			
Construction Manager			
Monitoring Supervisor			
Principal Investigator			
Imperial County Coroner			

APPENDIX K: EXAMPLE NAGPRA PLAN OF ACTION

DRAFT
NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT PLAN OF ACTION:

**A WRITTEN PLAN OF ACTION
FOR THE TREATMENT OF
INTENTIONALLY EXCAVATED OR INADVERTENTLY DISCOVERED
HUMAN REMAINS, FUNERARY OBJECTS, SACRED OBJECTS,
OR OBJECTS OF CULTURAL PATRIMONY
FOR THE IMPERIAL VALLEY SOLAR PROJECT IN CALIFORNIA DESERT DISTRICT OF THE
BUREAU OF LAND MANAGEMENT CALIFORNIA**

Prepared For:

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August 13, 2010

TABLE OF CONTENTS

Section **Page**

Introduction....L-1
Planned Action....L-1
Consultations....L-1
1) Objects to be considered as cultural items....L-2
2) Specific information to determine custody....L-3
3) Planned treatment, care, and handling of human remains....L-4
4) Planned archaeological recording of the human remains and cultural materials....L-6
5) Analysis planned for the human remains and cultural materials....L-6
6) Steps to be followed to contact Indian tribe officials at the time of intentional excavation....L-6
7) Kind of traditional treatment to be afforded the human remains....L-7
8) Nature of reports to be prepared....L-7
9) Planned disposition of human remains pursuant to 43 CFR 10.6....L-7
10) The role of tribal monitors during survey and excavation....L-8
11) BLM personnel and tribal representatives involved in this NAGPRA effort....L-8
Federal Officials....L-9
Invited Signatories....L-10

Attachments

A Upon The Discovery of Human Remains, Funerary Objects, Sacred Objects, or Objects of Cultural Patrimony

B List of Native American Tribal Contacts

Introduction

This Plan of Action (POA) describes the procedures for the treatment and disposition of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony (hereinafter, cultural items) for inadvertent discoveries during construction of the Imperial Valley Solar Project (IVSP or Project) located in the California Desert District (CDD) of the Bureau of Land Management (BLM), California. This POA complies with the requirements of the Native American Graves Protection and Repatriation Act (NAGPRA), 25 U.S. Code (USC) 3001 et seq. and its implementing regulations as set forth in 43 Code of Federal Regulations (CFR) Part 10 (specifically §10.5[e]), and the Archaeological Resources Protection Act (ARPA), 16 USC 470aa-mm., with its implementing regulations (43 CFR Part 7).

Planned Action

The IVSP would construct a 750-megawatt (MW) solar energy plant on approximately 6,500 acres of public lands in California administered by BLM CDD and the El Centro Field Office. The Project would use existing roads and construct new roads in the Project area.

The Project is located in western Imperial County, California, immediately east of the town of Ocotillo, west of the town of Seeley, and north and south of Interstate 8 (I-8). The Project will use the SunCatcher technology of Stirling Energy Services. Each SunCatcher consists of a 25-kilowatt solar power electric-generating system. The system is designed to track the sun automatically and to focus solar energy onto a Power Conversion Unit, which generates electricity. The system consists of an approximate 38-foot-high by 40-foot-wide solar concentrator dish that supports an array of curved glass mirror facets. The 300-MW Phase I of the Project will consist of approximately 12,000 SunCatchers. The 450-MW Phase II portion of the Project will include approximately 18,000 SunCatchers.

The Project will include the construction of a new 230-kilovolt (kV) substation approximately in the center of the Project. A Main Services Complex, where key buildings and parking areas will be located, will be constructed at the northeastern end of the Phase I Project. Main roads will be constructed with a combination of roadway dips and elevated sections across the dry washes on the Project. The full Phase II expansion of the Project will require the construction of the 500-kV Sunrise Powerlink transmission line that San Diego Gas & Electric (SDG&E) has proposed. A 230-kV transmission line that will be built for Phase I will parallel the current transmission line corridor for the Southwest Powerlink transmission line within the existing right-of-way (ROW). The main entry for truck traffic to the Project during construction will be from I-8 to the Project entrance on Evan Hewes Highway. During Project operation, the secondary and emergency access will be from Dunaway Road.

Consultations

Based on previous consultation, the Campo Band of Kumeyaay Indians, the Cocopah Indian Tribe, the Fort Yuma Quechan Indian Tribe, the Ewiiaapaayp Band of Kumeyaay Indians, the Jamul Indian Village, the Kwaaymii Laguna Band of Indians, the La Posta Band of Kumeyaay Indians, the Manzanita Band of Kumeyaay Indians, the San Pasqual Band of Diegueno Indians,

and the Santa Ysabel Band of Diegueno Indians (tribes) have been contacted for the IVSP and have indicated that the project is within ancestral territory. Additionally, sensitive areas have been identified in association with relic shorelines of ancient Lake Cahuilla. Should remains subject to NAGPRA be discovered during the course of construction, BLM will continue to consult with the interested tribes. These groups have been consulted with and have received a copy of this plan.

BLM's duty to consult with tribes does not include any obligation, implied or expressed, to fund or pay tribes or tribal members for their participation to consult or confer with BLM.

1) Objects to be considered as cultural items:

For the purpose of this plan, the objects considered as cultural items are defined in 43 CFR 10.2 (d) and are as follows:

1. *Human remains* means the physical remains of a human body of a person of Native American ancestry. The term does not include remains or portions of remains that may reasonably be determined to have been freely given or naturally shed by the individual from whose body they were obtained, such as hair made into ropes or nets or individual teeth. For the purposes of determining cultural affiliation, human remains incorporated into a funerary object, sacred object, or object of cultural patrimony, as defined below, must be considered as part of that item (43 CFR 10.2[d][1]).

2. *Funerary objects* means items that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed intentionally at the time of death or later with or near individual human remains. Funerary objects must be identified by a preponderance of evidence as having been removed from a specific burial site of an individual affiliated with a particular Indian tribe or Native Hawaiian organization, or as being related to specific individuals or families or to known human remains. The term *burial site* means any natural or prepared physical location, whether originally below, on, or above the ground, into which, as part of the death rite or ceremony of a culture, individual human remains were deposited, and includes rock cairns or pyres that do not fall within the ordinary definition of a gravesite. For purposes of completing the summary requirements in §10.8 and the inventory requirements of §10.9 (43 CFR 10.2[d][2]), funerary objects can be further defined as follows:

   (i) Associated funerary objects means those funerary objects for which the human remains with which they were placed intentionally are also in the possession or control of a museum or Federal agency. Associated funerary objects also means those funerary objects that were made exclusively for burial purposes or to contain human remains.

   (ii) Unassociated funerary objects means those funerary objects for which the human remains with which they were placed intentionally are not in the possession or control of a museum or Federal agency. Objects that were displayed with individual human remains as part of a death rite or ceremony of a culture and

subsequently returned or distributed according to traditional custom to living descendants or other individuals are not considered unassociated funerary objects.

Funerary objects found in prehistoric burials in the Colorado Desert include, but are not limited to, arrowheads, shell beads, pendants, ceramic pots, and arrow shaft straighteners.

3. *Sacred objects* means items that are specific ceremonial objects needed by traditional Native American religious leaders for the practice of traditional Native American religions by their present-day adherents. While many items, from ancient pottery sherds to arrowheads, might be imbued with sacredness in the eyes of an individual, these regulations are specifically limited to objects that were devoted to a traditional Native American religious ceremony or ritual and that have religious significance or function in the continued observance or renewal of such ceremony. *Traditional religious leader* means a person who is recognized by members of an Indian tribe or Native Hawaiian organization (43 CFR 10.2[d][3]) as follows:

   (i) Being responsible for performing cultural duties relating to the ceremonial or religious traditions of that Indian tribe or Native Hawaiian organization, or

   (ii) Exercising a leadership role in an Indian tribe or Native Hawaiian organization based on the tribe or organization's cultural, ceremonial, or religious practices.

4. *Objects of cultural patrimony* means items having ongoing historical, traditional, or cultural importance central to the Indian tribe itself, rather than property owned by an individual tribal or organization member. These objects are of such central importance that they may not be alienated, appropriated, or conveyed by an individual tribal or organization member. Such objects must have been considered inalienable by the culturally affiliated Indian tribe or Native Hawaiian organization at the time the object was separated from the group (43 CFR 10.2[d][4]).

2) Specific information to determine custody:

In the event of the removal of NAGPRA material on Federal lands, the following specific information will be used to determine custody:

1. Information provided by a lineal descendant(s) that can trace his or her direct relationship, without interruption, between themselves and the deceased by means of the traditional kinship system of the appropriate Indian tribe (43 CFR 10.2[b] and 43 CFR 10.14[b]).

2. Information provided by a Native American tribe, people, or culture that is indigenous to the United States and that can establish cultural affiliation by means of a relationship of shared group identity that can reasonably be traced historically or prehistorically between members of a present day Indian tribe and an identifiable earlier group (25 USC 3001[9], 43 CFR 10.2[e] and 43 CFR 10.14[c]).

3. The Federal agency official will determine cultural affiliation between a present-day individual or Indian tribe by a preponderance of evidence based on geographical, kinship, biological, archaeological, anthropological, linguistic, folkloric, oral traditional, historical, or other relevant information or expert opinion (25 USC 3005 [a][4], 43 CFR 10.2[e], and 43 CFR 10.14[e]).

4. Priority order of custody of the cultural materials will be consistent with 43 CFR 10.6 (a) as follows:

    (1) In the case of human remains and associated funerary objects, in the lineal descendant of the deceased individual as determined pursuant to Sec. 10.14 (b);

    (2) In cases where a lineal descendant cannot be ascertained or no claim is made, and with respect to unassociated funerary objects, sacred objects, and objects of cultural patrimony:

        i. In the Indian tribe on whose tribal land the cultural items were excavated;

        ii. In the Indian tribe that has the closest cultural affiliation with the cultural items as determined pursuant to Sec. 10.14 (c); or

        iii. In circumstances in which the cultural affiliation of the cultural items cannot be ascertained, BLM is unable to prove a right of possession as defined at 43 CFR 10.10(a)(2), and the materials were excavated or removed from Federal land that is recognized by a final judgment of the Indian Claims Commission or the United States Court of Claims as the aboriginal land of an Indian tribe:

            (A) In the Indian tribe aboriginally occupying the Federal land on which the cultural items were excavated, or

            (B) If it can be shown by a preponderance of the evidence that a different Indian tribe has a stronger cultural relationship with the cultural items, in the Indian tribe that has the strongest demonstrated relationship with the objects.

BLM intends to repatriate human remains and associated funerary objects when cultural affiliation can be determined.

3) Planned treatment, care, and handling of human remains:

All discovered remains will be treated with respect and dignity. BLM will provide the tribes an opportunity to examine remains prior to removal and to conduct traditional religious activities, if

this is feasible without delay that would endanger the remains. While BLM will provide the opportunity to view the remains prior to removal, the tribes are responsible for their travel expenses to and from the location of the discovery.

The IVSP will avoid any unnecessary disturbance, physical modification, or breakage of remains and the transport, inventory, or storage of human skeletal remains in locations separate from their associated funerary objects. Treatment will proceed according to the following provisions:

1. Representatives of the tribes will have the opportunity to be present during the exposure and removal of remains whenever possible. If agreed upon by BLM and the tribes, and if feasible, specific tribes may be designated to take the lead in initially responding to discoveries.

2. Remains will be excavated in accordance with the stipulations of the Monitoring and Discovery Plan approved under the terms of the Project's Programmatic Agreement (PA) for compliance with Section 106 of the National Historic Preservation Act (NHPA).

3. No destructive analyses of remains will be permitted without the written permission from BLM, and only after BLM has consulted with tribes regarding the planned treatment, care, and handling of any recovered human remains, funerary objects, sacred objects, or objects of cultural patrimony.

4. Drawings of remains and the locations of associated funerary objects will be made and may be published with BLM approval unless the claimants determine funerary objects are of a sensitive nature.

5. No pollen or flotation samples will be removed from burial pit fill dirt without the written permission of BLM, and only after BLM has consulted with tribes regarding such removal.

6. Transportation of cultural items will be minimized under all circumstances and will be carefully packed to avoid disturbance or damage. Human remains may be packed separately from their associated funerary objects, but the containers will be kept together at all times.

7. Representatives of the tribes will be afforded the opportunity to view all artifact collections and records resulting from the archaeological investigation to identify funerary objects, objects of cultural patrimony, or sacred objects. If such objects are identified, BLM will be notified by the tribes and consultation will be initiated regarding their consistency with NAGPRA criteria for identification of these classes of objects and their treatment and disposition.

8. IVSP is responsible for ensuring the security of cultural items from vandalism or other disturbance through employment of security personnel, fencing, and other appropriate measures, as needed. If human remains are endangered by exposure or other factors, IVSP's approved cultural resources/archaeological contractor may be authorized by BLM

to proceed with removal of the cultural items to their facility to protect the cultural items. Written notice of this action must be provided to the claimants and agencies within 3 days of removal.

9. IVSP will not resume construction in the buffer area surrounding the discovery until it has received written authorization to proceed based on procedures established in the treatment plans as prescribed in the PA. In addition, no news releases, including photographs, videotapes, written articles, or other means of information, shall be released by any party unless approved by BLM and the tribe(s).

4) Planned archaeological recording of the human remains and cultural materials:

All cultural items, as defined in this POA, will be appropriately recorded and described using current standards and following current archaeological practices and methods. The archaeological documentation of human remains will be limited to visually evident characteristics that indicate such things as age, gender, obvious pathologies, and any obvious visual traits that may help to indicate cultural affiliation. Funerary objects will be recorded at a descriptive non-invasive level including measurements, type, and morphology. If human remains and/or cultural items are removed from the site, a catalogue of these items will be maintained.

5) Analysis planned for the human remains and cultural materials:

Initially, only non-destructive analyses will be carried out on the human remains. These can include anthropometric analyses (measurements/weight), mapping, drawing, measuring, weighing, and photo documentation. After consultation with the tribe(s), other tests may be determined appropriate by BLM.

Likewise, only non-destructive analyses will be carried out initially on the associated funerary objects, unassociated funerary objects, sacred items, and objects of cultural patrimony. These can include measuring and weighing, drawing, mapping, photographing, X-raying, and X-ray fluorescence analysis. After consultation with the tribe(s), other tests may be authorized by BLM.

6) Steps to be followed to contact Indian tribe officials at the time of intentional excavation:

In the event of a discovery, IVSP's approved cultural resources contractor/permittee will notify BLM and the appropriate land managing agency within 24 hours and may be authorized to undertake limited additional excavation and examination to assess whether the materials are within the protected classes of remains covered by the PA. The notification will include the following information:

A. A verbal description of what was found and the context in which NAGPRA items are located
B. The location of the NAGPRA items
C. A preliminary assessment of the type of NAGPRA items

D. An assessment of the complexity of the burial(s), human remains, and/or other NAGPRA items, and the likelihood of disturbance if left in place
E. Any other pertinent information

BLM shall notify the tribes promptly after the initial discovery of items protected under NAGPRA and provide written confirmation by certified mail, or alternatively Express Mail, of the discovery within 3 working days (see Attachment A and B). The information to be provided to the tribes will include the following:

A. A verbal and written description of what was found and the context in which NAGPRA items are located
B. The location of the NAGPRA items
C. A preliminary assessment of the type of NAGPRA items
D. An assessment of the complexity of the burial(s), human remains, and/or other NAGPRA items, and the likelihood of disturbance if left in place
E. A request that the tribe(s) respond within 24 hours if the tribe(s) wish to view the remains or objects in place
F. Any other pertinent information

BLM will additionally afford the tribes the opportunity to conduct field visits, viewings of the items in question, and appropriate and reasonable ceremonies or rituals related to the items in question. The tribes are responsible for any costs to and from the discovery site.

7) Kind of traditional treatment to be afforded the human remains:

The tribes will be afforded the opportunity to examine the remains prior to and during removal unless the remains are in direct danger of further disturbance or destruction. Tribal representatives will be afforded the opportunity to perform traditional treatments, as needed, to the remains.

8) Nature of reports to be prepared:

A comprehensive report on the results of the archaeological investigation, including the recovery of cultural items, will be prepared and distributed in accordance with the terms of the aforementioned PA, developed in accordance with Section 106 of the NHPA.

9) Planned disposition of human remains pursuant to 43 CFR 10.6:

In the event that discovered NAGPRA items must be removed, BLM will determine, pursuant to 43 CFR 10.6, which Native American tribe will receive custody of the items. BLM intends to repatriate human remains and associated funerary objects when cultural affiliation can be determined. BLM will provide notification of intent to transfer possession and subsequently return the items to the appropriate tribe within the limitations of 43 CFR 10.15.

Upon determination of a lineal descendant(s) or culturally affiliated tribe that, under Federal regulations, appears to be entitled to custody of the human remains, the agency official will

transfer custody of the deceased to that lineal descendant or culturally affiliated tribe in accordance with 43 CFR 10.6(c).

Prior to any such disposition, the agency official will publish a general notice of the proposed disposition in three separate newspapers of general circulation in the areas where interested tribes now reside. The notices will be published at least two times at least 1 week apart, and the transfer will not take place until at least 30 days after publication of the second notice to allow time for any additional claimants to come forward.

If additional claimants do come forward and the agency official cannot clearly determine which claimant is entitled to custody, the agency official will not transfer custody of the deceased until such time as the proper recipient is determined, pursuant to regulations found at 43 CFR 10.

In the event the remains are of Native American descent, but are not claimed by any tribe within the geographical area, they will not leave the custody of the Federal agency. Should custody of remains be transferred to claimant tribes under 10.6, the tribes may request reburial on BLM land. Reburial of NAGPRA items on lands administered by BLM is subject to the provisions found in Instructional Memorandum No. 2007-002. The reburial locations will be determined through consultation with the tribes, and any locational information will be kept confidential to the extent allowed by law.

10) The role of tribal monitors during survey and excavation:

Individuals who are approved tribal monitors on the Project will notify the Principal Investigator(s) about items they feel are funerary objects, sacred objects, and/or objects of cultural patrimony. The Principal Investigator will notify BLM within 24 hours that monitors identified funerary objects, sacred objects, and/or objects of cultural patrimony. The report will include a description of the find(s), photograph(s) or drawing(s) were applicable, artifact(s) numbers or identification were applicable, and a description of the tribal monitor's opinion(s).

11) BLM personnel and tribal representatives involved in this NAGPRA effort:

As a result of tribal consultation, the following parties will be involved in this NAGPRA effort:

Campo Band of Kumeyaay Indians, the Cocopah Indian Tribe, the Fort Yuma Quechan Indian Tribe, the Ewiiaapaayp Band of Kumeyaay Indians, the Jamul Indian Village, the Kwaaymii Laguna Band of Indians, the La Posta Band of Kumeyaay Indians, the Manzanita Band of Kumeyaay Indians, the San Pasqual Band of Diegueno Indians, and the Santa Ysabel Band of Diegueno Indians (tribes), and the Ah-Mut Pipa Foundation and Kumeyaay Cultural Repatriation Committee (Tribal organizations).

The names and addresses of the tribal members are in Attachment B.

Federal Officials

California State Director, Bureau of Land Management Date

California Desert District Manager, Bureau of Land Management Date

Invited Signatories

Date

Date

Date

Date

Date

Date

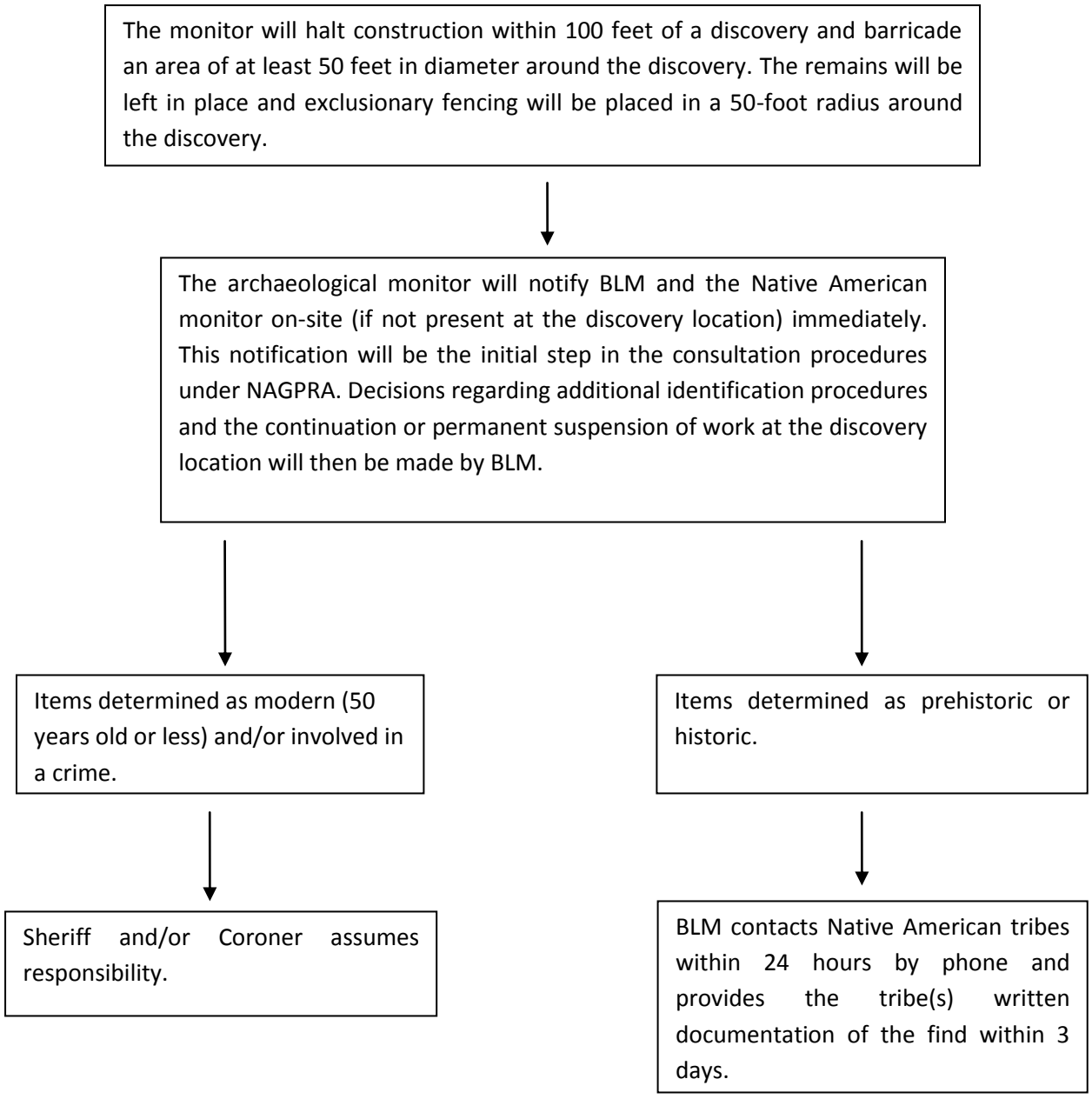
Date

Date

Date

Attachment A

Upon The Discovery of Human Remains, Funerary Objects, Sacred Objects, or Objects of Cultural Patrimony



Attachment B

List of Native American Tribal Contacts

APPENDIX I
Biological Resources

I.1 Wildlife Movement and Desert Tortoise Habitat Connectivity

I.2 Cumulative Impacts

APPENDIX I.1
Wildlife Movement and Desert Tortoise Habitat Connectivity

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DOCKET	
09-AFC-7	
DATE	MAY 14 2010
RECD.	MAY 19 2010

May 17, 2010

Alan Solomon
Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

RE: **Palen Solar Power Project, Docket No. 09-AFC-7**
Desert Tortoise Connectivity Letter
Technical Area: Biological Resources

Dear Mr. Solomon:

Attached please find the following *Desert Tortoise Connectivity Letter.*

If you have any questions on this submittal, please feel free to contact me directly.

Sincerely,

Alice Harron
Senior Director, Development

Solar Millennium LLC
1625 Shattuck Avenue, Suite 270
Berkeley, CA 94709-4611
tel (1) 510-524-4517
fax (1) 510-524-5516
Info@SolarMillennium.com
http://www.SolarMillennium.com

Wildlife Movement and Desert Tortoise Habitat Connectivity

Palen Solar Power Project

Docket No. 09-AFC-7

Alice Harron
Senior Director of Project Development
1625 Shattuck Avenue, Suite 270
Berkeley, CA 94709-1161

AECOM
1420 Kettner Boulevard
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San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

May 14, 2010

Ms. Susan Sanders
California Energy Commission
1516 Ninth Street
Sacramento, California 95814

Subject: Wildlife Movement and Desert Tortoise Habitat Connectivity, Palen Solar Power Project (PSPP) Docket No. 09-AFC-7

Dear Ms. Sanders:

The purpose of this letter is to present findings of surveys and analysis of wildlife movement along the Interstate 10 (I-10) corridor in the vicinity of the Palen Solar Power Project (PSPP or Project), and also to evaluate the potential effects of the PSPP on desert tortoise (*Gopherus agassizii*) movement and population connectivity. Mark Massar with the Bureau of Land Management (BLM) requested the wildlife movement analysis on March 25, 2010. Per the request of the BLM, AECOM, Inc. (AECOM) surveyed all potential wildlife underpasses on I-10 between the Desert Center exit to the west and the Wiley Wells Road exit to the east (32 miles). It was requested that each of these 24 crossings be evaluated in terms of suitability for use by different classes of wildlife (i.e., large mammal, small mammal, reptile). A memorandum summarizing the survey findings was prepared and delivered to BLM under separate cover on April 13, 2010. No comments have been received from BLM to date.

Introduction

The proposed PSPP is located approximately 10 miles east of Desert Center, and 0.5 mile north of the I-10 corridor in eastern Riverside County, California. The Project would be located within a 5,212-acre right-of-way (ROW) owned by the Federal government and administered by the BLM. Environmental analysis of the Project presented in the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) determined there would be adverse effects to wildlife movement and genetic connectivity, particularly to species with normal dispersal distances smaller than the area of the project, including desert tortoise.

Methods

Based on direction received from BLM, opportunities for wildlife species to cross under I-10 were inventoried along a 32-mile segment of the freeway running from Desert Center to Wiley Well (Figure 1). Underpasses were evaluated for potential wildlife use by AECOM wildlife biologists Dana Morin and Michael Anguiano on April 5, and April 6, 2010.

All potential underpasses were recorded using Geographical Positioning System (GPS) equipment. Each potential crossing was then accessed by hiking from truck trails south of I-10. The type of underpass (e.g., box culvert, bridge, etc.) was recorded and the four corners of each underpass structure were recorded with GPS. The length (distance from the southern approach to the northern approach) and width (distance between the walls of an

underpass) were calculated using Geographical Information System (GIS) software. In addition, the minimum height of each underpass was measured. The minimum height was used because many crossings were over washes with a natural substrate bottom and height varied with erosion through the underpass. These measurements were used to calculate an openness ratio for each underpass ([width x height]/length). An openness ratio indicates the relative openness of a structure. Larger openness ratios are typically more conducive to wildlife use. Existing ROW fencing at each underpass was evaluated to determine if fencing along I-10 could prevent wildlife access to underpasses.

Photographs were taken at each underpass of the southern and northern approaches. All photographs taken are included in the attached CD. Any animal sign detected in the immediate vicinity of an approach or in an underpass was recorded and additional notes were taken if an approach would not be suitable for a specific wildlife species. Factors that may increase or restrict potential use of a wildlife underpass were also recorded. Examples of such factors would be presence of desert dandelion (*Malacothrix glabrata*), a known forage species for desert tortoise, or if there was evidence of human presence.

Vegetation cover was estimated for the southern approach, the middle of the crossing, and the northern approach. Surveys were conducted during spring when annual cover was high, but only perennial species were used to estimate cover. Cover was estimated visually using the following categories:

- Bare = 0%
- Sparse = 5% - 15%
- Moderate = 15% - 30%
- Medium = 30% - 60%
- Dense = 60% - 85%

Dominant perennial species were identified to genus and listed for the southern approach, middle of the crossing, and northern approach of each crossing.

Results

The location of each underpass is shown in Figure 1. Variables for each underpass are listed in the GIS database included on the CD with this submittal. A total of 24 underpasses were surveyed over 30 miles along I-10. Twenty-one of the 24 underpasses are open span bridges with openings in the median and wash habitat throughout. Sizes of the open span bridges varied from 10.7 to 59.4 meters in width, 2.2 to 4.5 meters in height, and 56.7 to 97.8 meters in length. Openness ratio for the open span bridges varied from 0.5 to 3.4, all of which indicate potential use for all wildlife species in the area.

Overall, two types of fencing were present along the I-10 ROW: 5-strand barbed wire and fencing with square netting chicken wire (openings 6 inches by 6 inches) at the bottom and 2 to 3 strands of barbed wire from 1.5 meters to the top of the fence. Both fencing types were approximately 2 meters in height. At most underpasses fencing is either cut away for the

width of the crossing or cut away for at least one 3-meter segment at each approach. In addition, the fencing is not suitable to prevent access to the roadway as wildlife can easily move over or under it and the fencing does not funnel wildlife to the underpass openings, but allows access to the roadway. In addition, fencing in the openings between spans is often missing or in disrepair and thus allows access to the median and roadway.

Wildlife species detected at the undercrossings included lizards, rodent (*Peromyscus* sp., *Dipodomys* sp., *Neotoma* sp.), rabbit (*Sylvilagus* sp.), roadrunner (*Geococcyx californianus*), ground squirrel (*Spermophilus* sp.), fox, and coyote (*Canis latrans*). Bobcat (*Lynx rufus*) and mule deer (*Odocoileus hemionus*) sign were detected to the south of several underpasses to the west of PSPP.

In general, the washes on the western side of the 32-mile survey segment have greater cover and diversity with more distinct hydrology than those to the east. The northern approaches to the east were often dominated by grasses and mustard species, providing little protection for wildlife. Dominant perennial plant species identified at underpasses includes cheesebush (*Hymenoclea salsola*), brickellbush (*Brickellia* sp.) scorpion weed (*Phacelia* sp.), *Psorothamnus* sp., cattle saltbush (*Atriplex polycarpa*), brittlebush (*Encelia farinosa*), white bursage (*Ambrosia dumosa*), creosote (*Larea tridentata*), mesquite, ironwood (*Olneya tesota*), and palo verde.

Five underpasses (10, 11, 12, 13, and 14) were surveyed in the immediate vicinity of the PSPP (Figure 2). Figure 2 also includes the boundary of the proposed PSPP and the Reconfigured Alternative disturbance area and DT observations gathered during protocol surveys conducted by AECOM in 2009 and 2010. All five underpasses in the vicinity of the PSPP are open span bridges with openings in the median and wash habitat throughout.

Underpass 10 (Figure 1, Sheet 3) is located to the southwest of the PPSP. It is 3.0 meters in height, 30.1 meters wide, and 60.3 meters in length resulting in an openness ratio of 1.5, suitable for all wildlife species in the area. There is 5-strand barbed-wire fencing between spans on the median, but the fencing has been cut at either approach. In addition, the fencing is not suitable to prevent access to the roadway as wildlife can easily move over or under it. There is moderate vegetative cover in the wash to the south and between spans including *Psorothamnus* sp. and cheesebush (*Hymenoclea salsola*). Additionally, there is ironwood (*Olneya tesota*), mesquite (*Prosopsis glandulosa*), and palo verde (*Cercidium floridum*) in the wash to the north. Coyote (*Canis latrans*) and rodent (*Peromyscus* sp.) tracks were found through the underpass.

Underpass 11 (Figure 1, Sheet 4) is located south of the PSPP. It is 3.3 meters in height, 24.3 meters wide, and 58.4 meters in length resulting in an openness ratio of 1.4, suitable for all wildlife species in the area. The 5-strand barbed-wire fencing has been cut at both approaches and is not suitable to prevent access to the roadway as wildlife can easily move over or under it. There is no ROW fence between spans, and the western side of the underpass between spans slopes gently up to the roadway, providing easy access to all wildlife species. The southern approach and area between the spans has dense vegetative

cover including cheesebush, *Psorothamnus* sp., creosote (*Larea tridentata*), and palo verde. The northern approach to the wash has moderate vegetative cover including *Psorothamnus* sp. cheesebush and ironwood. Coyote, rodent, rabbit (*Sylvilagus* sp.), lizard, and roadrunner (*Geococcyx californianus*) tracks were found through the underpass.

Underpass 12 (Figure 1, Sheet 4) is located to the south of the PSPP. It is 3.3 meters in height, 17.3 meters wide, and 57.8 meters in length resulting in an openness ratio of 1.0, suitable for all wildlife species in the area. The 5-strand barbed-wire fencing has been cut at either approach and is not suitable to prevent access to the roadway as wildlife can easily move over or under it. There is no ROW fence between spans. The southern approach contains moderate, diverse shrub cover including cheesebush, cattle saltbush (*Atriplex polycarpa*), and white bursage (*Ambrosia dumosa*). Between spans is sparsely vegetated with cheesebush and creosote and the northern approach has moderate cover including cheesebush and mesquite. Coyote, rodent, rabbit (*Sylvilagus* sp.), and lizard tracks were found through the underpass.

Underpass 13 (Figure 1, Sheet 5) is located to the southeast of the PSPP. It is 3.0 meters in height, 23.2 meters wide, and 56.9 meters in length resulting in an openness ratio of 1.2, suitable for all wildlife species in the area. The 5-strand barbed-wire fencing has been cut at either approach and is not suitable to prevent access to the roadway as wildlife can easily move over or under it. There is no ROW fence between spans. The southern approach contains moderate shrub cover including cheesebush, white bursage, and mesquite. There is sparse cover between spans including *Psorothamnus* sp. and cheesebush. The northern approach is open with a few large *Psorothamnus* sp. and mesquite. Coyote, rodent, rabbit, ground squirrel (*Ammospermophilus* sp.) and lizard tracks were found through the underpass.

Underpass 14 (Figure 1, Sheet 5) is located to the southeast of the PSPP beyond the eastern border of the Project footprint. The location of underpass 14 is in an area where the distance between the Palen Mountains and habitat to the south of I-10 is shortest, representing an area with a relatively high likelihood of movement between these areas. It is 4.5 meters in height, 10.7 meters wide, and 60.1 meters in length resulting in an openness ratio of 0.8, suitable for all wildlife species in the area. The 5-strand barbed-wire fencing extends across the southern approach but has been cut at the northern approach. The fencing is not suitable to prevent access to the roadway as wildlife can easily move over or under it. There is no ROW fence between spans. The southern approach contains moderate shrub cover including cheesebush and *Psorothamnus* sp. The wash is bare and sandy between spans and the northern approach is open with a few large *Psorothamnus* sp., palo verde and mesquite. Coyote, rodent, roadrunner, and lizard tracks were found through the underpass.

Conclusions

While current underpasses are located at washes for hydrological reasons, all habitat to the north and south of I-10 is suitable for wildlife habitation and movement. Thus, these

underpasses provide connectivity and safe movement corridors between the habitat to the north and south of the I-10 corridor. However, there is likely attempted movement in upland areas as well. Current fencing does not keep wildlife from accessing I-10 or funnel animals to the underpasses.

Implementation of the PSPP would not affect undercrossings in the project vicinity. All would remain open and DT could still cross under I-10. No evidence of DT use of the undercrossings was detected during the survey. There are 24 underpasses occurring along the existing washes in the 32-mile stretch between Wiley Wells Road and Desert Center that could facilitate movement of a migrating DT in a north-south direction (see Figure 1). Although DT are more likely to utilize movement corridors to the west and east of the PSPP (discussed in more detail below), the proposed DT-proof fencing along the perimeter of the solar fields, as required by conditions proposed in the SA/DEIS, could impede DT movement. The Applicant therefore proposes to install a large box culvert underneath the project access road to facilitate the movement of DT and other wildlife (see location on Figure 2). The culvert will connect the undercrossings south of the PSPP with open areas to the west.

The shortest distance between higher value habitat in the Palen and Chuckwalla Mountains is to the east of the Project disturbance area. Results of 2010 DT buffer surveys, which were conducted further east than in 2009 near the base of the Palen Mountains, suggest greater DT activity in this area as compared to the PSPP study area. Additionally, the shortest distance to higher value habitat likely near the Eagle and Coxcomb Mountains is west of the Project disturbance area. Underpasses to the west and east of the Project disturbance area would continue to facilitate movement to these areas despite project implementation (see Figure 1).

It was determined that there are many points along I-10 suitable for wildlife undercrossing, including by desert tortoise. The proposed PSPP would place a barrier a short distance north of two of these crossings. Examining these particular undercrossings in a regional context, however, suggests that they may be less important than other available undercrossings to the east and west of the PSPP. As was discussed in the draft SA/DEIS, the PSPP site is located on the margins of a sand transport zone. To the north of the site sand dunes occur with increasing frequency as a result of the northwest to southeast orientation of the sand transport system. Further north is the Palen Dry Lake which is inhospitable for tortoises. While desert tortoises will cross desert pavement and dunes, areas of heavy dune concentration and areas consisting purely of dunes offer little in the way of forage and make burrowing difficult. These areas are likely not a regular part of tortoises' home ranges.

The need to retain routes providing opportunities for movement of tortoises between populations south of I-10 and areas further north is understood. This movement, ultimately providing connection and exchange of genetic material between desert tortoise populations, would likely occur, assuming suitable climatic conditions, through the combination of juvenile dispersal and gradual northerly and/or southerly expansion of the home ranges of succeeding generations of tortoises. The placement of the PSPP does not block areas important for this home range expansion. Tortoises moving north from south of I-10 would

confront an obstacle in the form of dunes and the Palen Dry Lake. The same features provide a barrier to tortoises moving south from northern portions of the Chuckwalla Valley. Tortoises seeking to establish new home ranges in this region would be forced into the bajada to the west of the proposed PSPP or to areas at the foot of the Palen Mountains to the east of the dunes. The placement of the PSPP, surrounded by tortoise fencing, simply places a more definitive barrier further south in an area that likely does not function as an effective desert tortoise movement corridor due to physiographic features. Additionally, the shortest distance between higher value habitat in the Palen and Chuckwalla Mountains is several miles to the east of the Project disturbance area. The shortest distance between the Chuckwalla Mountains to higher value habitat likely near the Eagle and Coxcomb Mountains is west of the Project disturbance area.

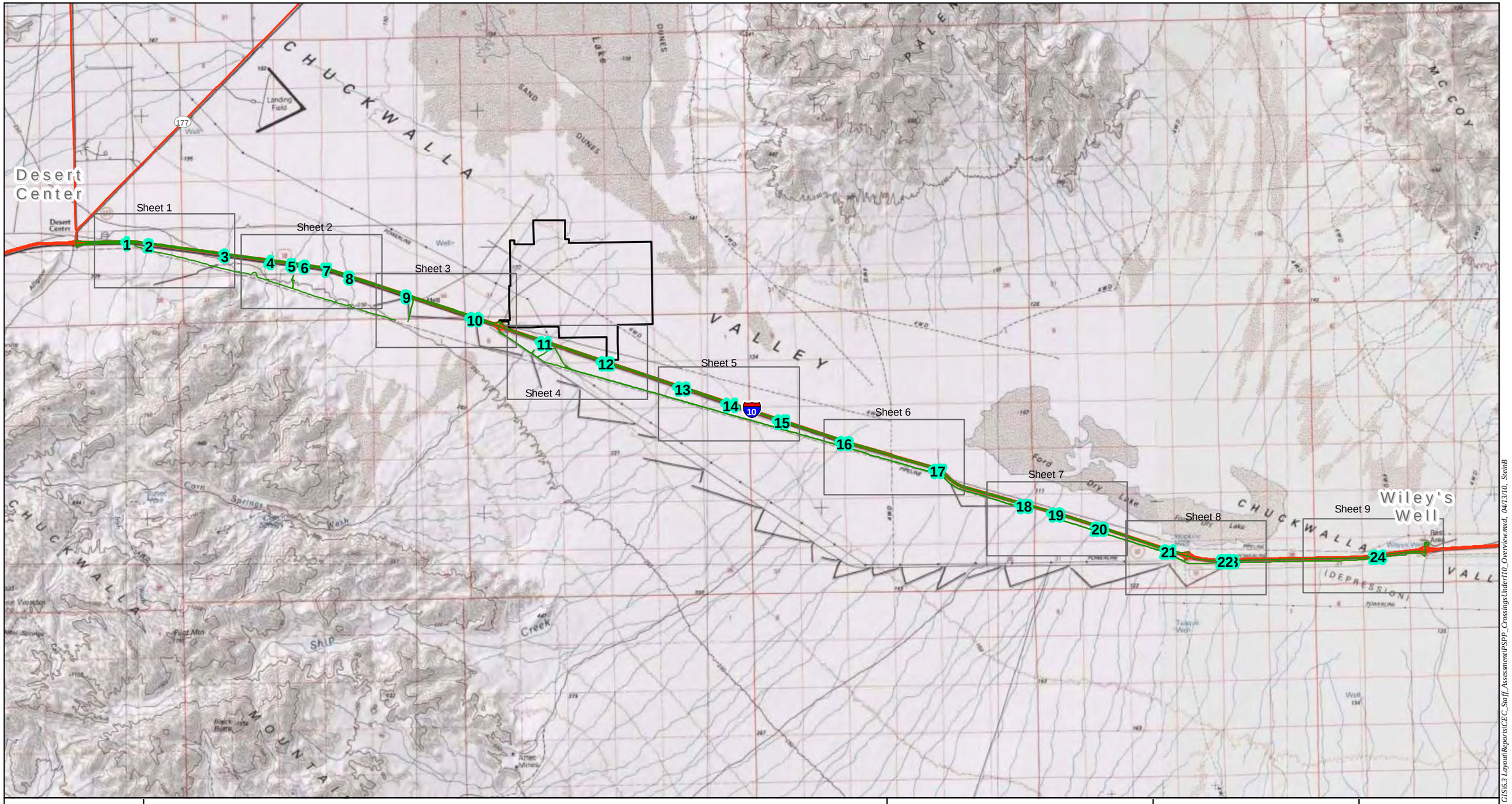
The placement of the PSPP north of I-10 will not significantly impact desert tortoise movement and population connectivity. Such movement, and the resultant connectivity, would occur via routes to the east and west of the PSPP due to the presence of extensive dune systems and Palen Dry Lake. Ample undercrossings (more than 20), completely unaffected by the proposed PSPP, exist to facilitate this movement across I-10. As an additional measure to facilitate desert tortoise movement, the applicant agrees to install a concrete box culvert under the access road leading to the site from the Corn Springs interchange (see Figure 2). This will prevent tortoises from becoming enclosed in an area bounded by the highway and the PSPP tortoise fence.

Sincerely,

Mr. William Graham
Principal
AECOM

Enclosures: Figure 1. I-10 Wildlife Crossing Analysis in the Project Vicinity
Figure 2. Desert Tortoise Observations and Wildlife Connectivity
CD. Photos of underpasses, Shapefiles and Metadata

cc: Alan Solomon, CEC
Larry LePre, Bureau of Land Management
Alice Harron, Solar Millennium


Desert Center
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Sheet 2
Sheet 3
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Sheet 8
Sheet 9
Wiley's Well
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CHUCKWALLA VALLEY
CHUCKWALLA MOUNTAINS
MCCOY VALLEY
Lake
SAND DUNES
Landing Field
Corn Springs
Ship Creek
Ford Dry Lake
Chiriaco Summit
Wiley's Well
(DEPRESSION)
Map Location
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Project Disturbance Area
Access Routes
Crossings Under I-10
Map Extent
Source: ESRI 2010; AECOM 2010
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Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity
AECOM
Date: April 2010
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Map Location

Legend

- Crossings Under I-10
- Washes Within 500-feet of Crossing
- Access Routes

Source: ESRI 2010; AECOM 2010

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1 inch = 1,000 feet

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Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

Sheet 1

AECOM

Date: April 2010

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Map Location

Legend

- Crossings Under I-10
- Washes Within 500-feet of Crossing
- Access Routes

Source: ESRI 2010; AECOM 2010

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1 inch = 1,000 feet

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Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

Sheet 2

AECOM

Date: April 2010

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Figure 1

Map Location

Legend

- Crossings Under I-10
- Washes Within 500-feet of Crossing
- Access Routes

Source: ESRI 2010; AECOM 2010

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1 inch = 1,000 feet

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Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

Sheet 3

AECOM

Date: April 2010

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Map Location

Legend

- Crossings Under I-10
- Washes Within 500-feet of Crossing
- Access Routes

Source: ESRI 2010; AECOM 2010

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Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

Sheet 4

AECOM

Date: April 2010

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Map Location

Legend

- Crossings Under I-10
- Washes Within 500-feet of Crossing
- Access Routes

Source: ESRI 2010; AECOM 2010

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Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

Sheet 5

AECOM

Date: April 2010

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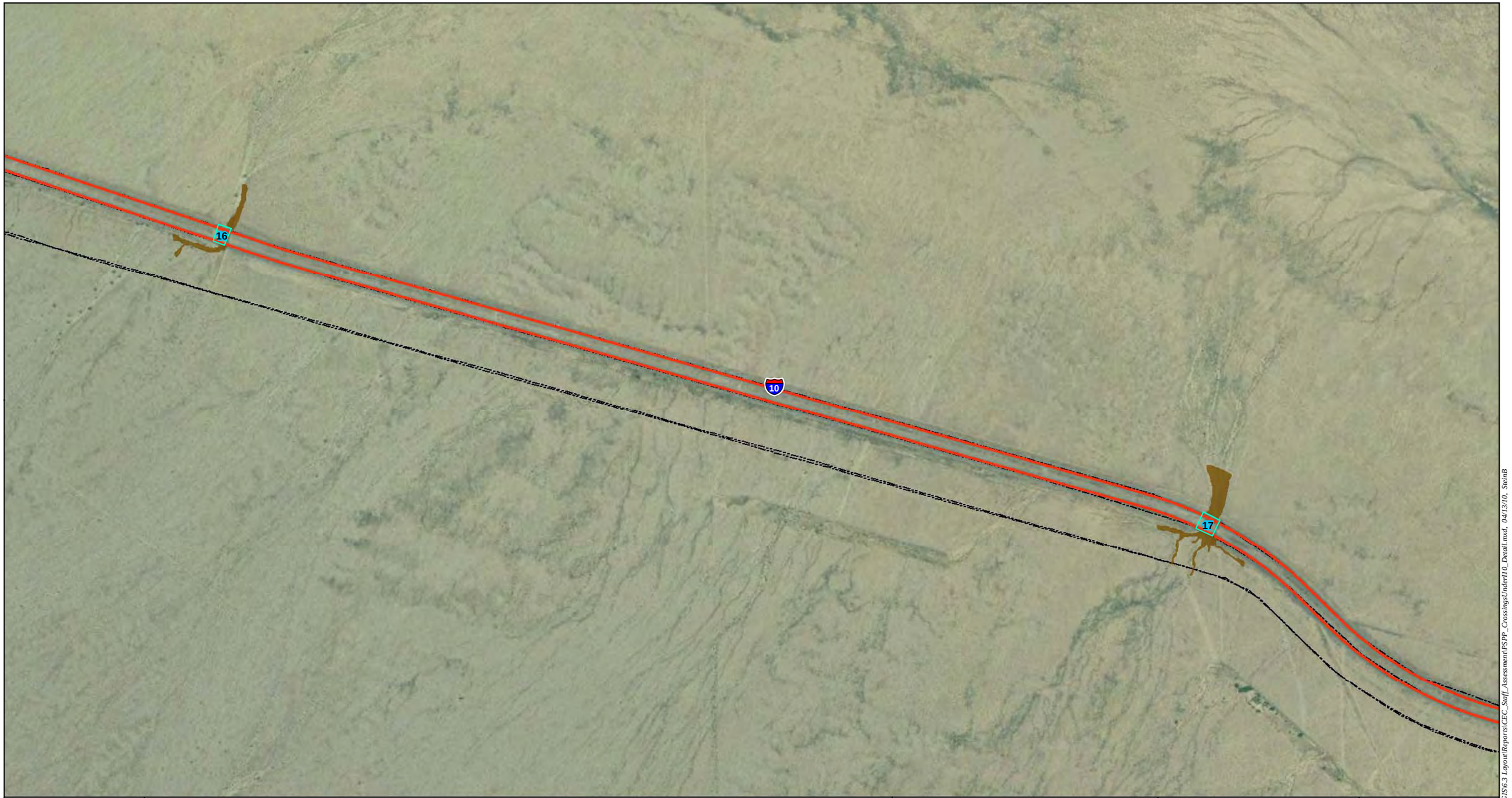

Map Location

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- Crossings Under I-10
- Washes Within 500-feet of Crossing
- Access Routes

Source: ESRI 2010; AECOM 2010

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1 inch = 1,000 feet

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Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

Sheet 6

AECOM

Date: April 2010

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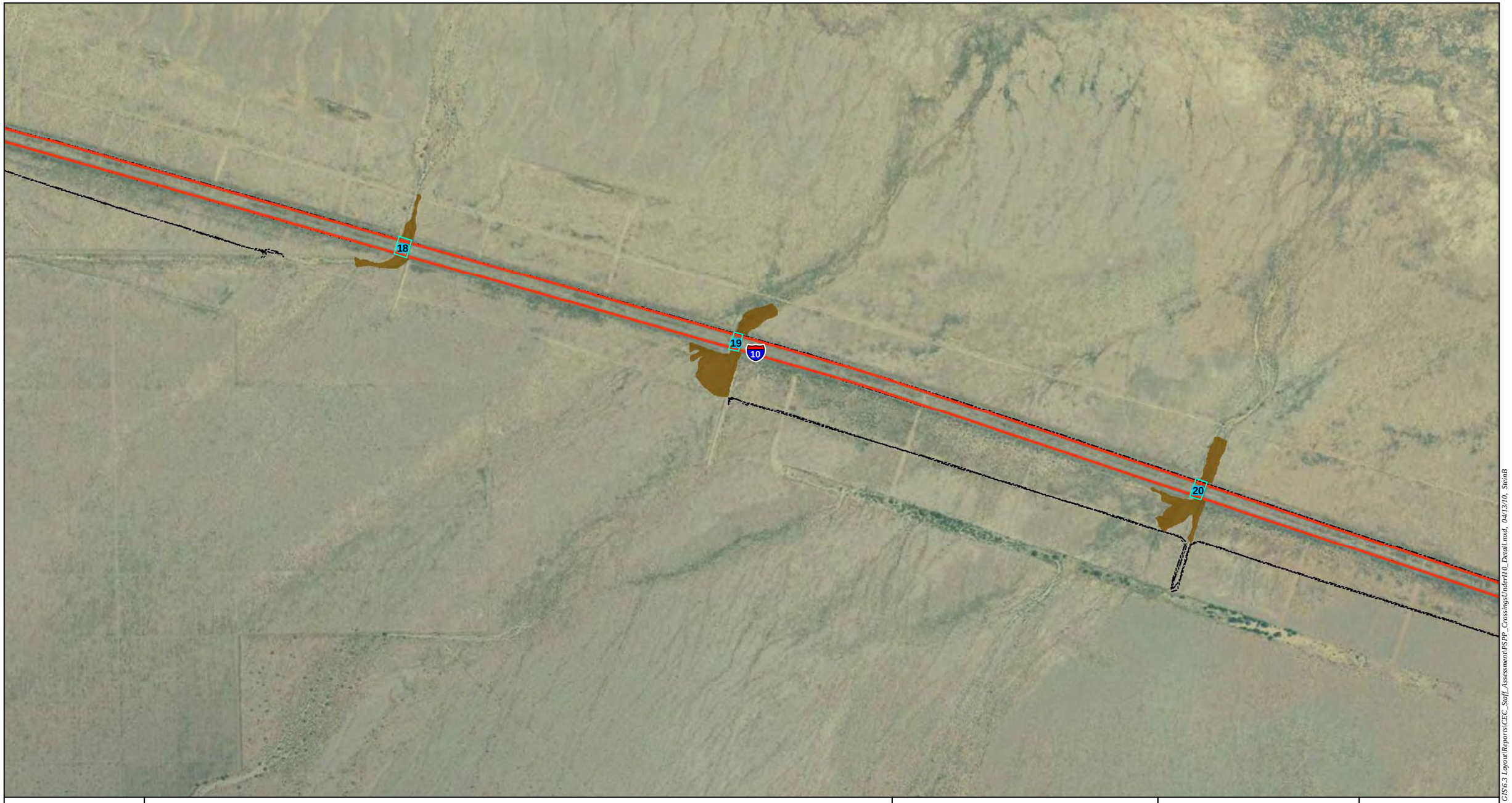

Map Location

Legend

- Crossings Under I-10
- Washes Within 500-feet of Crossing
- Access Routes

Source: ESRI 2010; AECOM 2010

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1 inch = 1,000 feet

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Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

Sheet 7

AECOM

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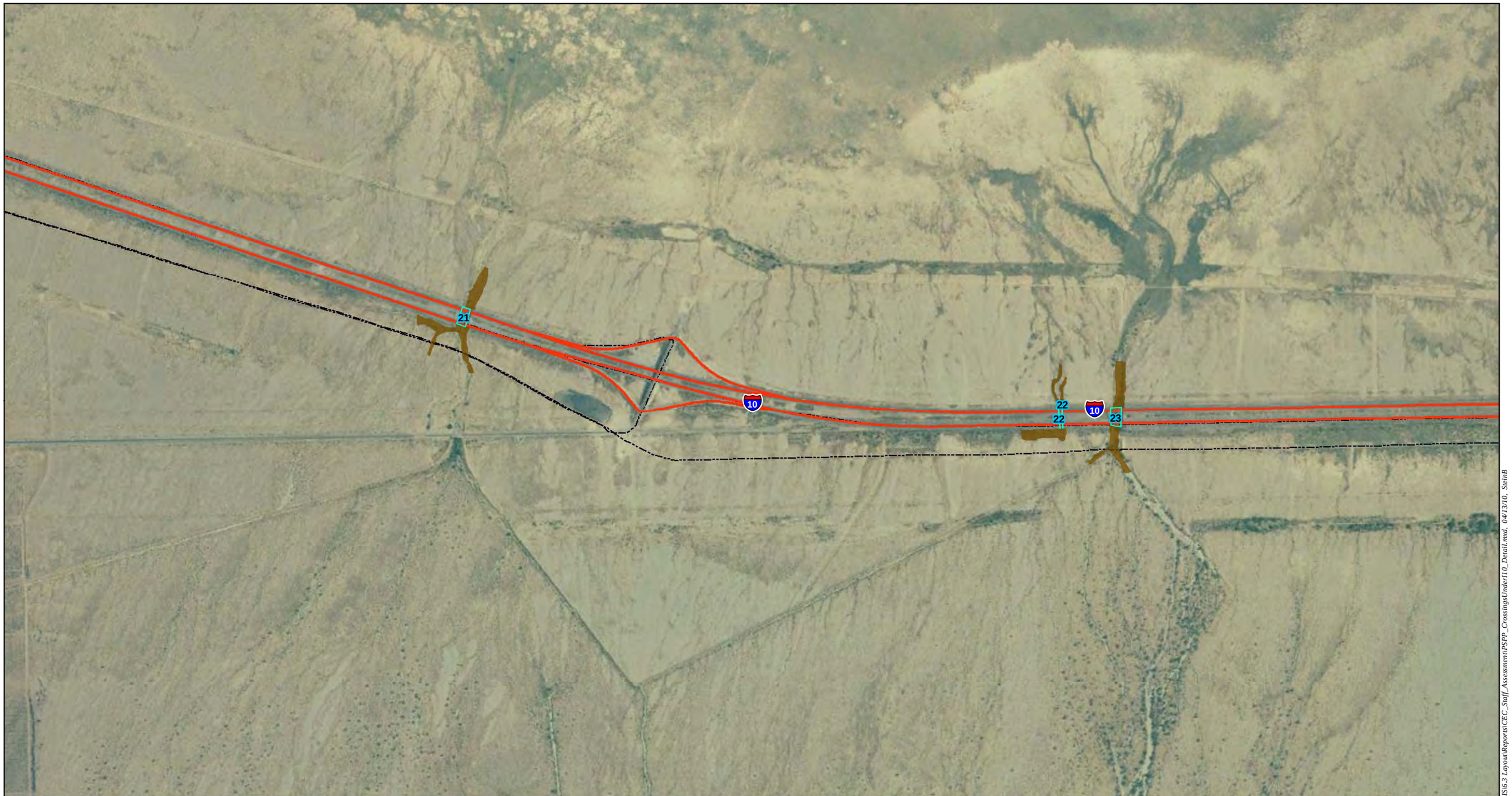

Map Location

Legend

- Crossings Under I-10
- Washes Within 500-feet of Crossing
- Access Routes

Source: ESRI 2010; AECOM 2010

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1 inch = 1,000 feet

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Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

Sheet 8

AECOM

Date: April 2010

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Map Location

Legend

- Crossings Under I-10
- Washes Within 500-feet of Crossing
- Access Routes

Source: ESRI 2010; AECOM 2010

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1 inch = 1,000 feet

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Palen Solar Power Project
Figure 1
I-10 Wildlife Crossing Analysis in the Project Vicinity

Sheet 9

AECOM

Date: April 2010

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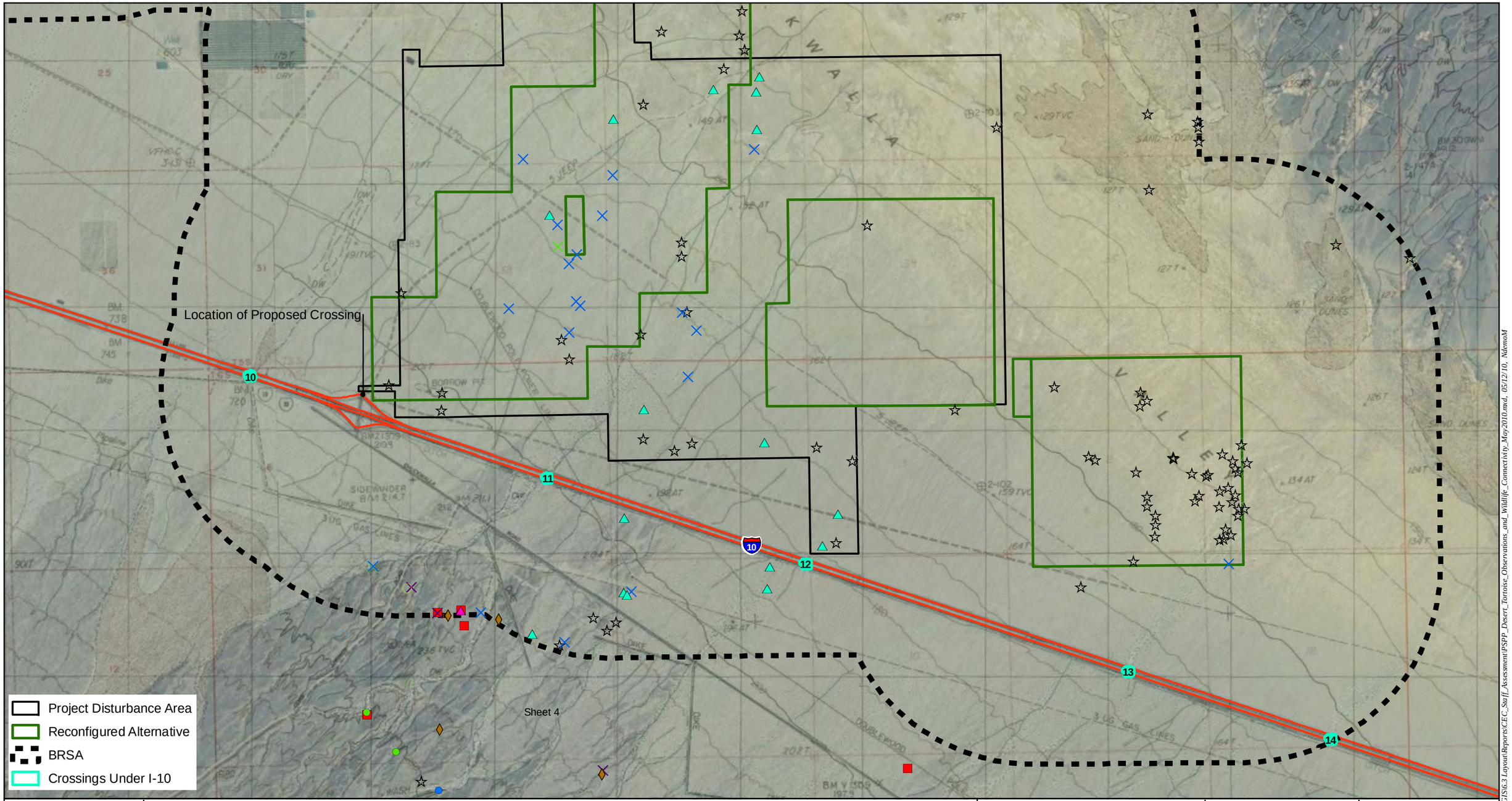

Map Location

Legend

DETO Observations
(as of May 11, 2010)
- Adult Tortoise
- Juvenile Tortoise
- Tortoise Burrow (Active) - Class 1
- Tortoise Burrow - Class 2
- Tortoise Burrow - Class 3
- Tortoise Burrow - Class 4 or 5
- Tortoise Scat - Class 1
- Tortoise Scat - Class 2
- Tortoise Scat - Class 3
- Tortoise Scat - Class 4
- Tortoise Carcass - Class 3
- Tortoise Carcass - Class 4
- Tortoise Pallet (Active) - Class 1
- Tortoise Pallet - Class 4 or 5
- Tortoise Tracks
- Tortoise Bone Fragment - Mineralized
- Tortoise Bone Fragment - Not Mineralized

Source: ESRI 2010; AECOM 2010

N
W E
S

1 inch = 2,500 feet

0 2,500 5,000 Feet

Palen Solar Power Project

Figure 2
Desert Tortoise Observations and Wildlife Connectivity

AECOM

Date: May 2010

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STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:
APPLICATION FOR CERTIFICATION
for the *PALEN SOLAR POWER PROJECT*

Docket No. 09-AFC-7
PROOF OF SERVICE
(Revised 5/14/2010)

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DECLARATION OF SERVICE

I, Carl Lindner, declare that on, May 17, 2010, I served and filed copies of the attached **Palen Desert Tortoise Connectivity Report,** dated May 14, 2010 The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:
[http://www.energy.ca.gov/sitingcases/solar_millennium_palen].
The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(*Check all that Apply*)

For service to all other parties:

_____ sent electronically to all email addresses on the Proof of Service list;

__**X**__ by personal delivery or by overnight delivery service or depositing in the United States mail at Camarillo, California with postage or fees thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

For filing with the Energy Commission:

__X__ sending an original paper copy and one electronic copy, mailed respectively, to the address below (preferred method);

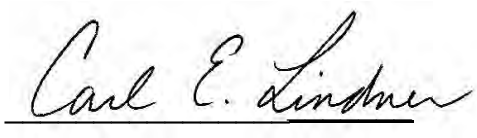
OR

_____ depositing in the mail an original and 12 paper copies, along with 13 CDs, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-7
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.



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APPENDIX I.2
Cumulative Impacts

1. Introduction

1.1 Definitions

Regulations of the Council on Environmental Quality (CEQ) define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions" (40 CFR 1508.7). Together, these actions comprise the cumulative scenario, which forms the basis of the cumulative impact analysis. As explained in Section 6.8.3 of BLM NEPA Handbook H-1790-1 (Jan. 2008), "The purpose of cumulative effects analysis is to ensure that Federal decision-makers consider the full range of consequences of actions (the proposed action and alternatives, including the No Action alternative)." See also CEQ, *Considering Cumulative Effects Under the National Environmental Policy Act* (Jan. 1997). Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR §1508.7). Under NEPA, both context and intensity are considered. When considering intensity of an effect, we consider "whether the action is related to other actions with individually minor but cumulatively significant impacts. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts" (40 CFR §1508.27(b)(7)).

1.2 Methodology

The following steps were used to develop the cumulative effects analysis described in this Appendix I:

1. Biological resources to be considered in the analysis were identified based on a review of the direct and indirect impacts of the proposed action and alternatives that might contribute to a cumulative impact (see, Section 4.17, *Impacts on Vegetation Resources*, and Section 4.21, *Impacts on Wildlife Resources*);
2. The geographic study area and timeframe within which the biological resource-related impacts of past, present and reasonably foreseeable future actions could combine with impacts of the proposed action and alternatives for each resource was determined;
3. The current health and historical context for each resource was described;
4. Other projects in the cumulative scenario were identified that could affect each resource;
5. Cumulative effects to biological resources were analyzed;
6. Results were reported; and
7. The need for mitigation was assessed.

1.3 Making Conclusions about the Severity of the Effect

"No net loss" does not necessarily mean there are no cumulative impacts; the analysis of each resource also describes the indirect and cumulative effects that cannot be quantified through a Geographic Information System (GIS) analysis of habitat impacts. Similarly, even seemingly minor impacts can be significant if they affect an extremely rare or limited resource; the cumulative impact may be substantial.

For each cumulative effect, the following questions were considered in making conclusions about the severity or significance of an effect:

1. The health, status or condition of the resource as a result of past, present and reasonably foreseeable impacts;

2. The contribution of the project to the overall cumulative impact to the resource;

3. The project's mitigated effect, when added to the effects of these planned future projects, and

4. Impact avoidance and minimization: any project design changes that were made or additional opportunities that could be taken to avoid or minimize potential impacts in light of cumulative impact concerns.

1.4 Analytical Tools and Study Limitations

This cumulative effects analysis employed a combination of quantitative and qualitative analyses: a Geographic Information System (GIS)-based quantitative analysis for assessing the direct cumulative effects to habitat loss, and a qualitative analysis of the cumulatively considerable indirect effects, based on consultations with agency biologists and regional experts, as well as a literature review of the threats to species and their habitats.

The GIS-based analysis of direct habitat loss was used for this cumulative effects analysis to:

1. Identify the overlap between existing and future projects and various biological data layers (e.g., landforms, soils, species occurrences, hydrographic data, vegetation mapping, wildlife habitat models, ownership and management layers);

2. Compile digital map information about each resource for purposes of display and analysis; and

3. Create statistical tables to summarize the direct impacts to these resources from existing and anticipated future projects, and the project's contribution to those effects.

Information on the datasets used, the sources of the data, and any limitations of the data, are provided in each biological resource section.

The large renewable projects proposed on BLM-administered and private land used in the cumulative analysis for Biological Resources (Table I-1, *Projects Considered in Biological Resources Cumulative Effects Analysis*, below) represent the projects that had applications to the BLM or the California Energy Commission as of February 5, 2010. The project list changes frequently; updates to the data used are presented below and in Section 4, *Projects Included in the Cumulative Scenario***.** As stated in the Cumulative Scenario, not all of the projects shown on the table will complete the environmental review, and not all projects will be funded and constructed. At the same time, new applications may be submitted in the near future that will affect biological resources. Alternatively, it is possible—even likely—that new projects will be proposed in the near future that are not reflected in this analysis.

GIS is a widely used and effective tool for analyzing large amounts of spatial data, for documenting and quantifying assumptions about direct habitat loss, and the value of the habitat (where habitat models are available). However, the indirect impacts of projects are not easily captured in GIS and thus were only addressed qualitatively. The following indirect effects were considered in assessing the significance of cumulative impacts: habitat fragmentation and its effects on population viability; increased vehicle-related mortality; disturbance from noise, lighting and increased human activity; increase in predators such as ravens; spread of invasive non-native plants; downwind effects of facilities and wind fencing on sand transport corridors; bird collisions and electrocutions; climate change and its accompanying increased risk of drought, fire and exotics; indirect impacts to wildlife movement and connectivity, the downstream effects of channel diversions on fluvial sediment transport and riparian vegetation, and the long-term effects of groundwater pumping on groundwater-dependent vegetation. This qualitative analysis relied in part on the professional opinions of agency biologists and regional experts, and a review of literature and databases.

Finally, the GIS-based analysis requires the use of datasets that encompass the entire geographic scope of the analysis; the project-specific survey data could not be compared against data for the region that was derived from different methodologies. Consequently, the GIS analysis of impacts to plant communities, landforms and habitats is based on region-wide datasets for those resources (primarily NECO datasets), and not on project survey data. Acreages listed in the analysis below, for example, desert wash woodland or sand dunes, will not match the project-specific survey results. Notwithstanding the challenges presented by comparing region-wide and project-specific datasets, the GIS-based datasets for vegetation and landforms provide a powerful tool for conducting region-wide analyses.

2. Geographic and Temporal Scope

This cumulative impact analysis makes a broad, regional evaluation of the impacts of existing and reasonably foreseeable future projects that threaten plant and animal communities within the context or geographic scope of the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) (BLM-CDD 2002). The NECO planning area is located in the southeastern California Desert Conservation Area (CDCA). It occurs primarily in the Sonoran Desert region but includes a small portion of the southern Mojave Desert region. For some biological resources, a different geographic scope was warranted, such as the use of watershed boundaries to analyze cumulative effects to desert washes and desert dry wash woodland, or the Chuckwalla Valley for locally significant populations and dune systems restricted to that geographic area. Where the geographic scope is different than the NECO planning area, it is noted in Section 5.

Project impacts related to biological resources could occur during the 39-month construction period, the planned 30-year operational life of the PSPP, and decommissioning. This analysis considers these timeframes.

3. Existing Regional Conditions

This overview of regional impacts is followed by a more detailed discussion of the effects of past, present, and future projects to biological resources of the Project vicinity, with an emphasis on resources found within the Chuckwalla Valley of eastern Riverside County.

The California Desert remained a desolate area for the first few decades of the 20th century. Disturbance was more or less restricted to highways, railroad, and utility corridors, scattered mining, and sheep grazing. In the 1940s, several large military reservations were created for military training, testing, and staging areas. The deserts of eastern Riverside County comprise 40% of the County's land area but less than 1% of its population. Outside of the small urban-agricultural center of Blythe, near the Colorado River and Arizona border, there are only a few scattered, small residential and agricultural areas between Indio (to the west) and Blythe; most of the lands are in BLM ownership.

Populations of many of the desert's sensitive plants and animals were considered relatively stable until recently, as the push for renewable energy development has placed many populations at risk. Energy providers have submitted project applications that would collectively cover more than one million acres of the region. However, renewable energy development has its own ecological consequences and portions of the Sonoran and Mojave deserts of California are bearing the brunt of these effects. Poorly planned development could contribute to habitat loss and fragmentation and barriers to species movement and gene flow. Although project permitting and regional planning evaluate basic environmental impacts of such projects, rarely do they consider impacts on connectivity, conduct thorough cumulative effects analyses, or implement regional monitoring of effects or the efficacy of mitigation.

In the areas identified for renewable energy development in eastern Riverside County, some of the many sensitive biological resources at risk include: desert washes and desert dry wash woodland, desert tortoise, Mojave fringe-toed lizard, western burrowing owl, fragile dune ecosystems, dry lakes, a wide variety of special-status wildlife, and the sensitive plants Las Animas colubrina and Harwood's milk-vetch. Approximately 209.5 acres of the southwestern corner of the Project overlaps the northern boundary of the Chuckwalla Desert Tortoise Critical Habitat Area. The Project also lies within a proposed Wildlife Habitat Management Area (Palen-Ford Wildlife Habitat Management Area), and is immediately northeast of the Chuckwalla Desert Wildlife Management Area.

The introduction of non-native plant species and increases in predators such as ravens has also contributed to population declines and range contractions for many special-status plant and animal species (Boarman 2002a). Combined with the effects of historical grazing and military training, and fragmentation of habitat and interruption of wildlife movement from highway and aqueduct construction, the proposed wind and solar energy projects have the potential to further reduce and degrade native plant and animal populations. In the context of this large scale habitat loss, the PSPP would contribute, at least incrementally, to the cumulative loss and degradation of habitat for desert plants and wildlife, including desert tortoise and Mojave fringe-toed lizards, in the Chuckwalla Valley and NECO planning area.

4. Projects Included in the Cumulative Scenario

This analysis evaluates the impacts of the proposed action and alternatives in addition to the current baseline of past effects, present (existing) projects, and reasonably foreseeable or probable future projects in the I-10 corridor as well as the greater NECO planning area. Figure 4.1-1 illustrates the numerous proposed renewable projects on BLM, State and private land in the I-10 corridor between Desert Center and the Colorado River, near Blythe, in eastern Riverside County. Table I-1 lists the existing and foreseeable future projects (proposed) that were included in the quantitative analysis of cumulative effects; these projects are illustrated spatially in Figure 4.21-1. See Figure 4.1-1 and Table I-1 for descriptions of these existing and future proposed projects. The GIS layer for foreseeable future projects used in the cumulative effects analysis was based largely on the BLM GIS data for renewable solar and wind projects available on February 5, 2010. Updates to the BLM projects data since February 5, 2010 are provided below.

4.1 Project Information Updates

Three updates occurred since the cumulative scenario projects list was developed for biological resources (see Table I-1):

1. The Altera Black Hills project included in the impact calculations has been denied by the BLM.

2. The LightSource Renewables – Mule Mountain II project, which is an active application in to the BLM, was not included in the impact calculations.

3. The Pacific Solar Investments – Ogilby project has refined the project boundaries from those used in the impact calculations

4.2 Cumulative Projects

Past, present and reasonably foreseeable future projects considered in this cumulative effects analysis are identified in Table I-1.

5. Analysis of Cumulative Effects to Biological Resources

5.1 Waters of the State

The geographic scope for the analysis of cumulative impacts to desert washes (including intermittent and ephemeral washes) included: 1) Palen watershed, and 2) the entire NECO planning area. The primary hydrologic feature in the Palen watershed is Corn Springs Wash; several branches of the wash pass through or around the site, some of which abate before reaching Palen Dry Lake. This dry lake is the receiving basin for the 1,496 miles of desert washes that drain the watershed (USGS 2010). Most of the desert washes that pass through the Project site are distributary channels of the alluvial fan—or bajada—that drains the northeastern flank of the Chuckwalla Mountains. Cumulative effects were analyzed within the context of the watershed because this relatively small watershed will be affected by several proposed solar projects: Palen

TABLE I-1
PROJECTS CONSIDERED IN BIOLOGICAL RESOURCES CUMULATIVE EFFECTS ANALYSIS

Existing Projects (analyzed quantitatively)	ROW Area[1] (acres)	Foreseeable Future Projects[1] [Proposed] (analyzed quantitatively)	ROW Area[1] (acres)
Chuckwalla State Prison	1044	Palen Solar Power Project (PSPP)[2]	3001
Ironwood State Prison	681	Blythe Solar Power Project[2]	7239
Eagle Mountain Pumping Plant (MDWSC)	378	NextEra Energy – McCoy (solar)	20560
Kaiser Mine	5772	Genesis Solar Energy Project[2]	1768
I-10 Corridor (200-ft freeway buffer from CL)	6494	Bull Frog Green Energy – Big Maria Vista (solar)	22663
State highways (50-ft highway buffer from CL)	2640	Chuckwalla Solar 1	4091
DPV2 transmission line and existing access roads (100ft T-line Tower Buffer; 20-ft road width)	2861	Rice Solar Energy Project	3859
Landfills(BLM NECO dataset)		Desert Quartzite (solar)	7530
Blythe Energy Project I	153	Desert Sunlight (solar)	5119
BLM Campgrounds – Wiley's Well, Coon Hollow, Cottonwood Spring, and Midland Long-Term Visitor Area	8042	EnXco 1 (solar)	1325
BLM Off-Road Vehicle- authorized/designated routes in Meccacopia SRMS. (BLM NECO Human Use LTVAs dataset)	3031	Chuckwalla Valley Raceway	493
Blythe area urban and agricultural lands (GAP Analysis vegetation dataset)	88,317	Mule Mountain Solar Project	6618
Desert Center area urban and agricultural lands (2005 NAIP imagery)	8424	Eagle Mountain Pumped Storage Project	252
Pipeline (NECO pipelines dataset)	4392		
Projects Considered Qualitatively	**Area (acres)**		
Existing			
BLM Grazing – Cattle and sheep allotments (Lazy Daisy, Chemehuevi, Rice Valley, and Ford Dry Lake (recently closed)	n/a	Paradise Valley (residential "new town" development)	6724
BLM Multiple Use – Intensive multiple-use classes	n/a	Blythe Airport Solar I Project	639
General Patton military training areas	n/a	Eagle Mountain Landfill	1633
Colorado Aqueduct – open portions	n/a	Blythe Energy Project II	153
Chocolate Mountains Aerial Gunnery Range	n/a	DPV2 proposed roads (2-foot width) and towers (100 sq ft/tower)	256
Four approved commercial and 12 residential developments near Blythe	n/a	Genesis Solar Project access road	29
Solar projects at Arizona border	n/a	Blythe Energy Project transmission line towers	148
BLM renewable energy study areas (future, proposed)	n/a	Genesis Solar Project gas line (100-ft width)	85
BLM transmission corridors	n/a	EnXco 2 Mule Mountain	~2021
		Red Bluff Substation – for Palen Solar Power Project	90
		Colorado Substation – for Blythe Solar Power Project	44
Total Future Projects[1,3] – 02/05/2010			**339,704 acres**
Total Existing Disturbances[1,3]			**134,750 acres**

NOTES:
1 Not all of the projects depicted here will complete the environmental review, not all projects will be funded and constructed, and many will not use the entire ROW area.
2 Acreage impacts depicted reflect the project footprint only; not the entire ROW. The unused portions of the ROW would be returned to BLM and not included in the final ROW grant
3 There is some overlap between existing and future project acreages as some future projects are proposed on disturbed lands; the numbers shown above subtracted for overlap and represent the acreages used in this cumulative effects analysis.

SOURCE: CEC SA/DEIS, 2010 (Biological Resources Table 9)

Solar Power Project; First Solar Desert Sunlight; enXco 2, and Chuckwalla Solar 1 (see Figures3.18-4, 3.18-5, 4.1-1, and 4.21-1). Existing impacts to desert washes in the Palen watershed include: urban and agricultural lands around Desert Center, segments of the I-10 and Highway 177 corridors, Kaiser Mine, and various transmission corridors (gas and electric).

The watershed area analysis was based on the USGS National Hydrographic Dataset (2010) within the watershed boundary as defined by the California Interagency Watershed Map of 1999 (California Interagency Watershed Mapping Committee 1999) (Figure 3.18-5).

Table I-2, *Desert Washes in Palen Watershed – Cumulative Effects*, summarizes the direct loss of desert washes that would result from anticipated future projects within the Palen watershed, using lineal feet of affected washes as the metric. These effects are also illustrated spatially in Figure 3.18-5. The contribution of the proposed action to cumulative effects from future projects is provided as the sum of all drainages within the project site boundaries, and expressed as a percentage of all future projects effects.

TABLE I-2
DESERT WASHES IN PALEN WATERSHED – CUMULATIVE EFFECTS

Total Desert Washes[1] in Palen Watershed	Impacts to Habitat from Existing Projects[2] (percent of total watershed)	Impacts to Habitat from Foreseeable Future Projects[3] (percent of total watershed)	Contribution of PSPP to Future Cumulative Impacts (percent of total impacts from future projects)
1,496 mi.	34 mi. (2.3%)	40 mi. (2.7%)	5.3 mi. (13%) (based on USGS dataset)

NOTES:
1 Based on the USGS National Hydrographic Dataset (2010) and CalWater Version 2.2.1 (California Interagency Watershed Mapping Committee 1999), each as cited in the CEC SA/DEIS, 2010.
2 Includes only those existing projects for which GIS-based spatial data was available at the time of the analysis; see Table I-1.
3 Includes only BLM Renewables that had submitted a Plan of Development at the time of the analysis and those additional future projects listed in Table I-1.

SOURCE: CEC SA/DEIS, 2010 (Biological Resources Table 10)

The cumulative effects of channel diversions from all projects within the Palen watershed (40 miles of desert washes) are significant and the proposed action itself would be a major contributor to those effects (13%, or 5.3 miles of desert washes). The direct effects of all projects are compounded by the fact that they also cause impairment of hydrologic, geochemical, geomorphic, and habitat function and values of the remaining reaches downstream of the impact.

This GIS analysis does not reflect the extensive existing impacts to desert washes north of I-10. The highway roadbed and a series of collector ditches south of I-10 permanently have diverted stream flows into a few primary features and deprived flows from many miles of smaller washes. Standing dead ironwood trees, stunted, drought-stressed creosote bushes and other shrubs, sparse cover and very low diversity seen north of I-10 in the Palen watershed are a testament to the downstream effects that channel diversions can have on both upland and riparian plant communities. For the proposed action, these effects would be minimized somewhat by the

proposed redistribution of flows below the project at many discharge points but it is unclear to what extent sediment transport in the diverted channels would be affected.

Indirect effects of all future projects that cannot be adequately addressed with this GIS analysis but are expected to be cumulatively significant include: impacts to water quality and sediment transport from the numerous channel diversions, culverts and road crossings, fragmentation of the habitat and the corresponding loss of habitat function and values, including wildlife movement, and the effects of interrupted fluvial sand transport on the Chuckwalla Valley dune system. Impacts to connectivity and wildlife movement from these diversions are discussed in more detail later in this cumulative effects analysis.

Implementation of the mitigation measures imposed by the CEC as Condition of Certification would reduce the PSPP's contribution to cumulative effects, including BIO-21 (acquisition of desert washes within or adjacent to the Palen watershed); BIO-7 (monitoring and reporting requirements); and BIO-8 (impact avoidance and minimization measures). However, minor residual impacts to fluvial sediment transport may remain that could contribute to cumulative impacts. The larger washes that would be diverted around the PSPP site contribute fresh sediment into the wind-sand transport corridor and contribute to the maintenance of the dunes. It is unclear to what extent sediment transport in the diverted channels would be affected and how significant the effect would be.

Table I-3, *Cumulative Effects: Desert Washes in the NECO Planning Area*, and Figure 3.18-4 illustrate the potential cumulative impacts to all desert washes within the entire NECO planning area, as depicted in the USGS National Hydrographic Dataset (USGS 2010) and cited in the CEC SA/DEIS. The cumulative impairment or loss of desert washes from channel diversion from all future projects within NECO are significant. Implementation of PSPP-specific mitigation measures would reduce the contribution of the proposed action or an alternative, including BIO-21 (acquisition of desert washes within or adjacent to the Palen watershed); BIO-7 (monitoring and reporting requirements); and BIO-8 (avoidance and minimization measures). Residual cumulative impacts are not anticipated. Impacts of the PSPP's stream diversions on wildlife movement are discussed later in this cumulative effects analysis.ss

TABLE I-3
CUMULATIVE EFFECTS: DESERT WASHES IN THE NECO PLANNING AREA

Total Desert Washes[1] in NECO	Impacts to Habitat from Existing Projects[2] (percent of total washes in NECO)	Impacts to Habitat from Foreseeable Future Projects[3] (percent of total washes in NECO)	Contribution of PSPP to Future Cumulative Impacts (percent of total impacts from future projects)
18,596 mi.	190 mi. (1.0%)	1,122 mi. (6.0%)	5.3 mi. (0.5%) (based on USGS dataset)

NOTES:
1 Based on the USGS National Hydrographic Dataset (USGS 2010), as cited in the CEC SA/DEIS, 2010.
2 Includes only those existing projects for which GIS-based spatial data was available at the time of the analysis; see Table I-1.
3 Includes only BLM Renewables that had submitted a Plan of Development at the time of the analysis and those additional future projects listed in Table I-1.

SOURCE: CEC SA/DEIS, 2010 (Biological Resources Table 11)

5.2 Special-Status Wildlife

5.2.1 Desert Tortoise

This analysis addresses cumulative impacts to desert tortoise as defined by the current USGS Desert Tortoise Habitat Model (Nussear et al. 2009, as cited in CEC SA/DEIS, 2010). It is a predictive model for mapping the potential distribution of desert tortoise habitat and is useful tool for evaluating different land-use issues that tortoises face at a landscape scale. Figure 3.23-1 is a spatial representation of the predicted habitat potential index values for desert tortoise, based on the 2009 model. Table I-4, *Cumulative Effects: Desert Tortoise Habitat*, summarizes the results of this habitat model applied across the NECO planning area. The results are stratified by habitat value and are presented in acres of habitat and expressed as a percentage of all habitat affected. The model is not intended to be used, or viewed, as a substitute for ground-based and site-specific field surveys. Model scores reflect a hypothesized habitat potential given the range of environmental conditions where tortoise occurrence was documented. Nussear et al. (2009, p. 15, as cited in CEC SA/DEIS, 2010) specifically states:

> *As such, there are likely areas of potential habitat for which habitat potential was not predicted to be high, and likewise, areas of low potential for which the model predicted higher potential. Finally, the map of desert tortoise potential habitat that we present does not account either for anthropogenic effects, such as urban development, habitat destruction, or fragmentation, or for natural disturbances, such as fire, which might have rendered potential habitat into habitat with much lower potential in recent years.*

GIS-based files for the boundaries of the Eastern and Northern Colorado Recovery Units from the 1994 Desert Tortoise Recovery Plan were not available from the USFWS and the proposed new boundaries as depicted in the USFWS 2008 Draft Revised Recovery Plan had not been adopted as of the time of this analysis. Consequently, the NECO planning area boundary was used for this analysis. The NECO boundary closely approximates the boundaries of the two USFWS recovery units; however, the USFWS boundaries extend slightly to the north and west of the NECO boundary.

The PSPP's unmitigated effects to desert tortoise habitat (based on the 2009 USGS habitat model) are quantified below in Table I-4 (and Figure 3.23-1). Most of the proposed projects in the NECO area would impact moderate- to low-quality desert tortoise habitat. The PSPP's contribution to cumulative habitat loss, even for moderate-to low-quality desert tortoise habitat, is considered substantial, given the species' decline and its present and future threats.

The PSPP also would make substantial contributions to loss of desert tortoise connectivity between the Chuckwalla and Chemehuevi DWMAs and critical habitat areas. One of the objectives for desert tortoise recovery in the NECO is to "mitigate effects on desert tortoise populations and habitat outside DWMAs to provide connectivity between DWMAs." Maintaining connectivity is particularly important given the threats posed by global climate change, according to the USFWS 2008 Draft Revised Recovery Plan, as cited in the CEC SA/DEIS (2010). Probable desert tortoise linkages between the Chuckwalla and Chemehuevi critical habitat areas and DWMAs are shown in Figure 3.23-2. The linkages depicted represent areas of the best habitat quality for tortoises between the DWMAs and critical habitat, and therefore represent the most

TABLE I-4
CUMULATIVE EFFECTS: DESERT TORTOISE HABITAT[1]

Habitat Value[1]	Total Desert Tortoise Habitat[1] in NECO	Impacts to Habitat from Existing[2] Projects (percent of total in NECO)	Impacts to Habitat from Foreseeable Future[3] Projects (percent of total in NECO)	Contribution of PSPP to Future Cumulative Impacts (percent of total impacts from future projects)
0	243,679 acres	67,028 acres 27.5%	21,774 acres 8.9%	0 acres
0.1	233,260 acres	9,094 acres 3.9%	25,937 acres 11.0%	0 acres
0.2	373,170 acres	9,288 acres 2.5%	44,595 acres 12.0%	66 acres 0.15%
0.3	628,960 acres	11,987 acres 1.9%	38,163 acres 6.1%	1,422 acres 3.7%
0.4-0.5	787,882 acres	15,885 acres 2.0%	61,163 acres 7.8%	1,498 acres 2.5%
0.6-0.7	1,381,024 acres	10,279 acres 0.7%	94,944 acres 6.9%	16.4 acres 0.02%
0.8-0.9	1,868,475 acres	9,233 acres 2.8%	53,074 acres 2.8%	0 acres
1.0	30,883 acres	71 acres 0.2%	55 acres 0.2%	0 acres

NOTES:
1 Based on the USGS Desert Tortoise Habitat Model (Nussear et al. 2009, cited in CEC SA/DEIS, 2010).
2 Includes only those existing projects for which GIS-based spatial data was available at the time of the analysis; see Table I-1.
3 Includes only BLM Renewables that had submitted a Plan of Development at the time of the analysis and those additional future projects listed in Table I-1.

SOURCE: CEC SA/DEIS, 2010 (Biological Resources Table 12)

probable linkages and most important areas to protect to maintain connectivity between the Chemehuevi and Chuckwalla DWMAs. The identified linkages are based on a review of information on existing vegetation and landform data (NECO datasets and PSPP-specific survey data), and depicted in the USGS habitat model. The location of private lands in "probable" linkages is a useful tool for identifying potential acquisition lands for desert tortoise mitigation, and for evaluating different land-use issues that tortoises face at a landscape scale. Figure 3.23-2 identifies these linkages based on the areas of moderate and high quality habitat between management areas for a qualitative analysis of cumulative effects; however, the impacts are not quantified here as the linkages have not been formalized or created as shape layers suitable for GIS analysis. Along with the linkages depicted in Figure 3.23-2, additional linkages through areas currently considered lower quality habitat that could be restored may also be important for long-term connectivity between the Chemehuevi and Chuckwalla DWMAs.

With implementation of recommended mitigation measure BIO-12 (acquisition of desert tortoise compensation lands), the PSPP-specific contribution to the cumulative loss of desert tortoise habitat would be substantially reduced. Mitigation measure BIO-12 specifies that compensation habitat acquisitions occur within the Colorado Desert Recovery Unit in areas that have potential to contribute to desert tortoise habitat connectivity and build linkages between desert tortoise designated critical habitat, known populations of desert tortoise, and/or other preserve land. Other desert-tortoise-specific mitigation measures recommended to address the PSPP's contribution to

cumulative effects include the impact avoidance and minimization measures BIO-1 through BIO-11, monitoring and reporting requirements (BIO-7), and desert tortoise compliance verification (BIO-11).

Some residual effects could remain. These include fragmentation, impaired connectivity, and degradation of the function and values of remaining habitat from predators, invasive plants, fire, and disease. These residual cumulative effects can be addressed only through a regional and coordinated planning effort aimed at preserving and enhancing large, intact expanses of wildlife habitat and linkages, including maintaining connections between wildlife management areas and other movement corridors. Ongoing collaborative efforts by federal and state agencies to develop a Desert Renewable Energy Conservation Plan and BLM's Solar Energy Development Programmatic EIS offer an appropriate forum for such planning.

5.2.2 Nelson's Bighorn Sheep

The distribution and extent of the NECO-designated bighorn sheep WHMAs (occupied and unoccupied range) and connectivity corridors, overlaid with past and foreseeable future projects within the NECO planning area, are quantified in Table I-5, *Cumulative Effects: Bighorn Sheep WHMAs and Connectivity Corridors*, and illustrated in Figure 3.23-11. The GIS analysis of the NECO bighorn sheep WHMAs and connectivity corridors indicates that occupied and unoccupied ranges are relatively unaffected by past and future projects (from habitat conversion), due largely to their position in wilderness areas and at higher elevations. However, large-scale renewable energy development could significantly impact gene flow between sheep populations through significant cumulative impacts to connectivity corridors, potentially decreasing the viability of the metapopulation of bighorn sheep. The PSPP itself, however, has no direct contribution to the loss of habitat within the identified connectivity corridors or the WHMAs.

TABLE I-5
CUMULATIVE EFFECTS: BIGHORN SHEEP WHMAS AND CONNECTIVITY CORRIDORS

Bighorn sheep WHMAs & Connectivity Corridors[1]	Total WHMA or Connectivity Corridor[1] in NECO	Impacts to WHMAs & Connectivity Corridors from Existing[2] Projects (percent of all WHMAs or corridors in NECO)	Impacts to WHMAs & Connectivity Corridors from Foreseeable Future[3] Projects (percent of all WHMAs or corridors in NECO)	Contribution of PSPP to Future Cumulative Impacts (percent of total impacts from future projects)
Total in NECO	2,552,074 acres	4,945 acres 0.2% of total NECO	93,295 acres 3.7% of total NECO	0 acres
Occupied Range	1,718,254 acres	4,312 acres 0.3% of total Occupied range	51,508 acres 2.3% of total Occupied range	0 acres
Unoccupied Range	232,506 acres	92 acres 0.04% of total Unoccupied range	8,134 acres 3.5% of total Unoccupied range	0 acres
Connectivity Corridors	601,313 acres	540 acres 0.9% of total Connectivity corridor	33,653 acres 5.6% of total Connectivity corridor	0 acres

NOTES:
1 Based on the BLM NECO Bighorn Sheep WHMAs dataset (BLM CDD 2002).
2 Includes only those existing projects for which GIS-based spatial data was available at the time of the analysis; see Table I-1.
3 Includes only BLM Renewables that had submitted a Plan of Development at the time of the analysis and those additional future projects listed in Table I-1.

SOURCE: CEC SA/DEIS, 2010 (Biological Resources Table 13)

Another consideration of this analysis was whether the proposed future projects would cumulatively and significantly affect bighorn sheep through the loss of spring forage on the upper bajadas adjacent to occupied range. Staff analyzed the impact of development within a one-mile buffer from the base of occupied ranges (or potentially restored populations in unoccupied ranges) to evaluate the potential impacts to bighorn foraging habitat. No direct or cumulative effects to bighorn sheep WHMAs or spring foraging habitat would result from the PSPP, and thus no mitigation measures relating to bighorn sheep are recommended.

The PSPP is located within the proposed Palen-Ford multi-species WHMA (BLM CDD 2002; map 2-21); however, bighorn sheep are not expected to use the I-10 box culvert undercrossing of Corn Springs Wash. Further, NECO identifies I-10 as a barrier to bighorn sheep movement (BLM CDD 2002). Although the PSPP is expected to affect wildlife movement and connectivity with important wildlife areas north and south of I-10, it is not expected to substantially affect—directly, indirectly, or cumulatively—bighorn sheep movement.

5.2.3 Mojave Fringe-Toed Lizard

The geographic scope for the first of two cumulative effects analyses for Mojave fringe-toed lizard is the entire NECO planning area; the second analysis looked only at the habitat for the Chuckwalla Valley population. The NECO dataset for Mojave fringe-toed lizard habitat includes all but the highest portions of the mountain ranges and thus it considerably over-represents the amount or extent of suitable habitat. The dataset was refined to more accurately represent the species restriction to sandier substrates. Using the NECO landforms dataset, this analysis was based on a simple habitat model created by selecting the following sandy landforms: crescentic dunes; longitudinal dunes; undifferentiated dunes; sandy dissected fans; sandy plains, and dry playas (which often have at least a veneer of sand). The selected landforms were overlaid with documented occurrences of Mojave fringe-toed lizard from CNDDB and the detailed field survey data from four renewable energy projects within the Chuckwalla Valley. The occurrence data was in considerable agreement with the selected landforms; no corrections were necessary and no attempt was made to rank habitat value. Table I-6, *Cumulative Effects: Special-status Species Habitat*, presents the results of the Mojave fringe-toed lizard habitat model applied across the NECO planning area and overlaid with the existing and future projects layers to quantify the cumulative loss of habitat.

Anticipated cumulative effects to Mojave fringe-toed lizard that are not reflected in this quantitative GIS-based analysis of habitat conversion include: impacts to sand transport systems and the maintenance of dunes from renewable energy projects (wind fencing and the obstruction of sand-carrying winds and water-deposited sands); premature stabilization of dunes by the spread of noxious weeds, which also fuel wildfires; increased risk of fire from transmission lines and increased vehicle use; the effects of past and future grazing and off-road vehicle use; fragmentation of the remaining habitat and reduced gene flow; and an increase in predation by ravens and other predators from an increase in perching structures. Obstructions to the wind-sand transport corridor from structures and wind-fencing, and the indirect effects of the obstruction to the maintenance of dunes downwind of the obstruction, are expected to be significant, and would result in an additional—and significant—loss of Mojave fringe-toed lizard habitat. The direct and

indirect effects of the PSPP on the sand transport corridor are discussed in Section 4.14, *Impacts to Soils Resources*.

Table I-6 and Figure 3.23-3 illustrate the significant cumulative effects of habitat loss from existing and foreseeable future projects to Mojave fringe-toed lizards in the NECO planning area; future (proposed) projects alone will cumulatively cause a loss of over 16% of all Mojave fringe-toed lizard habitat.

Within Chuckwalla Valley (Table I-6 and Figure 3.23-4), approximately 13% of the Mojave fringe-toed lizard habitat would be directly impacted by the construction of all proposed projects, and the PSPP is a major contributor to that effect (8.8% of all future impacts. These effects are even more significant when combined with the expected indirect effects to Mojave fringe-toed lizard habitat, including: interruption of aeolian (wind-deposited) sand transport processes from projects and their wind fencing; diversions of desert washes and interruption of fluvial transport of sand that contribute to the maintenance of habitat; an increase in avian predators from the new perching structures provided by these projects, and the continuing spread of Sahara mustard.

These cumulative direct and indirect effects are considerable within the NECO planning area and for the Chuckwalla Valley Mojave fringe-toed lizard population. The cumulative impact of all the proposed projects would be to increase the already fragmented distribution of the Mojave fringe-toed lizards, and to increase the risk of extirpation of isolated populations within the Chuckwalla Valley.

5.2.4 Golden Eagle

Three different analyses of cumulative effects were evaluated on golden eagle foraging habitat: 1) the entire NECO planning area; 2) a 10-mile radius area centered on the nearest known nest site 95.5 miles from the PSPP site); and 3) foraging habitat within 10 miles of the base of all mountain landforms within the NECO planning area. All analyses used the NECO plant communities dataset to map and quantify cumulative effects on foraging habitat (Figures 3.23-7 and 3.23-8). Table I-7, *Cumulative Effects: Golden Eagle Foraging Habitat,* summarizes the analysis of foraging habitat within 10 miles of all mountains within NECO (using the NECO landforms dataset) and foraging habitat within 10 miles of the nearest known/documented nest. For an analysis of foraging habitat within the entire NECO planning area (Figure 3.23-8), please refer to Table I-7: Plant Communities in NECO; all habitat types were considered potential foraging habitat but the analysis in Table I-9 defines the habitat by plant community. The NECO plant communities dataset is based on the 1996 California Gap Analysis Project conducted by the Biogeography Lab at the University of California, Santa Barbara and coordinated through the USGS Biological Resources Division (Davis et al. 1998, cited in CEC SA/DEIS, 2010). The accuracy and resolution of the GAP mapping was improved for the NECO plant communities dataset (BLM CDD 2002; Appendix H), primarily to more accurately represent sensitive communities such as desert dry wash woodland, but should not be viewed as a substitute for site-specific habitat mapping.

Figure 3.23-7 depicts the locations of known and documented golden eagle nest locations and illustrates potential cumulative effects to foraging habitat within 10 miles of currently known

TABLE I-6
CUMULATIVE EFFECTS: SPECIAL-STATUS SPECIES HABITAT

Special-status Species Habitat	Total Habitat in NECO (or other study area)	Impacts to Habitat from Existing[1] Projects (percent of total habitat)	Impacts to Habitat from Foreseeable Future[2] Projects (percent of total habitat)	Contribution of PSPP to Future Cumulative Impacts (percent of total future impacts)
Mojave fringe-toed lizard habitat[3] (all NECO)	630,121 acres	14,541 acres 2.3%	103,604 acres 16.4%	1,136 acres 0.9%
Mojave fringe-toed lizard habitat[3] (Chuckwalla Population)	99,657 acres	8,290 acres 8.3%	12,845 acres 12.9%	1,136 acres 8.8%
American badger and desert kit fox habitat[4]	4,795,631 acres	134,750 acres 2.8%	339,704 acres 7.1%	3,001.5 acres 0.9%
Burrowing owl habitat[4]	4,795,631 acres	134,750 acres 2.8%	339,704 acres 7.1%	3,001.5 acres 0.9%
LeConte's thrasher habitat[5]	3,718,357 acres	47,078 acres 1.3%	300,139 acres 8.1%	3001.5 acres 1.0%
Burro deer range[6]	637,453 acres	10,236 acres 1.6%	47,640 acres 7.5%	5.4 acres 0.01%
Couch's spadefoot toad range[6]	1,548,597 acres	88,992 acres 5.7%	115,218 acres 7.4%	0 acres
Harwood's milk-vetch habitat[7]	1,555,915 acres	29,195 acres 1.9%	170,048 acres 10.9%	1,136 acres 0.7%

NOTES:
1 Includes only those existing projects for which GIS-based spatial data was available at the time of the analysis; see Table I-1
2 Includes only BLM Renewables that had submitted a Plan of Development (POD) at the time of the analysis and those additional future projects listed in Table I-1
3 Total habitat based on the BLM NECO Landforms dataset (BLM CDD 2002), selecting following values: undifferentiated dunes; crescentic dunes, longitudinal dunes; sandy plains; sandy dissected fans. Does not include impacts from the transmission line and substation sites.
4 Total habitat based on the BLM NECO Landforms dataset (BLM CDD 2002), excluding mountains, playas, badlands, and lava flows
5 Total habitat based on NECO dataset for Le Conte's thrasher habitat (BLM CDD 2002)
6 Total habitat based on NECO dataset for burro deer range (BLM CDD 2002)
7 Total habitat based on the BLM NECO Landforms dataset (BLM CDD 2002), selecting following values: undifferentiated dunes; sandy plains; sandy dissected fans; undifferentiated plains

SOURCE: CEC SA/DEIS, 2010 (Biological Resources Table 14)

(documented) nests. The source of this information include the "nest card" database--helicopter surveys conducted in 1978 and 1979 desert-wide—and locations depicted in a 1984 BLM California Desert Conservation Area (CDCA) map of "Sensitive, Rare, Threatened and Endangered Fish and Wildlife" that were digitized for this analysis (BLM, 1999). It is unknown whether these nests are still active and/or present; this analysis assumes that they could be active and, at a minimum, that the site is suitable for nesting. The nest locations depicted are approximate (with a margin of error +/- 1-2 miles) and the map should not be viewed as a substitute for site-specific nest surveys to assess project impacts.

The PSPP's contribution to the cumulative loss of foraging habitat is greater when combined with the reasonably foreseeable indirect effects of habitat fragmentation from the construction of proposed future projects. The USFWS and others (see, USFWS 2009b and Kochert et al. 2002, each cited in CEC SA/DEIS, 2010) estimate there are approximately 30,000 golden eagles in the western U.S., down from an estimated 100,000 in the late 1970s. Survey data from 2003 and

TABLE I-7
CUMULATIVE EFFECTS: NATURAL COMMUNITIES IN NECO

Plant Community[1]	Total Plant Communities[1] in NECO	Impacts to Habitat from Existing[2] Projects(percent of all community type in NECO)	Impacts to Habitat from ForeseeableFuture[3] Projects(percent of all community type in NECO)	Contribution of PSPP to Future Cumulative Impacts(percent of total impacts from future projects)
Mojave Creosote Bush Scrub	805,832 acres	6,233 acres 0.8%	43,320 acres 5.4%	0 acres
Sonoran	3,829,999 acres	22,815 acres	228,363 acres	3,422 acres[4]
Creosote Bush		0.6%	5.9%	1.5%
Scrub				
Desert Dry Wash Woodland	682027	8,457 acres 1.2%	48,167 acres 7.1%	148 acres50.3%
Playa/Dry Lake	88,110 acres	961 acres 1.1%	18,634 acres 21.1%	0 acres[4]
Sand Dunes	62,140 acres	14 acres 0.02%	175 acres 0.3%	285acres100%[4]
Chenopod Scrub	2,113 acres	480 acres 22.7%	0 acres	0 acres
Agriculture, Developed	94,187 acres	n/a	1,017 acres 1.1%	0 acres
Pinyon-Juniper Woodland	1,928 acres	0 acres	0 acres	0 acres

NOTES:
1 Based on the BLM NECO Plant Communities dataset (BLM CDD 2002)conducted by the Biogeography Lab at the University of California, Santa Barbara and coordinated through the USGS Biological Resources Division UC Santa Barbara GAP Analysis (1996), updated during the NECO planning effort (see Appendix H of the NECO (BLM and CDD 2002)
2 Includes only those existing projects between Desert Center and the Colorado River for which GIS-based spatial data was available at the time of the analysis; see Table I-1
3 Includes only BLM Renewables that had submitted a Plan of Development (POD) at the time of the analysis and those additional future projects listed in Table I-1
4 – From Solar Millennium 2010b. The 285-acre sand dune value reflects the ground-based and field-verified delineation of natural communities (Solar Millennium 2010b). Differences in the methodology and accuracy of ground-based delineations versus aerial photo interpretation (as used in the NECO dataset) accounts for the discrepancy

- Reflects the field-verified, ground-based delineation of desert wash woodland (Galati and Blek 2009b)

SOURCE: CEC SA/DEIS, 2010 (Biological Resources Table 17)

2006-2008 indicate a decline of 26% since 2003. Climate change is also expected to impact golden eagle by increasing drought severity, and the CO2 concentrations are expected to exacerbate the spread of invasive weeds, which displace native species and habitats, fuel wild fires and alter fire regimes. Additionally, the proposed transmission lines for this and other proposed future projects are also expected to increase raptor collisions and electrocutions.

Proposed future projects within 10 miles of all mountains in the NECO planning area would cumulatively displace over 300,000 acres of Sonoran and Mojave creosote bush scrub and desert dry wash woodland. The Project's contribution to the cumulative loss of foraging habitat within the NECO planning area would be minimized to level less than significant through mitigation measures for acquisition of 4,737 acres of Sonoran creosote bush scrub habitat, as specified in mitigation measure BIO-12. While acquisition does not address the net loss of foraging habitat in the immediate future, it is expected to prevent future losses of habitat by placing a permanent conservation easement and deed restrictions on private lands that could otherwise be converted for urban or agricultural uses or energy development.

In Figure 3.23-7, the analysis was based on a 10-mile swath around the base of all mountain landforms, as mountains were considered the most likely areas to support golden eagle nests; this analysis used both the NECO landforms and plant communities datasets.

The cumulative impacts to foraging habitat within 10 miles of the nearest known nest (south of the PSPP boundary in the Chuckwalla Mountains) amounts to a loss of 6,435 acres of Sonoran creosote bush scrub, and the PSPP is responsible for almost half of that impact (see, Table I-8 and Figure 3.23-7); if the nest were active, the pair of golden eagles nesting at the site would lose 3.8% of potential foraging grounds from all proposed projects. The BLM has no information as to whether the golden eagle nest 5.5 miles from the PSPP site is currently active, but the absence of any observations of golden eagles during the avian point counts and other field surveys conducted in spring 2009 does not provide an adequate basis for conclusions about golden eagle use of the project site, nor was information available about prey abundance relative to other foraging habitat available to eagles in the area. Since golden eagles are known to rely on ground squirrels as an important dietary component when available (Kochert et al. 2002, cited CEC SA/DEIS, 2010), the abundance of round-tailed ground squirrels in more sandy areas of the PSPP site suggests the project could eliminate important foraging habitat. The habitat loss from the PSPP contributes considerable impacts to golden eagles in the Chuckwalla Valley and the NECO planning area, and adds incrementally to the overall loss, fragmentation and degradation of foraging habitat for golden eagles.

5.2.5 American Badger and Desert Kit Fox

The geographic scope for the cumulative impact analysis for these two species encompasses the entire NECO planning area. Using the NECO landforms dataset, the extent of suitable habitat was refined by excluding the following landforms: playas, badlands (steep erosional features), lava flows, and mountains, and then overlaid by existing and foreseeable future projects to quantify cumulative impacts to badger and kit fox habitat (Table I-6 and Figure 3.23-10).

This quantitative analysis of habitat loss does not address use of the PSPP site and adjacent habitat for both foraging and movement pathways. Other reasonably anticipated cumulative effects not quantified here include habitat fragmentation and the diminished habitat values of remaining habitat from increased noise, lighting, exotic plant and wildlife invasion and their ability to fuel wildfires and alter fire regimes, dust and air pollution, an increase in predators, agriculture and urban development (which has eliminated much habitat in the immediate PSPP vicinity), and the consequences of human intrusion into previously undisturbed habitats: hunting, use of rodenticides and other poisons, road kills, trapping, and human disturbance.

An estimated 339,704 acres of American badger and desert kit fox habitat would be displaced by the proposed future projects within the NECO planning area, representing approximately 7% of the total habitat mapped in NECO (based on the simple habitat model described above). The effect, when combined with the anticipated indirect effects to remaining habitat and populations from all future projects, is considerable. The PSPP's contribution to the cumulative loss of habitat would be minimized by implementation of mitigation measure BIO-12 for acquisition of 4,737 acres of desert tortoise habitat, which is expected to contain suitable habitat for badger and desert kit fox. Mitigation measure BIO-21 for the acquisition and protection of desert washes would also

TABLE I-8
CUMULATIVE EFFECTS: GOLDEN EAGLE FORAGING HABITAT

Cumulative Effects: Golden Eagle Foraging Habitat Within 10 miles of Nearest Known Nest (see Figure 3.23-7)

Foraging Habitat[1] (by plant community)	Total Plant Communities[1] within 10-mile Buffer of Nearest Known Nest	Impacts to Foraging Habitat from Existing[2] Projects (percent of all community types in 10-mile buffer)	Impacts to Foraging Habitat from Foreseeable Future[3] Projects (percent of all community types in 10-mile buffer)	Contribution of PSPP to Future Cumulative Impacts (percent of total impacts from future projects)
Sonoran Creosote Bush Scrub	171,088 acres	2,100 acres 1.2%	6,435 acres 3.8%	2,996 acres 46% of all future impacts (1.7% of total community in buffer)

Cumulative Effects: Golden Eagle Foraging Habitat Within 10 Miles of Mountains in the NECO Planning Area (see Figure 3.23-7)

Foraging Habitat[1] (by plant community)	Total Plant Communities[1] within NECO	Impacts to Foraging Habitat from Existing[2] Projects (percent of all community types in 10-mile buffer)	Impacts to Foraging Habitat from Foreseeable Future[3] Projects (percent of all community types in 10-mile buffer)	Contribution of PSPP to Future Cumulative Impacts (percent of total impacts from future projects)
Mojave Creosote Bush Scrub	728,536 acres	1,691 acres 0.2%	33,920 acres 4.7%	0 acres
Sonoran Creosote Bush Scrub	3,571,797acres	22,019 acres 0.6%	228,363 acres 6.4%	2,996 acres 1.3%
Desert Dry Wash Woodland[4]	654,735	8,128 acres 1.2%	48,086 acres 7.3%	5.4 acres[4] 0.01%
Playa/Dry Lake	54,433 acres	961 acres 1.8%	15,713 acres 29%	0 acres
Sand Dunes	60,807 acres	1,465 acres 2.4%	175 acres 0.3%	0 acres
Chenopod Scrub	982 acres	72 acres 7.3%	0 acres	0 acres
Agriculture, Developed	94,187 acres	n/a	1,011 acres 1.3%	0 acres
Pinyon-Juniper Woodland	1,928 acres	0 acres	0 acres	0 acres

NOTES:
1 Based on the BLM NECO Plant Communities dataset (BLM CDD 2002) conducted by the Biogeography Lab at the University of California, Santa Barbara and coordinated through the USGS Biological Resources Division UC Santa Barbara GAP Analysis (1996), updated during the NECO planning effort (see Appendix H of the NECO Management Plan (BLM CDD 2002)
2 Includes only those existing projects for which GIS-based spatial data was available at the time of the analysis; see Table I-1
3 Includes only BLM Renewables that had submitted a Plan of Development (POD) at the time of the analysis and those additional future projects listed in Table I-1.
4 Does not reflect site-specific field delineation of desert dry wash woodland, which totals 141 acres of desert dry wash woodland.

SOURCE: CEC SA/DEIS, 2010 (Biological Resources Table 15)

be expected to benefit badger and kit fox. Cumulative effects of wildlife movement are discussed below. Direct and indirect effects would also be minimized through the badger- and kit fox-specific avoidance and minimization measures in BIO-17.

5.2.6 Western Burrowing Owl

Using the NECO landforms dataset, the extent of suitable habitat for burrowing owl was refined by excluding the following landforms: dunes, mountains, playas, badlands (steep erosional features) and lava flows, and then overlaid by existing and foreseeable future projects to quantify cumulative impacts to burrowing owl habitat (Table I-6 and Figure 3.23-6).

The PSPP's contribution to the cumulative loss of habitat is comparable to the cumulative loss of badger and kit fox habitat, described above. However, the analysis does not quantify expected indirect cumulative effects such as habitat fragmentation, increased road kills, increased risk of fire from weed invasion and ignition sources, and the degradation of remaining habitat function and values. The effects of all proposed future projects (7.1% loss of habitat) is considerable, particularly when combined with the indirect effects described above. The PSPP's contribution to indirect effects and loss of habitat would be reduced through the implementation of the following mitigation measures: BIO-12 for acquisition of 4,737 acres of desert tortoise habitat; BIO-20 for acquisition of Mojave fringe-toed lizard habitat, which includes sandy plains and sand-covered alluvial fans; BIO-21 for the acquisition and enhancement of desert washes and desert wash woodland within the Palen watershed; and the avoidance and minimization measures for burrowing owl contained in BIO-18. The Raven Management Plan (BIO-13) and Weed Management Plan (BIO-14) are also expected to reduce the PSPP's contribution to the indirect effects of increased avian predators and the spread of invasive plants.

5.2.7 Le Conte's Thrasher

The scope of this analysis includes the entire NECO planning area and utilized the NECO Le Conte's thrasher habitat dataset to quantify cumulative effects of habitat loss from existing and foreseeable future projects. The NECO habitat model for this species is applicable to several other special-status bird species that inhabit desert dry wash woodland and adjacent upland habitat, including loggerhead shrike (Table I-6 and Figure 3.23-9). The cumulative indirect impacts to migratory birds not addressed in the quantitative analysis of habitat loss, and expected to be significant include: habitat fragmentation and degradation, and impacts to riparian and groundwater-dependent vegetation from water overdrafts and channel diversions.

The Le Conte's thrasher is showing steep population declines due to loss of habitat resulting from urbanization and water use combined with prolonged drought. Climate change is expected to exacerbate drought and compound the impacts of surface and groundwater use in the desert region. Further loss, fragmentation, and degradation of habitat could cause local extirpations and imperil Le Conte's thrashers in the Mojave and Sonoran deserts (CalPIF 2006, cited in CEC SA/DEIS, 2010). Current research indicates that many desert birds, including Le Conte's thrasher, are highly susceptible to habitat fragmentation and disturbance (Kershner, USFWS, pers comm., cited in CEC SA/DEIS, 2010). The Le Conte's thrasher is typically found in very low densities and has large territories, and is therefore at risk of local extirpation from habitat loss.

The cumulative effects from foreseeable future projects on habitat loss are substantial: 300,139 acres of desert scrubs and desert wash woodland would be lost to future renewable energy development within the NECO planning area alone; this represents 8.1% of all potential habitat in NECO. The PSPP's contribution to the cumulative loss of habitat would be reduced through implementation of recommended mitigation measures BIO-21, which requires acquisition and enhancement of 423 acres of desert dry wash woodland (3:1 mitigation for 141 acres of impacts) and 161 acres (1:1 mitigation) for unvegetated ephemeral washes within the same watershed as the PSPP. Mitigation measure BIO-12 requires compensatory habitat acquisition for desert tortoise habitat, which is also expected to benefit Le Conte's thrasher, and BIO-15 requires pre-construction nesting bird surveys. Mitigation measures BIO-23 and BIO-24 would require monitoring for impacts to groundwater-dependent vegetation around Palen Dry Lake and remedial action if adverse effects are detected. These additional mitigation measures also would reduce the PSPP's contribution to the anticipated cumulative indirect effects to habitat for Le Conte's thrasher habitat and other desert birds occupying similar habitat.

5.2.8 Burro Deer

Burro deer is a subspecies of mule deer found in the Colorado Desert of Southern California, primarily along the Colorado River and in Desert Wash Woodland communities away from the River. During the hot summers, water is critical, and deer concentrate along the Colorado River where water developments have been installed and where the microphyll woodland is dense and provides good forage and cover. Impacts are most important within 0.25 mile of natural or artificial watering sites; the water sources depicted in the bighorn sheep WHMA map, Figure 3.23-11, are based on the NECO dataset.

Table I-6 summarizes the anticipated cumulative effects to burro deer range; these effects are also illustrated in Figure I-1. Using the NECO dataset for burro deer range, approximately 5.4 acres of burro deer range would be displaced by the PSPP. Proposed future projects would cumulatively affect 7.5% of the burro deer range, as documented range in NECO (BLM CDD 2002). Implementation of mitigation measures BIO-21 for acquisition of 643 acres of desert washes within the same watershed as the PSPP, and BIO-12 for compensatory habitat acquisition for desert tortoise habitat, would offset the PSPP's contribution to the cumulative loss of burro deer range. However, wildlife dispersal between the Chuckwalla and Palen mountain ranges over the freeway via large underpasses is a essential to maintain healthy populations for species such as burro deer that depend on mountainous habitat. Impacts of the PSPP would be considerable unless its footprint can be configured to facilitate habitat connectivity, leaving the central wash open and providing access to the I-10 underpass. The cumulative effects of future projects on wildlife movement and connectivity are discussed in more detail below.

The three I-10 bridges south of the PSPP site are rare infrastructure features in the region that provide a safe corridor for wildlife, including large mammals such as burro deer, to pass under the I-10. Burro deer have been documented using the I-10 undercrossings south of the PSPP site, and without access to this safe passage would be expected to experience higher levels of vehicular-related fatalities as they tried to cross the freeway. Diminished access to the I-10 culverts from construction of the PSPP would substantially affect wildlife connectivity. Reconfigured Alternatives 1 and 2 and the Reduced Acreage Alternative would avoid this

significant impact of the proposed action to wildlife connectivity by maintaining the primary wash through the site that provides wildlife access.

5.2.9 Couch's Spadefoot Toad

The NECO dataset for Couch's spadefoot toad range was used in the GIS-based analysis to quantify cumulative impacts to potential habitat (Table I-6 and Figure 3.23-5). Based on the NECO depiction of the range extending only as far east as the Palo Verde basin, the GIS analysis concludes that the PSPP would not contribute to the cumulative loss of habitat within its highly restricted range in California. The PSPP site is over 40 miles west of the known range for this species, and Dimmitt (1977, cited in CEC SA/DEIS, 2010) searched favorable areas in the region encompassing the PSPP and did not find toads. The 1977 Dimmitt report on spadefoot toads indicates the Palen Lake area as being an area of interest for potential marginal populations; however, Dimmitt indicated (in consultations with staff cited in CEC SA/DEIS, 2010) that the area containing suitable breeding habitat was observed on the north and east side of the Palen dunes, which intercept washes coming off the Palen Mountains. It is possible that the western boundary of the Couch's spadefoot toad range extends farther west than depicted in the Figure 3.23-5. However, based on consultation with and expert opinion of biologists from AECOM (as cited in CEC SA/DEIS, 2010) and Dr. Dimmit, the BLM has determined that no suitable habitat (temporary pools at the base of dunes, in washes, channels, or playas) occurs in the PSPP area. Without survey results it is difficult to assess the potential for direct and indirect impacts to this species, but it tentatively has been concluded that Couch's spadefoot toads are not likely to occur in the Project Disturbance Area, and therefore the PSPP would not result in significant cumulative impacts to this species.

5.3 Wildlife Movement and Connectivity

Connectivity refers to the degree to which organisms can move among habitat patches and populations. Individuals must be able to move between patches to meet their resource needs, and in the long term populations must be connected to allow for dispersion, gene flow, and re-colonization. This discussion includes a qualitative assessment of cumulative effects to connectivity, and the estimated movement corridors are depicted spatially in Figure 3.23-2 "Desert Tortoise DWMAs & Connectivity Corridors", displayed on a base map of USGS desert tortoise habitat modeling (Nussear et al. 2009, cited in CEC SA/DEIS, 2010). Table I-5 and Figures I-2 and I-3, "Bighorn Sheep WHMAs & Connectivity Corridors" provide a summary of cumulative effects to bighorn sheep movement corridors as defined in the NECO Plan (BLM CDD 2002). Table I-9, *Cumulative Effects: WHMAs and Plant Communities*, and Figure I-2 and I-3 look at the cumulative effects to plant communities and landforms within three Multi-Species WHMAs in the Project vicinity: Big Maria Mountains WHMA, Palen-Ford WHMA, and the Continuity DWMA, which provides connectivity between the Chuckwalla DWMA/ACEC south of I-10 and the Palen-Ford WHMA north of I-10. This analysis utilized the NECO Plant Communities and Landforms datasets to describe the type of habitat affected within each separate WHMA.

In both the Palen-Ford WHMA and the DWMA Continuity WHMA, the PSPP is a major contributor to the cumulative effects of future projects on the loss of Sonoran creosote bush scrub within the WHMAs. Thus, the PSPP could impede wildlife movement in these corridors and

TABLE I-9
CUMULATIVE EFFECTS: WHMAS AND PLANT COMMUNITIES

Palen-Ford WHMA

Plant Community[1] within WHMA	Total Plant Communities[1] in WHMA	Impacts to Habitat from Existing[2] Projects (percent of all community type in WHMA)	Impacts to Habitat from Foreseeable Future[3] Projects (percent of all community type in WHMA)	Contribution of PSPP to Future Cumulative Impacts (percent of total impacts to WHMA from Future projects)
Sonoran Creosote Bush Scrub	39,366 acres	2,087 acres 5.3%	5,488 acres 14%	2,359 acres 43% of all future (6% of total in WHMA)
Desert Dry Wash Woodland[4]	13,104 acres	932 acres 7.1%	202 acres 1.5%	5.4 acres[4] 2.7%
Sand Dunes	17,690 acres	0 acres	44 acres 0.25%	0 acres
Chenopod Scrub	381 acres	62 acres 16.3%	0 acres	0 acres
Playas	13,696 acres	950 acres 6.9%	0 acres	0 acres
Agriculture, Urban	152 acres	n/a	0 acres	0 acres

Big Maria Mountains WHMA

Plant Community[1] within WHMA	Total Plant Communities[1] in WHMA	Impacts to Habitat from Existing[2] Projects (percent of all community type in WHMA)	Impacts to Habitat from Foreseeable Future[3] Projects (percent of all community type in WHMA)	Contribution of PSPP to Future Cumulative Impacts (percent of total impacts to WHMA from future projects)
Sonoran Creosote Bush Scrub	24,436 acres	317 acres 1.3%	3,105 acres 12.7%	0 acres
Desert Dry Wash Woodland[4]	9.308 acres	507 acres 5.4%	1,008 acres 10.8%	0 acres[4]
Agriculture, Urban	50 acres	n/a	0 acres	0 acres

DWMA Continuity WHMA

Plant Community[1] within WHMA	Total Plant Communities[1] in WHMA	Impacts to Habitat from Existing[2] Projects (percent of all community type in WHMA)	Impacts to Habitat from Foreseeable Future[3] Projects (percent of all community type in WHMA)	Contribution of PSPP to Future Cumulative Impacts (percent of total impacts to WHMA from future projects)
Sonoran Creosote Bush Scrub	12,804 acres	856 acres 6.7%	988 acres 7.7%	637 acres 64% of all future (5% of total in WHMA)
Desert Dry Wash Woodland[4]	275 acres	2.9 acres 1.1%	1.4 acres 0.5%	0 acres[4]

NOTES:
1 Based on the BLM NECO Plant Communities dataset (BLM CDD 2002), updated from the California Gap Analysis Project, conducted by the Biogeography Lab at the University of California, Santa Barbara and coordinated through the USGS Biological Resources Division UC Santa Barbara GAP Analysis (1996, as cited in CEC SA/DEIS, 2010).
2 Includes only those existing projects for which GIS-based spatial data was available at the time of the analysis; see Table I-1
3 Includes only BLM Renewables that had submitted a Plan of Development (POD) at the time of the analysis and those additional future projects listed in Table I-1
4 Does not reflect the field-verified, ground-based delineation of desert wash woodland (Galati and Blek 2010a, as cited in CEC SA/DEIS, 2010), which totals 141 acres in PSPP (69.8% of all future impacts in WHMA, or 1.5% of total community in WHMA).

obstruct connectivity for wide ranging wildlife such as burro deer, kit fox, coyotes, and badgers, and on a population level could impede gene flow for desert tortoises. These effects are considerable. Mitigation measures BIO-12 and BIO-21, requiring off-site habitat acquisition, would considerably reduce the PSPP's contribution to habitat loss within the Palen-Ford WHMA and the DWMA Continuity WHMA. Impacts to connectivity could be minimized if the acquisitions were targeted for areas that would enhance wildlife connectivity within the same WHMA and corridor.

No mitigation measures are currently available that can adequately minimize the proposed action's contribution to cumulative impacts to wildlife connectivity. The proposed action's contribution to cumulative effects can only be minimized by leaving the primary wash open—with an adequate buffer--for continued movement and connectivity between the Chuckwalla DWMA and critical habitat area, and the valley north of I-10. Adoption of Reconfigured Alternatives 1 or 2 or the Reduced Acreage Alternative would considerably minimize the proposed action's contribution to cumulative effects on movement and connectivity.

Although the implementation of the recommended mitigation measures and adoption of an alternative to keep the primary wash open would reduce the proposed action's contribution to cumulative impacts to wildlife movement and connectivity, there some residual impacts may remain that contribute to cumulative impacts. These residual cumulative effects from all future projects can only be addressed through a regional and coordinated planning effort aimed at preserving and enhancing large, intact expanses of wildlife habitat and linkages, including maintaining connections between wildlife management areas and other movement corridors. Ongoing collaborative efforts by federal and state agencies to develop a Desert Renewable Energy Conservation Plan and BLM's Solar Energy Development Programmatic EIS offer an appropriate forum for such planning.

5.4 Natural Communities

The geographic scope of the analysis of cumulative effects on plant communities and general wildlife habitat encompasses the NECO planning area and uses the NECO plant communities dataset to map and quantify cumulative effects on foraging habitat (Table I-10, *Cumulative Effects: Natural Communities***,** and Figure 3.18-1 and 3.18-6). The NECO plant communities dataset is based on the 1996 California Gap Analysis Project (Davis et al. 1998, cited in CEC SA/DEIS, 2010), a project of the Biogeography lab at UC Santa Barbara. The accuracy and resolution of the GAP mapping was improved for the NECO plant communities dataset (BLM CDD; Appendix H) using aerial photos and extensive ground-truthing but should not be viewed as a substitute for site-specific habitat mapping. Table I-9 quantifies the cumulative effects to plant communities, stratified by community type. Mojave creosote scrub refers to the creosote bush-dominant desert scrubs that occur within the Mojave Desert region of the California Desert geographic subdivision (Hickman 1993, cited in CEC SA/DEIS, 2010). The transition to Sonoran Desert is mapped at the Bristol Mountains near the Twenty-Nine Palms Marine Corps Base and extends east and south through the NECO planning area.

Considerable cumulative effects to plant communities from proposed future projects are seen in many community types, particularly Sonoran creosote bush scrub (5.9%), desert dry wash

TABLE I-10
CUMULATIVE EFFECTS: NATURAL COMMUNITIES

Plant Community[1]	Total Plant Communities[1] in NECO	Impacts to Habitat from Existing[2] Projects (percent of all community type in NECO)	Impacts to Habitat from Foreseeable Future[3] Projects (percent of all community type in NECO)	Contribution of PSPP to Future Cumulative Impacts (percent of total impacts from future projects)
Mojave Creosote Bush Scrub	805,832 acres	6,233 acres 0.8%	43,320 acres 5.4%	0 acres
Sonoran Creosote Bush Scrub	3,829,999acres	22,815 acres 0.6%	228,363 acres 5.9%	2,959 acres 1.3%
Desert Dry Wash Woodland[4]	682,027	8,457 acres 1.2%	48,167 acres 7.1%	5.4 acres[4] 0.01%
Playa/Dry Lake	88,110 acres	961 acres 1.1%	18,634 acres 21.1%	0 acres
Sand Dunes	62,140 acres	14 acres 0.02%	175 acres 0.3%	0 acres
Chenopod Scrub	2,113 acres	480 acres 22.7%	0 acres	0 acres
Agriculture, Developed	94,187 acres	n/a	1,017 acres 1.1%	0 acres
Pinyon-Juniper Woodland	1,928 acres	0 acres	0 acres	0 acres

NOTES:
1 - Based on the BLM NECO Plant Communities dataset (BLM CDD 2002)conducted by the Biogeography Lab at the University of California, Santa Barbara and coordinated through the USGS Biological Resources Division UC Santa Barbara GAP Analysis (1996, cited in CEC SA/DEIS, 2010), updated during the NECO planning effort (see Appendix H of the NECO (BLM and CDD 2002)
2 - Includes only those existing projects between Desert Center and the Colorado River for which GIS-based spatial data was available at the time of the analysis; see Table I-1
3 - Includes only BLM Renewables that had submitted a Plan of Development (POD) at the time of the analysis and those additional future projects listed in Table I-1
4 - Does not reflect the field-verified, ground-based delineation of desert wash woodland (Galati and Blek 2009a), which totals 141 acres in Project (0.3% of all future impacts)

SOURCE: CEC SA/DEIS, 2010 (Biological Resources Table 17)

woodland (7.1%), and playa (21.1%). These figures do not address the indirect effects to remaining habitat from fragmentation, alteration of the surface drainage patterns (which support many common and rare species), and an increase in the risk of fire and the introduction and spread of noxious weeds. Sahara mustard is a particular problem because it is already infesting many areas on and adjacent to the PSPP and has the potential to spread explosively if not carefully managed. Climate change is expected to exacerbate the effects of drought and noxious weed spread. The cumulative effects of groundwater pumping by all projects are expected to have adverse effects on groundwater-dependent vegetation in some portions of the Chuckwalla Valley.

The PSPP would contribute at least incrementally to the cumulative loss of Sonoran creosote bush scrub and desert dry wash woodland. Sonoran creosote bush scrub is a common and widespread community in the southeastern deserts of California; however, this broad designation does not reflect the importance of large, intact blocks of habitat to wildlife movement, or to foraging and breeding habitat for wildlife, including state and federal listed species. The NECO mapping of plant communities also does not reflect the many uncommon and even rare plant assemblages within creosote scrub that have been documented and are monitored by the CNDDB (CDFG 2003, cited in CEC SA/DEIS, 2010).

Implementation of mitigation measures BIO-12 for acquisition of 4,737 acres of desert tortoise habitat (Sonoran creosote bush scrub) in Chuckwalla Valley, and BIO-21 for acquisition and protection of 643 acres of desert washes and desert dry wash woodland, would considerably reduce the PSPP's contribution to the cumulative loss of these habitats. While acquisition does not address the net loss of habitat in the immediate future (a temporal net loss of habitat), it is expected to prevent future losses of habitat by placing a permanent conservation easement and deed restrictions on private lands that could otherwise be converted for urban, agricultural or energy development.

Mitigation measure BIO-14 for weed management would offset the PSPP's contribution to the indirect cumulative effects of all projects on the spread of invasive non-native plants and their effects on wildlife and fire risk. BIO-23 and BIO-24 for monitoring of groundwater-dependent vegetation (and remedial action in the event of adverse effects) would considerably reduce the PSPP's contribution to this effect. Playas and dry lakebeds appear to be disproportionately affected by the cumulative effects of potential future projects across NECO; 21.1% of this community type would be directly affected. Due to their limited extent and potential status as jurisdictional state waters, and their hydrologic importance and seasonal value to wildlife, this would be a considerable cumulative effect. However, the PSPP does not contribute, even incrementally, to this effect. Consequently, no mitigation measures are recommended to address it.

Table I-11, *Cumulative Effects: Desert Dry Wash Woodland – Palen Watershed*, and Figure 3.18-6 highlights the cumulative effects of existing and future projects to desert dry wash woodland within the immediate watershed encompassing the PSPP. The NECO plant communities dataset was used for this analysis. The PSPP's field-verified, ground-based delineation (Galati and Blek 2010a, cited in CEC SA/DEIS, 2010) documented 141 acres of desert dry wash woodland in the PSPP footprint.

Seemingly minor impacts can be significant if they affect an extremely rare or limited resource, and the cumulative impact may be substantial. Desert dry wash woodland is a sensitive natural community recognized under many laws, ordinances, regulations, standards, and area plans. Because it has a limited distribution (relative to common and widespread communities such as Sonoran creosote bush scrub) and carries an ecological importance that is disproportionate to its limited extent, this would be a significant cumulative effect, particularly in light of the PSPP's contribution to cumulative effects to desert washes in the Palen watershed. The PSPP's contribution to the cumulative loss of desert dry wash woodland would be reduced considerably by the implementation of mitigation measure BIO-22, which specifies acquisition and enhancement of desert wash woodland within or near the Palen watershed a 3:1 mitigation ratio. However, the impacts of channel re-routing on wildlife movement and connectivity, and on fluvial sand transport would not be adequately mitigated through acquisition; these effects could be minimized only by adopting Reconfigured Alternative 1 or 2 or the Reduced Acreage Alternative, each of which would leave the desert dry wash woodland on the primary wash unaffected and the channel unobstructed with an adequately broad buffer zone on both sides of the wash.

TABLE I-11
CUMULATIVE EFFECTS: DESERT DRY WASH WOODLAND – PALEN WATERSHED+

Plant Community[1]	Total Plant Communities[1] in Palen Watershed	Impacts to Habitat from Existing[2] Projects (percent of all community type in Palen Watershed)	Impacts to Habitat from Foreseeable Future[3] Projects (percent of all community type in Palen Watershed)	Contribution of PSPP to Future Cumulative Impacts (percent of total impacts from future projects)
Desert Dry Wash Woodland	148,856 acres	4,566 acres 3.1%	10,950 acres 7.4%	5.4 acres[4] 0.05%

NOTES:
1 Based on the BLM NECO Plant Communities dataset (BLM CDD 2002) conducted by the Biogeography Lab at the University of California, Santa Barbara and coordinated through the USGS Biological Resources Division UC Santa Barbara GAP Analysis (Davis et al. 1998, cited in CEC SA/DEIS, 2010), updated during the NECO planning effort (see Appendix H of the NECO (BLM and CDD 2002)
2 Includes only those existing projects for which GIS-based spatial data was available at the time of the analysis; see Table I-1.
3 Includes only BLM Renewables that had submitted a Plan of Development at the time of the analysis and those additional future projects listed in Table I-1.
4 Based on the California Interagency Watershed Map of 1999 (California Interagency Watershed Mapping Committee 1999, cited in CEC SA/DEIS, 2010). Does not reflect the field-verified, ground-based delineation of desert wash woodland (Galati and Blek 2010a, cited in CEC SA/DEIS, 2010), which totals 141 acres in Project (3.1% of all future impacts within the watershed)
5 Does not reflect site-specific field delineation of desert dry wash woodland, totaling 141 acres affected by PSPP.

Table I-12, *Cumulative Effects: Landforms/Wildlife Habitat*, and Figure 3.18-2 reflect the cumulative impacts to uncommon landforms (such as dunes and playas) and common or widespread landforms (such as alluvial fans and bajadas) within the NECO Planning Area, stratified by landform. There is some overlap with the GAP Analysis/NECO Plant Communities dataset (dunes and playa); differences in extent reflect the different data sources and mapping methodology.

As illustrated below, the cumulative effects of all future (proposed) projects to dunes, playas, and plains (including sandy plains, which make up a large portion of Mojave fringe-toed lizard habitat) would be significantly and adversely affected. Dunes and sandy plains also provide habitat for several rare plants in the region, including Harwood's milk-vetch. The PSPP' contribution to these effects, even when "seemingly minor can be significant if they affect an extremely rare or limited resource, and the cumulative impact may be substantial", according to CEQ guidance. The PSPP's contribution to cumulative effects to sand dunes significant, particularly when considering the anticipated indirect effects from obstructed winds and sand transport, upon which the maintenance and sustainability of the dunes depends.

Mitigation measure BIO-20 requires implementation of impact avoidance and minimization measures and acquisition of dune habitat at a 3:1 ratio for the sand dune habitat loss attributable to the PSPP, and a 1:1 ratio for other sandy habitats that support Mojave fringe-toed lizards (e.g., sandy plains, sand-covered fans, and sand-covered playas). These acquisitions would need to be targeted for dune habitat within the Chuckwalla Valley with potential to contribute to Mojave fringe-toed lizard habitat connectivity. Implementation of BIO-20 would offset the PSPP's contribution to the loss of habitat.

However, acquisition alone would not mitigate significant indirect effects of disrupted sand transport on habitat down-wind of the PSPP. Substantially minimizing the direct and indirect effects of the proposed action on dune maintenance and Mojave fringe-toed lizard could be

TABLE I-12
CUMULATIVE EFFECTS: LANDFORMS/WILDLIFE HABITAT

NECO Landform[1]	Total Landform[1] in NECO	Impacts to Habitat from Existing[2] Projects (percent of all landform type in NECO)	Impacts to Habitat from Foreseeable Future[3] Projects (percent of all landform type in NECO)	Contribution of PSPP to Future Cumulative Impacts (percent of total impacts from future projects)
Alluvial Fans/Bajadas	2,997,468 acres	42,619 acres 1.4%	217,761 acres 7.3%	1,565 acres 0.7%
Sand Dunes	150,136 acres	3,755 acres 2.5% of total	17,027 acres 11.3% of total	268 acres 1.6%
Pediments	139,282 acres	1,715 acres 1.21% of total	1,263 acres 0.9% of total	0 acres
Plains	408,453 acres	75,687 acres 18.5% of total	48,117 acres 11.8% of total	869 acres 1.8%
Badlands	79,141 acres	40 acres 0.05% of total	1,203 acres 1.5% of total	0 acres
Lava Flows	180 acres	0 acres	0 acres	0 acres
Riverwashes	137,265 acres	1,475 acres 0.1% of total	6,896 acres 5.0% of total	0 acres
Dry Playas	62,106 acres	1,348 acres 2.2% of total	9,423 acres 15.2% of total	0 acres
Mesas	6,843 acres	2 acres 0.001%	0 acres	0 acres
Tilted Plateaus	8,979 acres	0.1 acres 0.001%	3,762 acres 42.0% of total	0 acres
Mountains	609,023 acres	1,468 acres 0.2% of total	8682 acres 1.4% of total	0 acres
Hills	947,205 acres	4,774 acres 0.5% of total	25,495 acres 2.7% of total	0 acres

NOTES:
1 Based on the NECO Landforms dataset (BLM CDD 2002)
2 Includes only those existing projects between Desert Center and the Colorado River for which GIS-based spatial data was available at the time of the analysis; see Table I-1
3 Includes only BLM Renewables that had submitted a Plan of Development (POD) at the time of the analysis and those additional future projects listed in Table I-1

SOURCE: CEC SA/DEIS, 2010 (Biological Resources Table 19)

addressed only by removing the obstruction from the active sand transport corridor. Reconfigured Alternative 1 considerably would reduce the proposed action's impacts on desert washes, desert dry wash woodland, and connectivity, but would not reduce its considerable impacts to dune habitat and Mojave fringe-toed lizard habitat.

5.5 Active Dune Habitat in Chuckwalla Valley

This analysis highlights the cumulative effects of the many BLM renewable energy projects on this important habitat within Chuckwalla Valley, a dune system that is distinct from other dunes in the NECO planning area, and an area that may be disproportionately affected by proposed renewable energy projects. Dunes provide habitat for a variety of special-status plants and animals; locally these include Chuckwalla Valley population of Mojave fringe-toed lizard, and Harwood's milk-vetch. Table I-13, *Cumulative Effects: Active Dune Habitat*, and Figure I-4

quantifies the cumulative effects of the BLM renewable energy projects and other existing and future projects on "active" dune formations in the Chuckwalla Valley.

The NECO landforms dataset was used for this analysis of the most active dune formations; only the following values selected: crescentic dunes, longitudinal dunes, and undifferentiated dunes. Table I-13 quantifies the cumulative effects of the BLM renewable energy projects and other existing and future projects on "active" dune formations in the NECO planning area. The extent of other less active aeolian (wind)-deposited and stream-deposited sands are better reflected in the habitat model for Mojave fringe-toed lizard (Figures 3.23-3 and 3.23-4 and Table I-6). The mapping and model for Mojave fringe-toed lizard includes sandy plains and sand-covered alluvial fans; portions of these landforms may be located within the wind-sand transport corridor but occur in the less active outer portions beyond the active dunes.

Cumulative effects to dune habitat not reflected in this quantitative analysis include: obstruction of wind and fluvial sand transport systems (which are essential for the maintenance of the dunes) by new structures and wind fencing, fragmentation and degradation of remaining habitat by roads, development, off-road vehicles, altered drainage patterns, and the spread of noxious weeds and other invasive plants, such as Russian thistle and Sahara mustard. Habitat values for dune-dependent wildlife are also affected by increased predation from avian predators, which benefit from new perching structures.

Table I-13 illustrates the considerable contribution of the PSPP to cumulative impacts to active dune habitat (16.7%) resulting from foreseeable future projects in the NECO planning area. This effect may not be adequately mitigated through habitat acquisition proposed under mitigation measure BIO-20 when considering the PSPP's indirect impacts: solar fields and wind fencing constructed within the active (dune building) sand transport corridor obstruct the corridor (on which the dunes sustainability depends) and deprive large areas of dune habitat down-wind of the PSPP. Other mitigation measures to address effects of the PSPP on dunes and dune-dependent wildlife and plants include the raven and weed management plans (BIO-13 and BIO-14) and the specification for preparation of a detailed revegetation plan for temporary disturbance contained in BIO-8**.** However, as described above under "Landforms", the impacts of the proposed action on sand transport and related impacts to Mojave fringe-toed lizard habitat could only be adequately minimized by the Reduced Acreage Alternative.

5.6 Groundwater-dependent Vegetation

Groundwater extraction during construction and operation of this and other foreseeable projects would place the Chuckwalla Valley groundwater basin into an overdraft condition. This impact could be exacerbated by other unidentified renewable energy projects in the I-10 corridor, which has been targeted as a potential area for further renewable energy development. However, the PSPP's contribution (300 acre feet per year) to this cumulative effect is not considerable. Groundwater pumping could have a significant impact to biological resources if it lowers the water table in areas where deep-rooted phreatophytes occur, such as mesquite bosques and succulent chenopod scrubs or alkali sink scrub. To minimize the PSPP's contribution to cumulative effects, mitigation measures SOIL&WATER-3 through SOIL&WATER-5 would substantially reduce impacts to groundwater levels. BIO-23 would ensure that the PSPP would

TABLE I-13
CUMULATIVE EFFECTS: ACTIVE DUNE HABITAT

Total Dune Habitat[1] in Chuckwalla Valley	Impacts to Dune Habitat from Existing[2] Projects (percent of all dune habitat in Chuckwalla Valley)	Impacts to Dune Habitat from Foreseeable Future[3] Projects (percent of all dune habitat in Chuckwalla Valley)	Contribution of PSPP to Future Cumulative Impacts (percent of total impacts from future projects)
25,463 acres	1,049 acres 4.1%	1,607 acres 6.3%	268 acres 16.7%
Total Dune habitat[1] in NECO	**Impacts to Dune Habitat from Existing[2] Projects (percent of all dune habitat in NECO)**	**Impacts to Dune Habitat from Foreseeable Future[3] Projects (percent of all dune habitat in NECO)**	**Contribution of PSPP to Future Cumulative Impacts (percent of total impacts from future projects)**
150,136 acres	3,755 acres 2.5%	17,027 acres 11.3% of total	268 acres 1.6%

NOTES:
1 Based on the BLM NECO Landforms dataset (BLM CDD 2002) for the following values: crescentic dunes, longitudinal dunes, and undifferentiated dunes; does not include sandy plains or sand-covered fans.
2 Includes only those existing projects between Desert Center and the Colorado River for which GIS-based spatial data was available at the time of the analysis; see Table I-1.
3 Includes only BLM Renewables that had submitted a Plan of Development (POD) at the time of the analysis and those additional future projects listed in Table I-1.

not adversely affect groundwater-dependent vegetation within 2 to 3 miles of the project well for the life of the PSPP. BIO-24 requires a remedial action plan that would be triggered in the event that adverse effects to groundwater-dependent vegetation are detected.

5.7 Special-Status Plants

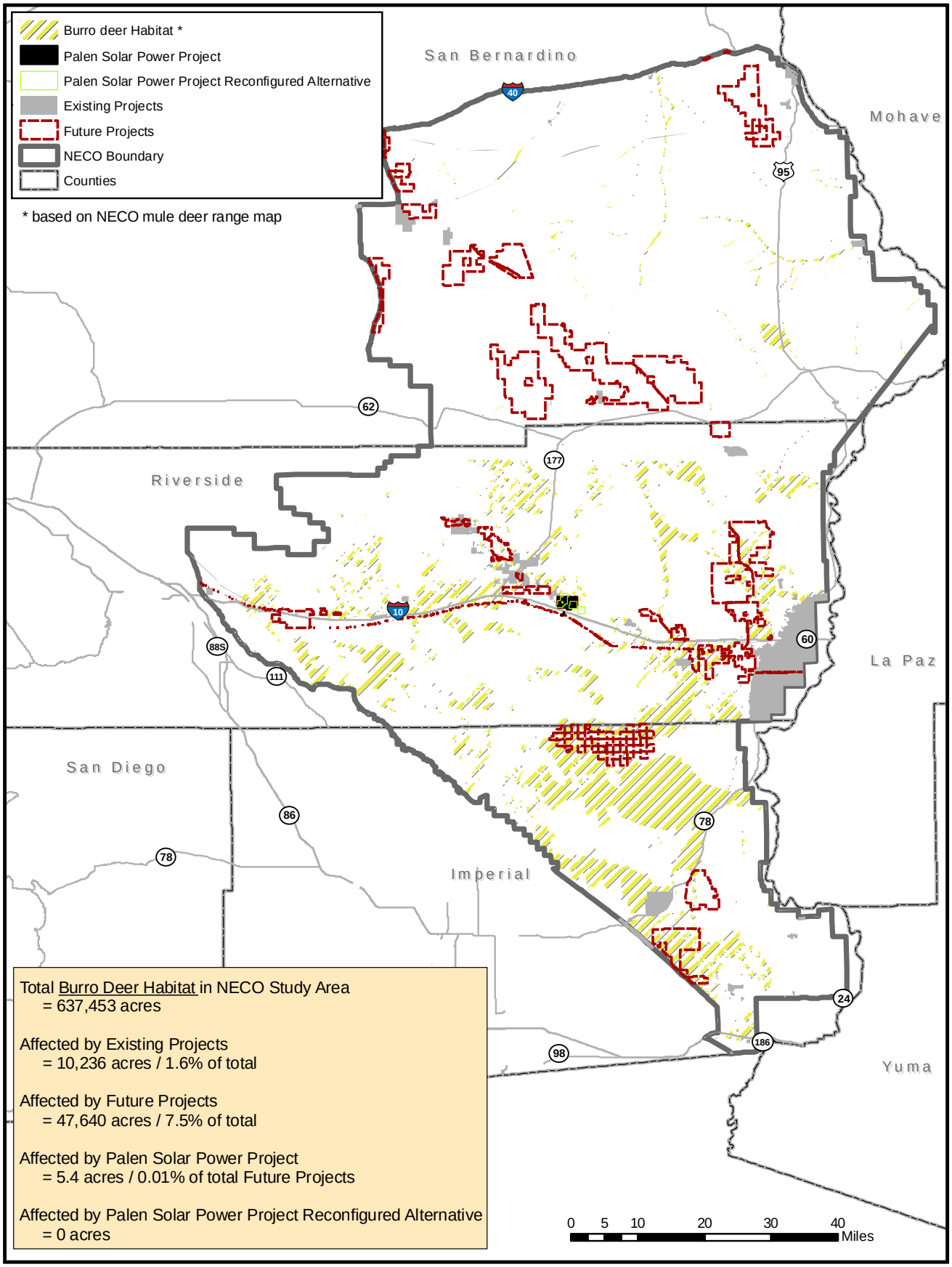
5.7.1 Harwood's Milkvetch

Small populations of Harwood's milkvetch were found just downstream of the northern boundary of the PSPP. Direct effects to plants are not expected, but the PSPP could have indirect effects to the population from altered surface drainage patterns; the occurrence is located below a discharge point on the engineered channel that would divert all washes around the perimeter of the site, and discharge the flows at the northern boundary.

Populations of Harwood's milkvetch, like many other rare plants of the eastern California deserts, were considered relatively stable until recently, as the push for renewable energy development has placed many at risk. Because the occurrence records for this taxon are spotty in portions of its range, this analysis was based instead on threats to potential habitat. However, the mapping of habitat should not be misconstrued as potentially occupied; rare plants have very specific microhabitat requirements that are often poorly understood. Actual distribution within mapped habitat is often confined to small or scattered and infrequent occurrences within an already restricted range. Rare plants can sometimes be locally abundant but highly restricted in their range.

Table I-6 quantifies and Figure 3.18-8 shows the cumulative effects of the BLM renewable energy projects and other existing and future projects on the very sandy substrates associated with this special-status plant. The NECO landforms dataset was used; landforms selected to create the simple model of potential habitat include: sandy dissected fans; sandy plains; fans; dissected fans; undifferentiated plains, and undifferentiated dunes. This was based on a careful review of the landforms dataset overlaid with known occurrences of Harwood's milkvetch from CNDDB occurrences and the PSPP-specific survey data. This model somewhat over-represents actual suitable habitat for Harwood's milkvetch but cannot be refined until the more detailed soil mapping for the region (currently in development by the Natural Resources Conservation Service) is available.

Cumulative impacts to Harwood's milkvetch habitat from all proposed future projects are considerable, and would affect nearly 11% of all potentially suitable habitat. The effects to actual populations or verified occupied habitat are unknown until applicants submit site-specific survey data. The PSPP's contribution to cumulative effects would be reduced through the mitigation measures designed to avoid and minimize indirect effects and accidental effects to plants or their habitat during construction. These are described in the Draft Special-Status Plant Protection Plan (AECOM 2010a, cited in CEC SA/DEIS, 2010) and in mitigation measure BIO-19**.** The PSPP's contribution to the loss of the species' sandy and dune habitat in Chuckwalla Valley would be considerable significant, particularly in light of the indirect effects of interrupted sand-carrying winds, and altered drainage patterns. Mitigation measure BIO-20 requires acquisition of sand dune habitat, and would substantially mitigate the loss of habitat. Mitigation measure BIO-14 (Weed Management Plan) would reduce the PSPP's contribution to the indirect effects of introduction and spread of invasive non-native plants; Sahara mustard has the potential to spread exponentially and is already present in portions of the project site.

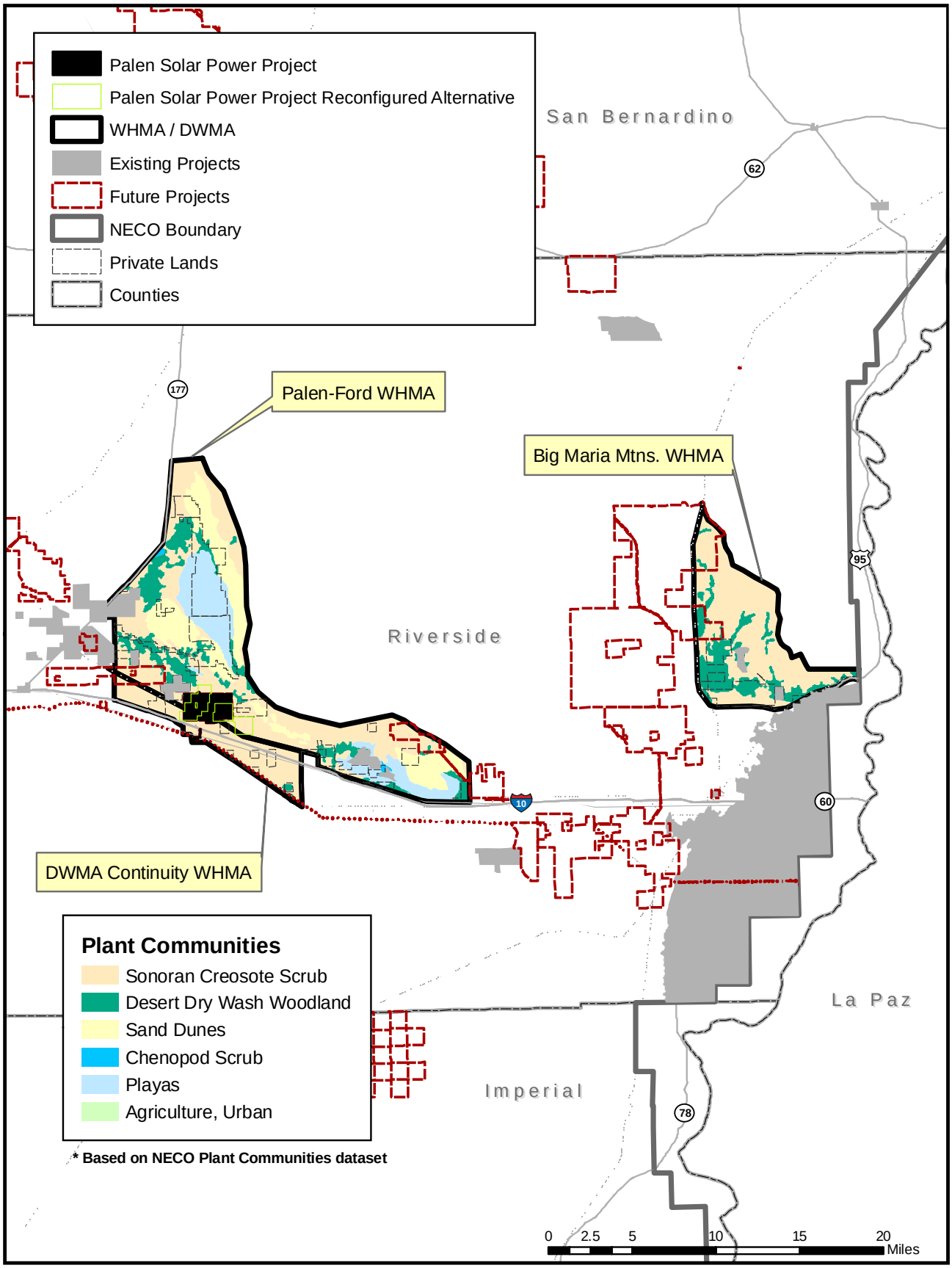


SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure I-1

Burro Deer Range

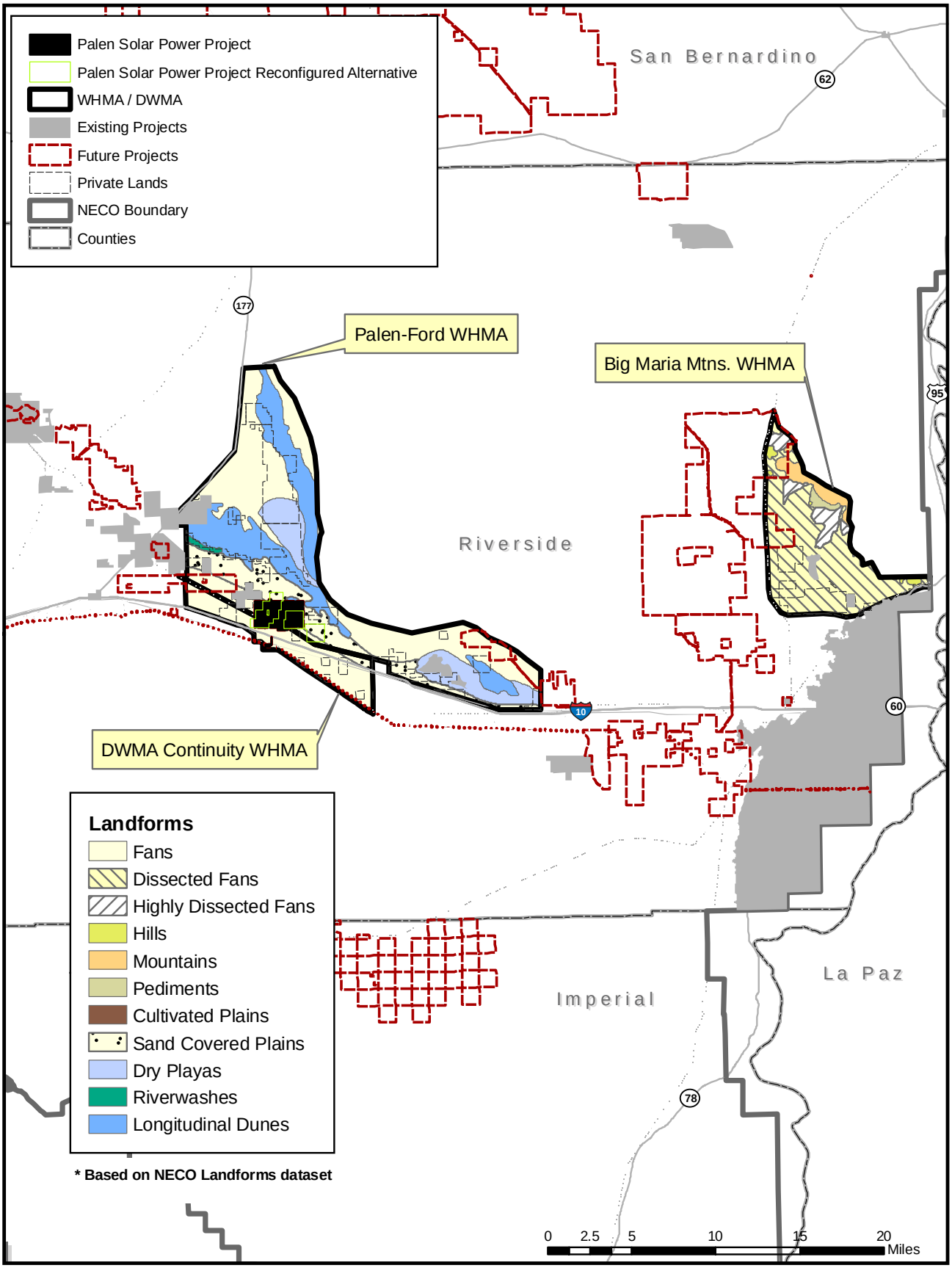


SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure I-2

Multi-Species WHMAs - Plant Communities

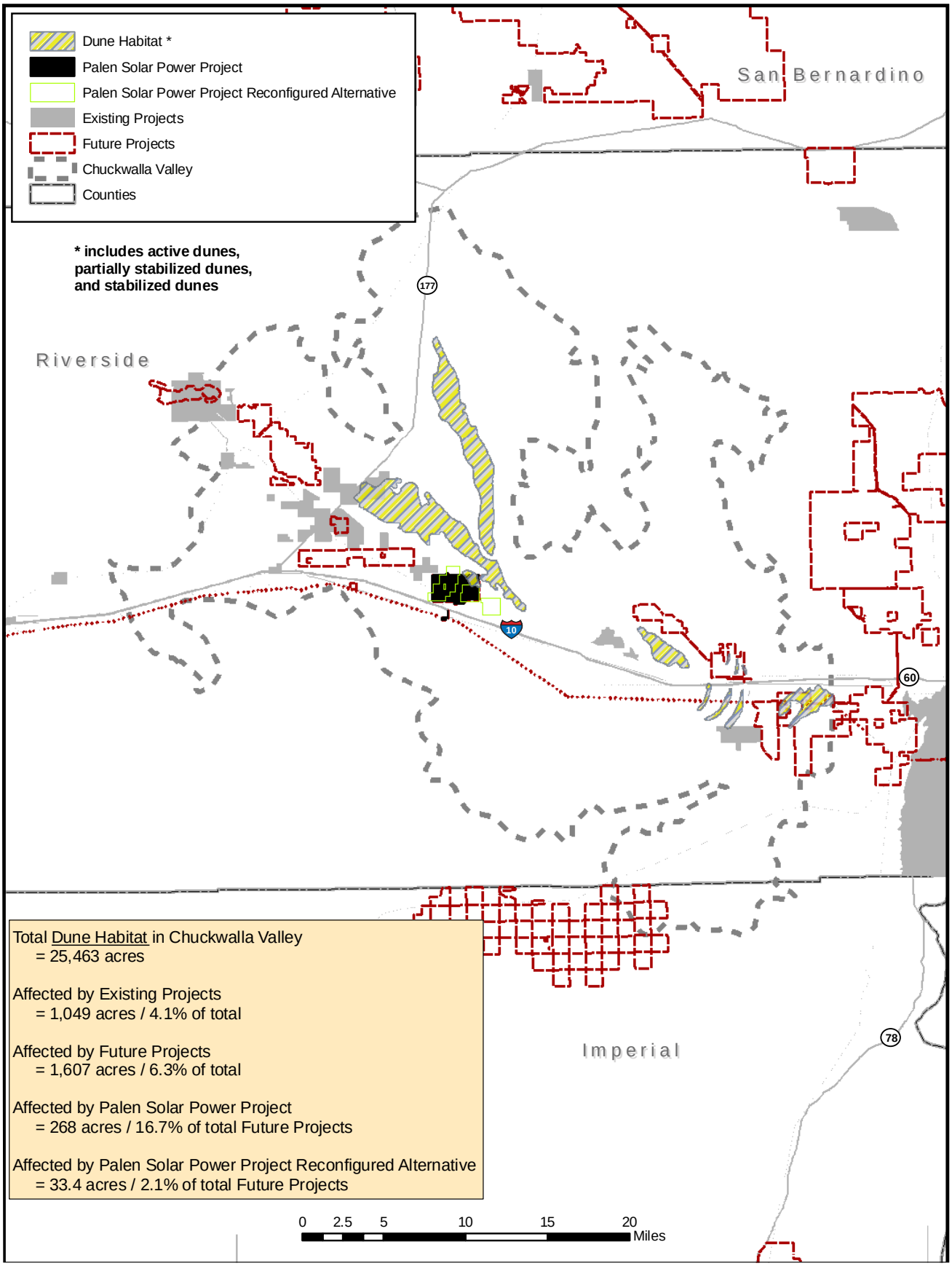


SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure I-3

Multi-Species WHMAs - Landforms



SOURCE: CEC RSA, 2010

Palen Solar Power Project FEIS . 210291.01

Figure I-4

Dune Habitat - Chuckwalla

APPENDIX J

VRM Contrast Rating Summary

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United States Department of the Interior Bureau of Land Management

Scenic Quality Field Inventory

Date 8/19/05 **District** California Desert **Field Office** Palm Springs **Scenic Quality Rating Unit** **10** **Viewpoint** **14 : Eagle Mountain Road** **Evaluator(s)** Michael Clayton		

LANDSCAPE CHARACTER

	LANDFORM / WATER	VEGETATION	STRUCTURES
Form	Predominantly flat valley floor. More distant Coxcomb Mountains (not part of the unit) provide a backdrop that adds visual interest.	The irregular clumps of low shrubs and grass transition to an indistinct and more uniform distribution at distance with a smooth appearance.	None
Line	Horizontal for the valley floor. Irregular to angular for intermediate ridge.	Irregular defined by individuals and clumps in the immediate foreground and terrain variations beyond.	None
Color	Light-tan to gray foreground soils with some reddish tone rocks; dark-brown rock and soil on intermediate ridge.	Yellowish-tan grasses and light- to dark-green shrubs with some gray shrub branches.	None
Texture	Soils appear granular to coarse.	Smooth to medium grain and uneven and random in the immediate foreground. Smooth with a more even distribution at distance.	None

Narrative: The western portion of SQRU 10 encompasses the northwestern portion of Chuckwalla Valley north of Desert Center and I-10. Although the Coxcomb Mountains and a portion of Joshua Tree Wilderness provide a backdrop of visual interest, these features are beyond the Unit 10 boundary at a distance of approximately eight miles. Unit 10 is flat and relatively non-descript with low growing grasses and shrubs. The western portion of the Unit 10 landscape is not substantially influenced by built cultural features (structures) though there is some utility and road infrastructure within the unit.

Score

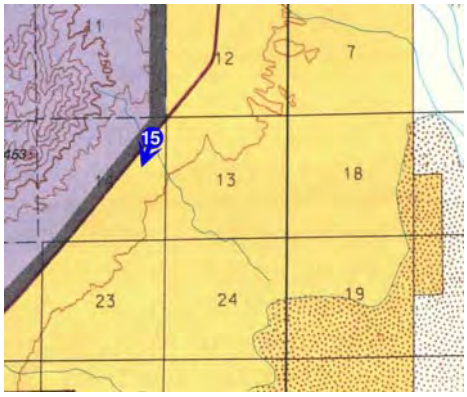
	High	Medium	Low	Explanation or Rationale
a. Landform			1	Flat valley floor
b. Vegetation		2		
c. Water			0	
d. Color		3		
e. Adjacent Scenery		2		Coxcomb Mountains backdrop
f. Scarcity			1	
g. Cultural Modifications			0	None noticeable
TOTALS	0	7	2	**9**

SCENIC QUALITY CLASSIFICATION

- ☐ A 19 or more
- ☐ B 12 - 18
- ☒ C 11 or less

United States Department of the Interior Bureau of Land Management

Scenic Quality Field Inventory

Date 8/19/05 **District** California Desert **Field Office** Palm Springs **Scenic Quality Rating Unit** **10** **Viewpoint** **15 : Rice Road** **Evaluator(s)** Michael Clayton		

LANDSCAPE CHARACTER

	LANDFORM / WATER	VEGETATION	STRUCTURES
Form	Predominantly flat valley floor. More distant Chuckwalla Mountains (not part of the unit) provide a backdrop that adds visual interest.	The irregular clumps of low shrubs and grass.	Linear (utility poles and road). Road side utility infrastructure is prominent when viewing down the road.
Line	Horizontal for the valley floor.	Irregular defined by individuals and clumps.	Vertical
Color	Light-tan to gray soils and rocks.	Muted yellowish-tan grasses and light- to dark-green shrubs.	Gray to white (road) to dark brown (utility poles)
Texture	Soils appear granular to coarse.	Smooth to medium grain to matte. Smooth at greater distance.	Smooth to granular

Narrative: The central portion of SQRU 10 encompasses the central portion of Chuckwalla Valley east of Rice Road and north of I-10. Although the Chuckwalla Mountains provide a backdrop of visual interest, these features are beyond the Unit 10 boundary at a distance of approximately eleven miles. Unit 10 is flat and relatively non-descript with low growing grasses and shrubs. The majority of the central portion of the Unit 10 landscape is not substantially influenced by built cultural features (structures) though there is some utility and road infrastructure within the unit as illustrated from this viewpoint.

Score

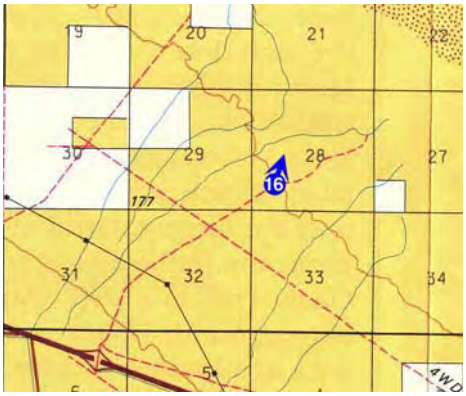
	High	Medium	Low	Explanation or Rationale
a. Landform			1	Flat valley floor
b. Vegetation		2		
c. Water			0	
d. Color		2		
e. Adjacent Scenery		2		Coxcomb Mountains backdrop
f. Scarcity			1	
g. Cultural Modifications			-2	Rice Road and roadside utilities
TOTALS	0	6	0	**6**

SCENIC QUALITY CLASSIFICATION

- ☐ A 19 or more
- ☐ B 12 - 18
- ☒ C 11 or less

United States Department of the Interior Bureau of Land Management

Scenic Quality Field Inventory

Date 8/23/05 **District** California Desert **Field Office** Palm Springs **Scenic Quality Rating Unit** **10** **Viewpoint** **16 : Palen Dry Lake Access** **Evaluator(s)** Michael Clayton		

LANDSCAPE CHARACTER

	LANDFORM / WATER	VEGETATION	STRUCTURES
Form	Predominantly flat valley floor. More distant Palen Mountains (not part of the unit) provide a backdrop that adds visual interest.	Consistent distribution of low growing grasses interspersed with occasional individual shrubs.	None (though strip of bladed road is prominent when viewing in-line with the road).
Line	Horizontal for the valley floor. Curvilinear for the access road (not pictured).	Irregular for individual shrubs. Horizontal to curvilinear as demarcated by valley floor and bladed road.	None (though curvilinear for the bladed 4WD track).
Color	Light-tan soils.	Tan to pale- and golden-yellow grasses with muted greens for the shrubs.	None.
Texture	Soils appear smooth to granular	Smooth to medium grain to matte.	None

Narrative: The eastern portion of SQRU 10 encompasses the eastern portion of Chuckwalla Valley north of I-10 in the vicinity of Palen and Ford Dry Lakes. Although the Palen Mountains and the Palen McCoy Wilderness provide a backdrop of visual interest, these features are beyond the Unit 10 boundary. Unit 10 is flat and relatively non-descript with low growing grasses and few shrubs. Unlike Unit 12 immediately to the south, the majority of the eastern portion of the Unit 10 landscape is not substantially influenced by built cultural features (structures) though 4-wheel drive access roads within the unit are noticeable when traveling one.

Score

	High	Medium	Low	Explanation or Rationale
a. Landform			1	Flat valley floor
b. Vegetation			1	Relatively uniform vegetation
c. Water			0	
d. Color			1	Monotone
e. Adjacent Scenery		3		Palen Mountains
f. Scarcity			1	
g. Cultural Modifications			0	Access road is noticeable
TOTALS	0	3	4	**7**

SCENIC QUALITY CLASSIFICATION

- ☐ A 19 or more
- ☐ B 12 - 18
- ☒ C 11 or less

United States Department of the Interior Bureau of Land Management

Visual Resource Management (VRM) Classification

Date October 13, 2005			**Evaluator(s)** Michael Clayton
District California Desert			**Field Office** Palm Springs
Scenic Quality Rating Unit (SQRU) 10	**Viewpoint** 14 : Eagle Mountain Road		**VRM Class** **III**

		Visual Sensitivity Levels						
		High			**Medium**			**Low**
Special Areas		I	I	I	I	I	I	I
Scenic Quality	A	II	II	II	II	II	II	II
	B	II	III* IV*	III	III	IV	IV	IV
	C	**III**	IV	IV	IV	IV	IV	IV
		f/m	**b**	**s/s**	**f/m**	**b**	**s/s**	**s/s**
		Distance Zones						

* Note: If adjacent area is Class III or lower, assign Class III, if higher assign Class IV

Basis for Determining Visual Resource Inventory Classes

Class I. Class I is assigned to all special areas where the current management situations require maintaining a natural environment essentially unaltered by man.

Classes II, III, and IV. These classes are assigned based on combinations of scenic quality, sensitivity levels, and distance zones as shown in the matrix above.

United States Department of the Interior Bureau of Land Management

Visual Resource Management (VRM) Classification

Date October 13, 2005			**Evaluator(s)** Michael Clayton
District California Desert			**Field Office** Palm Springs
Scenic Quality Rating Unit (SQRU) 10	**Viewpoint** 15 : Rice Road		**VRM Class** **III**

		Visual Sensitivity Levels						
		High			**Medium**			**Low**
Special Areas		I	I	I	I	I	I	I
Scenic Quality	A	II	II	II	II	II	II	II
	B	II	III* IV*	III	III	IV	IV	IV
	C	**III**	IV	IV	IV	IV	IV	IV
		f/m	**b**	**s/s**	**f/m**	**b**	**s/s**	**s/s**
		Distance Zones						

* Note: If adjacent area is Class III or lower, assign Class III, if higher assign Class IV

Basis for Determining Visual Resource Inventory Classes

Class I. Class I is assigned to all special areas where the current management situations require maintaining a natural environment essentially unaltered by man.

Classes II, III, and IV. These classes are assigned based on combinations of scenic quality, sensitivity levels, and distance zones as shown in the matrix above.

United States Department of the Interior Bureau of Land Management

Visual Resource Management (VRM) Classification

Date October 13, 2005		**Evaluator(s)** Michael Clayton
District California Desert		**Field Office** Palm Springs
Scenic Quality Rating Unit (SQRU) 10	**Viewpoint** 16 : Palen Dry Lake Access	**VRM Class** **III**

		Visual Sensitivity Levels						
		High			**Medium**			**Low**
Special Areas		I	I	I	I	I	I	I
Scenic Quality	A	II	II	II	II	II	II	II
	B	II	III* IV*	III	III	IV	IV	IV
	C	**III**	IV	IV	IV	IV	IV	IV
		f/m	**b**	**s/s**	**f/m**	**b**	**s/s**	**s/s**
		Distance Zones						

* Note: If adjacent area is Class III or lower, assign Class III, if higher assign Class IV

Basis for Determining Visual Resource Inventory Classes

Class I. Class I is assigned to all special areas where the current management situations require maintaining a natural environment essentially unaltered by man.

Classes II, III, and IV. These classes are assigned based on combinations of scenic quality, sensitivity levels, and distance zones as shown in the matrix above.

United States Department of the Interior Bureau of Land Management

Scenic Quality Field Inventory

Date 8/23/05 **District** California Desert **Field Office** Palm Springs **Scenic Quality Rating Unit** **12** **Viewpoint** **18 : Chuckwalla Valley Rd.** **Evaluator(s)** Michael Clayton		

LANDSCAPE CHARACTER

	LANDFORM / WATER	VEGETATION	STRUCTURES
Form	Flat valley floor.	Irregular distribution of low growing grasses and shrubs. Coverage appearing more consistent at distance.	Linear and complex for transmission line towers and h-frame structures. Linear for I-10 (in distance).
Line	Horizontal for the valley floor.	Irregular for individual shrubs. Horizontal as defined by the valley floor. Diagonal as demarcated by access road.	Vertical, horizontal, and diagonal for lattice and h-frame structures, horizontal for I-10.
Color	Light-tan soils.	Tan to pale-yellow grasses with tanish-gray to green shrubs.	Gray to brown.
Texture	Soils in the immediate foreground appear granular.	Medium grain to matte.	Smooth

Narrative: SQRU 12 encompasses the central-eastern portion of Chuckwalla Valley in the vicinity of the exiting transmission lines on both the north and south side of I-10. The landform of the valley floor is flat and non-descript with grass and low-growing shrubs of subdued color. Though distant mountain ranges (McCoy Mountains to the north and Chuckwalla Mountains to the south) provide limited backdrops of visual interest (not part of this unit), SQRU 12 is primarily influenced by the dominant presence of existing utility infrastructure and Interstate 10.

Score

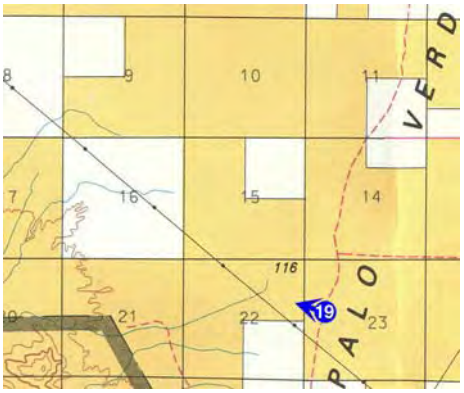
	High	Medium	Low	Explanation or Rationale
a. Landform			1	Chuckwalla Valley Floor
b. Vegetation			1	
c. Water			0	
d. Color		2		
e. Adjacent Scenery		2		Distant McCoy and Chuckwalla Mountains
f. Scarcity			1	
g. Cultural Modifications			-4	Transmission Lines and I-10
TOTALS	0	4	-1	**3**

SCENIC QUALITY CLASSIFICATION

- ☐ A 19 or more
- ☐ B 12 - 18
- ☒ C 11 or less

United States Department of the Interior Bureau of Land Management

Scenic Quality Field Inventory

Date 8/23/05 **District** California Desert **Field Office** Palm Springs **Scenic Quality Rating Unit** **12** **Viewpoint** **19 : Mule Mtns. Access Rd.** **Evaluator(s)** Michael Clayton		

LANDSCAPE CHARACTER

	LANDFORM / WATER	VEGETATION	STRUCTURES
Form	Flat mesa and valley floor.	Irregular distribution of low growing grasses and shrubs. Coverage appearing more consistent at distance.	Linear and complex for transmission line towers.
Line	Horizontal for the mesa/valley floor.	Irregular for individual shrubs. Horizontal as defined by the mesa/valley floor.	Vertical, horizontal, and diagonal for lattice structures.
Color	Light-tan soils.	Tan to pale-yellow grasses with tanish-gray to green shrubs.	Gray.
Texture	Soils in the immediate foreground appear granular.	Medium grain to matte.	Smooth

Narrative: Viewpoint 19 is located on Palo Verde Mesa at the eastern end of SQRU 12. Viewing to the west toward Chuckwalla Valley, the landform is flat with relatively non-descript vegetation of subtle hues of yellow and green. Though distant mountain ranges (McCoy Mountains to the north, Chuckwalla Mountains to the southwest, Mule Mountains to the south) provide backdrops of visual interest (not part of this unit), SQRU 12 is primarily influenced by the dominant presence of existing utility infrastructure.

Score

	High	Medium	Low	Explanation or Rationale
a. Landform			1	Palo Verde Mesa / Chuckwalla Valley Floor
b. Vegetation			1	
c. Water			0	
d. Color		2		
e. Adjacent Scenery		3		McCoy, Chuckwalla, and Mule Mountains
f. Scarcity			1	
g. Cultural Modifications			-3	Transmission Line
TOTALS	0	5	0	**5**

SCENIC QUALITY CLASSIFICATION

- ☐ A 19 or more
- ☐ B 12 - 18
- ☒ C 11 or less

United States Department of the Interior Bureau of Land Management

Visual Resource Management (VRM) Classification

Date October 13, 2005			**Evaluator(s)** Michael Clayton
District California Desert			**Field Office** Palm Springs
Scenic Quality Rating Unit (SQRU) 12	**Viewpoint** 18 : Chuckwalla Valley Road		**VRM Class** **III**

		Visual Sensitivity Levels						
		High			**Medium**			**Low**
Special Areas		I	I	I	I	I	I	I
Scenic Quality	A	II	II	II	II	II	II	II
	B	II	III* IV*	III	III	IV	IV	IV
	C	**III**	IV	IV	IV	IV	IV	IV
		f/m	**b**	**s/s**	**f/m**	**b**	**s/s**	**s/s**
		Distance Zones						

* Note: If adjacent area is Class III or lower, assign Class III, if higher assign Class IV

Basis for Determining Visual Resource Inventory Classes

Class I. Class I is assigned to all special areas where the current management situations require maintaining a natural environment essentially unaltered by man.

Classes II, III, and IV. These classes are assigned based on combinations of scenic quality, sensitivity levels, and distance zones as shown in the matrix above.

United States Department of the Interior Bureau of Land Management

Visual Resource Management (VRM) Classification

Date October 13, 2005			**Evaluator(s)** Michael Clayton
District California Desert			**Field Office** Palm Springs
Scenic Quality Rating Unit (SQRU) 12	**Viewpoint** 19 : Mule Mtns. Access Road		**VRM Class** **III**

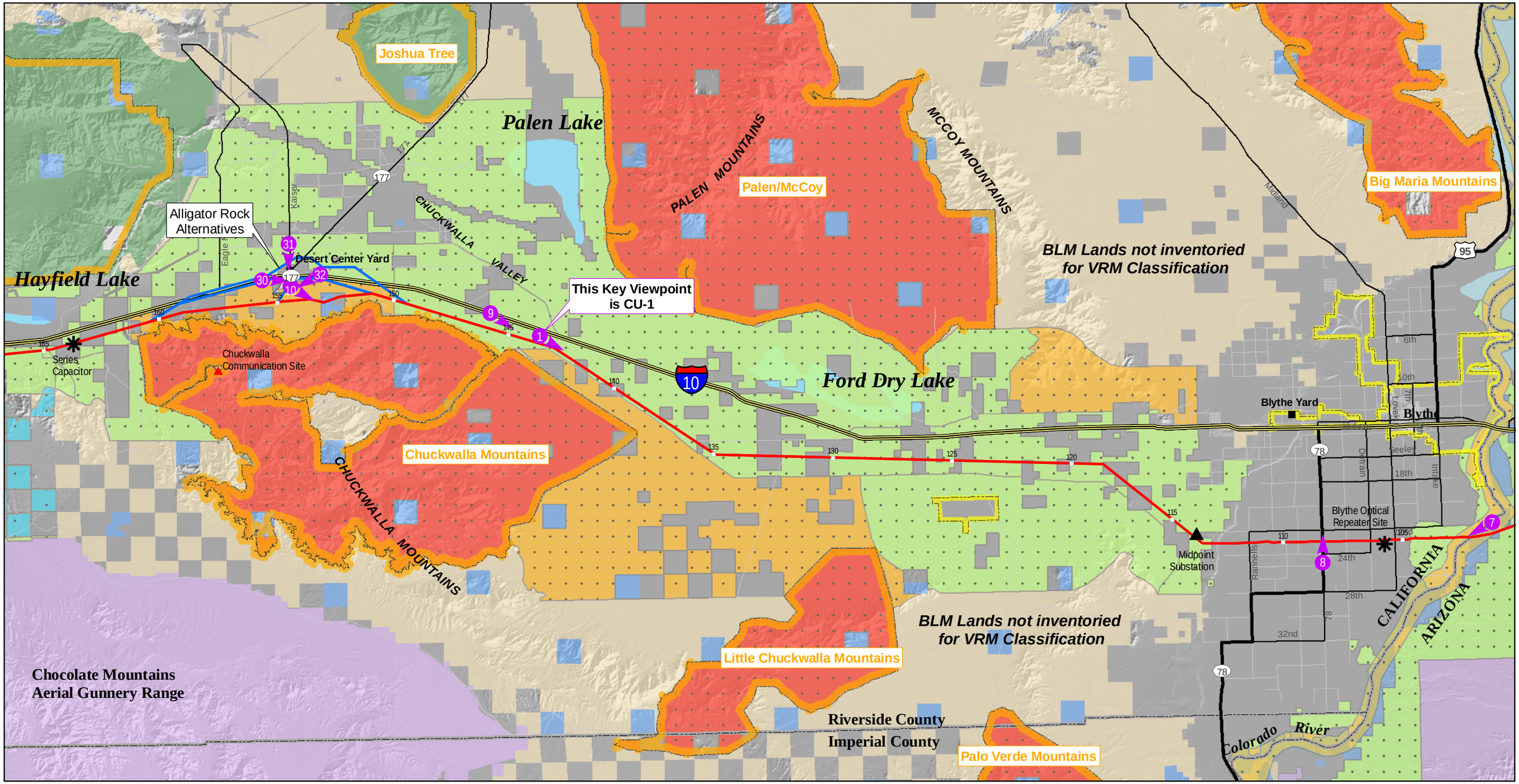
		Visual Sensitivity Levels						
		High			**Medium**			**Low**
Special Areas		I	I	I	I	I	I	I
Scenic Quality	A	II	II	II	II	II	II	II
	B	II	III* IV*	III	III	IV	IV	IV
	C	**III**	IV	IV	IV	IV	IV	IV
		f/m	**b**	**s/s**	**f/m**	**b**	**s/s**	**s/s**
		Distance Zones						

* Note: If adjacent area is Class III or lower, assign Class III, if higher assign Class IV

Basis for Determining Visual Resource Inventory Classes

Class I. Class I is assigned to all special areas where the current management situations require maintaining a natural environment essentially unaltered by man.

Classes II, III, and IV. These classes are assigned based on combinations of scenic quality, sensitivity levels, and distance zones as shown in the matrix above.



PREPARED BY Aspen Environmental Group

20 Proposed Project
Mileposts
Alternative Routes
0 10 Miles

OWNERSHIP/JURISDICTIONS (unincorporated areas)

- BLM
- Indian Lands
- Military
- National Park Service
- State
- Private
- Wilderness Areas
- Incorporated Areas

- Substations
- Series Capacitor
- Construction Yard
- Communications Site

VRM Classes

- Class I
- Class II
- Class III
- Class IV
- 5 Key Viewpoint Location and View Direction

Devers-Palo Verde No. 2 Transmission Line Project

Figure D.3-1C
Visual Resources
Colorado River to Desert Center

(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	08/08/2009
District	Palm Springs
Resource Area	
Activity (program)	Solar arrays, power blocks transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Palen Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#1	Township 5 S Range 17 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded sand dunes, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	NA
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	NA
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	NA
TEX-TURE	Moderate valley and fine sand dune and lakebed patterns, course mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	NA

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Blue to crey solar arrays, light tan structures and t-lines
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form	x					x			x			
Line		x				x				x		
Color			x			x			x			
Texture			x			x				x		

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	08/12/09

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	08/08/2009
District	Palm Springs
Resource Area	
Activity (program)	Solar arrays, power blocks transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name: Palen Solar Power Project
2. Key Observation Point: KOP#2
3. VRM Class: Class II, III
4. Location: Township 5 S; Range 17 E; Section Multiple
5. Location: See Figure 5.15-2

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded sand dunes, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Whites and light tans
TEX-TURE	Moderate valley and fine sand dune and lakebed patterns, course mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Blue to crey solar arrays, light tan structures and t-lines
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form	x					x			x			
Line		x				x				x		
Color			x			x			x			
Texture			x			x				x		

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names: Merlyn Paulson
Date: 08/12/09

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	08/08/2009
District	Palm Springs
Resource Area	
Activity (program)	Solar arrays, power blocks transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Palen Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#3	Township 5 S Range 17 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class II, III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded sand dunes, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Whites and light tans
TEX-TURE	Moderate valley and fine sand dune and lakebed patterns, course mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Blue to crey solar arrays, light tan structures and t-lines
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form	x					x			x			
Line		x				x				x		
Color			x			x			x			
Texture			x			x				x		

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names: Merlyn Paulson
Date: 08/12/09

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	08/08/2009
District	Palm Springs
Resource Area	
Activity (program)	Solar arrays, power blocks transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name: Palen Solar Power Project
2. Key Observation Point: KOP#4
3. VRM Class: Class II, III
4. Location: Township 5 S; Range 17 E; Section Multiple
5. Location: See Figure 5.15-2

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded sand dunes, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Whites and light tans
TEX-TURE	Moderate valley and fine sand dune and lakebed patterns, course mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Blue to crey solar arrays, light tan structures and t-lines
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form	x					x			x			
Line		x				x				x		
Color			x			x			x			
Texture			x			x				x		

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names: Merlyn Paulson
Date: 08/12/09

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	08/08/2009
District	Palm Springs
Resource Area	
Activity (program)	Solar arrays, power blocks transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Palen Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#5	Township 5 S Range 17 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class II, III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded sand dunes, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Strong planar highway, scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Dark grays, whites and light tans
TEX-TURE	Moderate valley and fine sand dune and lakebed patterns, course mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Blue to crey solar arrays, light tan structures and t-lines
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form				x				x		x		
Line				x				x			x	
Color				x				x		x		
Texture				x				x			x	

2. Does project design meet visual resource management objectives? ☒ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	08/12/09

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	08/08/2009
District	Palm Springs
Resource Area	
Activity (program)	Solar arrays, power blocks transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name: Palen Solar Power Project
2. Key Observation Point: KOP#6
3. VRM Class: Class II, III
4. Location — Township: 5 S; Range: 17 E; Section: Multiple
5. Location: See Figure 5.15-2

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded sand dunes, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Strong planar roadway, scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Whites and light and medium tans
TEX-TURE	Moderate valley and fine sand dune and lakebed patterns, course mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Blue to crey solar arrays, light tan structures and t-lines
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form				x				x		x		
Line				x				x			x	
Color				x				x		x		
Texture				x				x			x	

2. Does project design meet visual resource management objectives? ☒ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Names: Merlyn Paulson
Date: 08/12/09

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	08/08/2009
District	Palm Springs
Resource Area	
Activity (program)	Solar arrays, power blocks transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Palen Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#7	Township 5 S Range 17 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class II, III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded sand dunes, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Strong planar roadways, scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Whites and light and medium tans
TEX-TURE	Moderate valley and fine sand dune and lakebed patterns, course mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Blue to crey solar arrays, light tan structures and t-lines
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form		x				x			x			
Line		x				x				x		
Color	x					x			x			
Texture		x				x				x		

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	08/12/09

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	08/08/2009
District	Palm Springs
Resource Area	
Activity (program)	Solar arrays, power blocks transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name: Palen Solar Power Project
2. Key Observation Point: KOP#8
3. VRM Class: Class II, III
4. Location: Township 5 S; Range 17 E; Section Multiple
5. Location: See Figure 5.15-2

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded sand dunes, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Strong planar highway, scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Dark grays, whites and light tans
TEX-TURE	Moderate valley and fine sand dune and lakebed patterns, course mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Blue to cray solar arrays, light tan structures and t-lines
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form					x				x			
Line		x			x				x			
Color	x	x			x				x			
Texture		x			x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names: Merlyn Paulson
Date: 08/12/09

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	08/08/2009
District	Palm Springs
Resource Area	
Activity (program)	Solar arrays, power blocks transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Palen Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#9	Township 5 S Range 17 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class II, III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded sand dunes, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Strong planar highway, scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Dark grays, whites and light tans
TEX-TURE	Moderate valley and fine sand dune and lakebed patterns, course mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Blue to cray solar arrays, light tan structures and t-lines
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form	x				x				x			
Line		x			x				x			
Color		x			x				x			
Texture		x			x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names: Merlyn Paulson — Date: 08/12/09

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:
District/ Field Office:
Resource Area:
Activity (program):

SECTION A. PROJECT INFORMATION

1. Project Name: Palen Solar Power Project	4. Location Township_____	5. Location Sketch
2. Key Observation Point: KOP 10	Range_____	
3. VRM Class: III	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat desert floor, pyramidal mountainous backdrop	Low growing grasses coincident with form of valley; scrub trees and shrubs in foreground create small, irregular, round forms	Few to none visible
LINE	Straight flat lines on valley floor, gently curved concave lines along valley edges	Irregular edges in foreground, background lines are straight and dull at edge of Palen dry lake	Few to none visible
COLOR	Light tans to dark, reddish and greenish browns	Light gold, tan, and sage greens	Light grey
TEX-TURE	Smooth texture in background zone, scattered patchwork/mosaic and granular texture in foreground/middleground zones	Same as land/water	Few to none visible

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar and horizontal	Cleared/grubbed	Flat solar arrays, rectilinear/boxy power black structures
LINE	Graded horizontal	Cleared/grubbed, sharper edges	Straight, horizontal to oblique, sharp
COLOR	Light tan	Cleared/grubbed	Blue to grey
TEX-TURE	Smooth surfaces	Cleared/grubbed	smooth

SECTION D. CONTRAST RATING __SHORT TERM _X_LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1) STRONG	MODERATE	WEAK	NONE	VEGETATION (2) STRONG	MODERATE	WEAK	NONE	STRUCTURES (3) STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			X					X	X			
	LINE			X			X			X			
	COLOR			X		X				X			
	TEXTURE			X				X		X			

2. Does project design meet visual resource management objectives? ___Yes ___No (Explain on reverses side)

3. Additional mitigating measures recommended ___Yes ___No (Explain on reverses side)

Evaluator's Names Date

SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

APPENDIX K
Comment Letters

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Comment Letter 1

Cheri_Vocelka@nps.gov
06/30/2010 11:21 AM

To CAPSSolarPalen@blm.gov

cc Woody_Smeck@nps.gov, Curt_Sauer@nps.gov, Andrea_Compton@nps.gov, Carol_McCoy@nps.gov, David_A_Reynolds@nps.gov, Alan_Schmierer@nps.gov

bcc

Subject JOTR Response to DEIS for Palen Solar Power Project

Attached you will find Joshua Tree National Park's response to the Draft Environmental Impact Statement for the Palen Solar Power Project.

(See attached file: Palen Solar Project Comments.PDF)

Cheri Vocelka
Program Assistant
Joshua Tree National Park
760-367-5502

"Unless someone like you cares a whole awful lot,

Nothing is going to get better. It's not." --Dr. Seuss

Palen Solar Project Comments.PDF

Comment Letter 1

United States Department of the Interior

NATIONAL PARK SERVICE
Joshua Tree National Park
74485 National Park Drive
Twentynine Palms, California 92277-3597

IN REPLY REFER TO

L7619 (JOTR-RM)

June 30, 2010

Allison Shaffer, Project Manager
Palm Springs - South Coast Field Office
Bureau of Land Management
1201 Bird Center Drive
Palm Springs, California 92262

COMMENTS ON THE STAFF ASSESSMENT AND DRAFT ENVIRONMENTAL IMPACT (DEIS) STATEMENT, PALEN SOLAR POWER PROJECT, Application For Certification (09-AFC-7), March 19 2010

Dear Ms. Shaffer:

Joshua Tree National Park, National Park Service (NPS), appreciates the opportunity to provide comments on the above noted document. The proposed Palen Solar Power Project is located approximately 10 miles east of the southern portions of Joshua Tree National Park.

We commend the Bureau of Land Management (BLM) for its cooperative approach with the State of California Energy Commission (CEC) to jointly evaluate the environmental implications of the Palen Solar Power Project. 1-01

Joshua Tree National Park is very supportive of the proposed land use plan alterations to the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) in the Pinto-Basin-Chuckwalla Desert Wildlife Management Area (DWMA), Palen Dunes Exclusion Area, and Palen Wilderness-Chuckwalla DWMA Wildlife Linkage Area. The NPS recognizes and commends the objectives to preserve connected physical attributes and habitat to link populations of a wide diversity of organisms, both flora and fauna. These areas, as mentioned in the DEIS would also offset some of the cumulative effects from this and other projects proposed for the area. 1-02

To facilitate this further, the park recommends the following expansion of these areas to incorporate BLM lands in proximity to these areas: 1-03

- Pinto Basin-Chuckwalla DWMA Tortoise Linkage Area: include BLM lands west of Highway 177 and south and southwest of the Coxcomb Mountains, to more effectively link the habitat from the Chuckwalla DWMA to habitat to the north.
- Palen Dunes Exclusion Area: include BLM lands to the north and northwest of this area, on both sides of Highway 177 in the Palen Valley, to encompass additional habitat and the dunes and playas.
- Palen Wilderness-Chuckwalla DWMA Wildlife Linkage Area: include BLM lands east and south of Highway 177, north of I-10, and west of the Palen Mountains, to more effectively protect the sand dunes, habitat for the desert tortoise, and cultural sites.

In addition, the park suggests that the designations of "Solar Exclusion" areas for Palen Dunes and Palen Wildernenss/Chuckwalla DWMA Linkage be changed to match that of the Pinto-Basin-Chuckwalla Tortoise Linkage to be defined as Right-of-Way (ROW) Exclusion. 1-04 It is our interpretation that this ROW

exclusion would limit future applications for projects in the areas, while the Solar Exclusion designation allows for additional projects which do not have major ground disturbing activities, but which could include additional public utility scale use of these areas. To facilitate the best preservation of habitat and for other reasons stated in the DEIS, additional disturbances should be minimized rather than allowing partial development which requires some evaluation for the interpretation of the definition of "major" ground disturbing activities. 1-04 cont.

The park continues to have significant concerns about the concentration of proposed public utility-scale projects, especially in the Chuckwalla Valley Groundwater Basin (as shown in Figure 2, Cumulative Impacts). Impacts to water resource as a result of this project are anticipated to be mitigatable, but the document then also states that cumulative groundwater extraction will put the basin into overdraft condition. This project alone will result "in a substantial adverse impact to existing scenic resource values as seen from several viewing areas" and identified that these cannot be mitigated. This will be magnified for every project that is added in the Basin. The park would like to reiterate the request that was submitted through the Solar Energy Development Programmatic Environmental Impact Statement (dated 11/30/09), that the area west of the Palen Mountains be removed from consideration for public utility scale development projects. These projects cumulatively are incompatible with trying to maintain the existing experiences that visitors have on the eastern portions of the park for air quality, viewsheds, wilderness values, and night sky qualities. 1-05

Specific resource comments follow.

Water Resources

The significance criteria used to evaluate the potential impact to groundwater resources are broadly and/or incompletely defined. The NPS recommends that the CEC and BLM better define the thresholds and significance criteria used to evaluate individual and cumulative impacts to groundwater resources in the Chuckwalla Valley Groundwater Basin. For example, in the second bulleted item on page C.9-3 of the SA/DEIS, does this criterion apply to individual and cumulative impacts, and how is "substantial depletion" and "substantial interference" to be interpreted from one solar project to another? Terms like substantial, significant, and considerable, unless constrained by quantitative (i.e., numerical) limits or bounds, are open to broad interpretation, which leads to confusion. 1-06

On pages C.9-38 and C.9-68, how is "a significant percentage of the total amount of groundwater in storage" defined? No quantitative, percentage value has been identified by which the reader can understand the agencies' intent of significance. Furthermore, there is little or no discussion on how the groundwater storage value of 15,000,000 acre-feet was derived. A more conservative estimate of 9,100,000 acre-feet was estimated and proposed for groundwater storage in the basin by Eagle Crest Energy for their groundwater pumped storage project. However, it unclear whether either of these two storage estimates represents the total amount of water in storage versus the recoverable amount of water in storage, which is a smaller portion of the total amount of water in storage. For example, assuming a total amount of water in storage of 15,000,000 acre-feet and using the average aquifer storage (i.e., drainable porosity) values of 0.05 and 0.0002 reported for the alluvium and the Bouse Formation in Soil & Water Table 7 (page C.9-26), the recoverable amount of water in storage would be reduced to 750,000 1-07 1-08

acre-feet and 3,000 acre-feet, respectively. For the analysis, the recoverable amount of water in storage should be utilized to evaluate whether or not "a significant percentage of the total amount of groundwater in storage" has been exceeded. If both of these total storage estimates prove to be recoverable storage estimates, the NPS suggests using the more conservative value (9,100,000 acre-feet) so that this and other forthcoming SA/DEIS's and foreseeable groundwater development projects are consistent in their evaluation of potential individual and cumulative impacts produced by these projects. It will be important for the CEC and BLM to utilize a consistent set of hydrologic parameter values (groundwater storage, water balance parameters, etc.) in this and future SA/DEIS's so that the impact evaluations are comparable from one project to another.

1-08 cont.

1-09

On page C.9-70, first paragraph, the statement is made that "the project's contribution to the cumulative impact to basin balance is less than cumulatively considerable." Please elaborate on what is meant by this statement as it is unclear to the NPS. How much is cumulatively considerable and how do we know when this threshold has been exceeded?

1-10

The water balance estimate proposed for the Chuckwalla Valley Groundwater Basin is not substantiated by the available water level data. In the water balance presented in Table 6 on page C.9.22, the current annual amount of water recharging the basin exceeds the amount of water discharging from the basin by 2,600 acre-feet (representing an overbalance of 23%). If an annual surplus is occurring, then the amount of groundwater stored within the basin should be increasing and one should see evidence of groundwater levels rising over time. To date, no evidence has been presented that water levels are rising in the basin to support this position, with the exception of some water levels suspected to be recovering from known periods of significant groundwater pumping in the basin. As a result of this overbalance, the NPS believes the preliminary analysis understates the potential individual and cumulative impacts that might result in the basin related to the proposed solar project and other reasonably foreseen projects.

Groundwater hydrologists commonly assume that a relatively undeveloped desert basin like the Chuckwalla Valley Groundwater Basin is in a quasi-equilibrium condition with respect to estimating a water balance for such a basin. Therefore, over a sufficiently long period of time, the amount of water coming into the basin (from precipitation and inflow from other basins) should be closely balanced by the amount of water leaving the basin (from natural evapotranspiration and outflow to other basins). This balance is disturbed when human activity disrupts inflow into the basin and/or the outflow from the basin (e.g., by pumping groundwater). In general, hydrologists have much better control in estimating outflow volumes than inflow volumes, and therefore, the outflow estimate should be used as the ultimate constraint on the water balance for the basin. This is an approach commonly adopted by the United States Geological Survey (USGS) when they conduct water resource investigations in the region.

1-11

Assuming a pre-development, quasi-equilibrium condition existed, the NPS believes the water balance inflow estimate should be adjusted downward to more closely match the reported water balance outflow estimate of 11,111 acre-feet per year (afy). For example, adjusting the annual recharge rate downward to a rate similar to the BLM's and County of Riverside's estimate of 5,600 afy and adjusting the combined subsurface inflow from Pinto Valley and Orocopia Valley to 2,500 afy and 1,700 afy, respectively (values reported in Eagle Crest Energy, 2009), results in an adjusted water balance inflow estimate of 10,431 afy. When compared to the current outflow estimate of 11,111 afy, this adjusted inflow estimate would

produce a water balance deficit of 680 acre-feet, or an imbalance of about 6 percent, which is an improvement over the current imbalance. Closer examination of the hydrographs presented for wells 4/17-6C1, 5/17-19Q1, and 5/17-33N1, though hard to distinguish at the scale presented in the DEIS document, suggests that slow declines in the basin groundwater level have been occurring since the 1960s, which is consistent with a deficit in the water balance (i.e., an overdraft condition). Unless it is shown through additional water level analysis that the higher water balance inflow value is justified, the NPS believes a lower inflow value provides a more "conservative" and correct estimate to use in the water balance analysis and subsequent evaluation of impacts to regional water level declines and storage depletion. If the CEC and BLM agree with the NPS's contention, several tables will need to be revised to reflect the updated water balance estimates. 1-11 cont.

Revise hydrographs on Figure 7 to aid evaluation of long-term water level trends. On pages C.9-24 and C.9-25, reference is made to Soil and Water Resources Figure 7 and discussion is presented about long-term water level trends in several wells distributed around the Chuckwalla Valley Groundwater Basin. Please revise the vertical axis scale of the hydrographs presented in Figure 7 so that the reader can discern whether or not a long-term increase or decrease in water levels is occurring in the basin. The current vertical axis scale of the hydrographs makes it nearly impossible to determine these conditions. While stylistically pleasing, a consistent scale of 400 feet of elevational change for each hydrograph is not conducive to detecting changes in water level on the order of several feet. There is nothing preventing the vertical axis scale of each hydrograph from being unique relative to the range of water level change occurring within each hydrograph. Another solution would be to change the vertical axis from groundwater elevation to change in water level so that a smaller scale (e.g., 50 to 100 feet of change) could be developed. 1-12

Corrections to Table 11 are needed. Please correct the "Net Budget Balance" estimates in Table 11 on page C.9-38. The two values presented are incorrect and should be the difference between the "Annual Basin Budget Balance" estimate minus the "Project Requirements" estimate. If the CEC and BLM agree with the NPS's contention in Comment #2 above, this table will need to be revised to reflect the updated water balance estimates. 1-13

Corrections to Table 17 are needed. Please correct the "Cumulative Project Requirements" and "Net Budget Balance" estimates for Year 2019 in Table 17 on page C.9-69. The values presented are incorrect. Additionally, in the second and third full paragraphs on this same page, please correct the numbers quoted in the discussion as they seem to be different from the numbers presented in Table 17. If the CEC and BLM agree with the NPS's contention in Comment #2 above, this table will need to be revised to reflect the updated water balance estimates. 1-14

Expand the discussion on how the individual and cumulative impacts to groundwater levels in the Chuckwalla Valley Groundwater Basin were determined. In the discussion on page C.9-41 concerning individual impacts resulting from the project, a maximum drawdown estimate of 57 feet is stated but no additional discussion is presented on how this drawdown estimate was derived. On page C.9-39, a reference is made to a groundwater model developed by Worley-Parsons that was used to estimate impacts to the basin's water balance, including subsurface flow from the valley, resulting from the operation of another proposed solar energy project in the valley (Genesis Solar Energy Project). Was this 1-15

model also used to predict the maximum drawdown value of 57 feet? Little or no discussion is provided to give the public confidence in how the model was developed and whether it meets acceptable standards and results for a groundwater model under CEQA/NEPA. If a groundwater model was used to estimate the maximum drawdown that might occur from the Palen Solar Power Project, please provide additional discussion on the development and use of this model, including how it was calibrated (steady-state and transient), the results of the different modeling runs, and any sensitivity analyses that were conducted. 1-15 cont.

Similarly, in the discussion on pages C.9-70 and C.9-71 of cumulative water level impacts resulting from the proposed solar project and other reasonably foreseeable projects in the basin, a reference is made to a groundwater model used by AECOM which appears to have been developed for the Parker-Palo Verde-Cibola area to evaluate impacts from groundwater pumping on the Colorado River. Is this model different from the Worley-Parsons model noted above or might this be the model developed recently by the USGS used to define the Colorado River accounting surface? Please provide additional discussion on the origin and use of the model referenced in the discussion as it pertains to this DEIS, including how it was calibrated (steady-state and transient), and the results of the different modeling runs and sensitivity analyses that were conducted. While it appears that results from modeling runs and sensitivity analyses are presented in Table 18 (page C.9-71), additional discussion would help the reader to better understand what this information is supposedly conveying with respect to cumulative impacts to water levels. For example, what do Zone 1 and Zone 2 represent in the model, and what foreseeable projects were considered in the model? 1-16

A single Groundwater Monitoring and Reporting Plan should be developed and managed for the Chuckwalla Valley Groundwater Basin. The NPS commends the CEC and BLM for requiring the applicant to comply with the measures stated on pages C.9-93 through C.9-96, in an attempt to evaluate possible individual and cumulative impacts resulting from the proposed project. However, the NPS has concerns on how these measures will be applied to other foreseeable projects in the basin and how this information will be interpreted with respect to the degree of individual and cumulative impacts produced by each potential entity. To avoid potential conflicting interpretations of impacts by individual project operators, the NPS recommends that a single Groundwater Monitoring and Reporting Plan be developed cooperatively by the appropriate regulatory agencies, solar energy operators and interested stakeholders, and managed and evaluated on a regular basis by an independent, scientifically respected organization such as the California Department of Water Resources or the USGS. Funding for developing and implementing the plan should be provided by the applicant and other foreseeable project operators in an equitable manner as a condition of granting their right-of-way and operating permits. This funding would cover costs for installing and monitoring new wells needed in the network, monitoring existing wells in the network, processing and interpreting the water level and water quality data, and report production. Given that much of the basin may be developed as a solar energy study area, it may make more sense to develop and manage one Groundwater Monitoring and Reporting Plan and monitoring network for the solar energy study area instead of developing and managing several individual plans and monitoring networks for each project. Several individually managed plans invites several differing interpretations of potential individual and cumulative impacts to the groundwater resources of the hydrologically connected basins and conflicts concerning who may be responsible for mitigating specific impacts to existing water users in these basins. Utilizing an independent third-party to manage and evaluate the information will 1-17

provide assurances to existing water users that unbiased science is being utilized to evaluate whether potential impacts are occurring and whether mitigation is necessary. 1-17 cont.

Air Quality

Mitigation measures to control fugitive dust at the completion of the grading operation and during operations should be addressed. The proposed development is planned in an area identified as containing desert pavements and sandy washes. Competing theories or attempts to rationalize the development of desert pavements is still at the forefront of debate by most experts. However, not in debate is the material type that underlies all desert pavements. The finest soil particles ranging from silt to silty clay underlie all desert pavements. The disruption of large areas of desert pavement during grading, post-grading and for the life of the project is likely to produce fugitive dust storms during mild to moderate wind activity. Heavier sand particles dislodged and transported over short distances by saltation[1], require high winds to become airborne. Fine soil particles do not require high winds to become airborne and are suspended for long periods of time. During high wind events, saltation of larger sand grains over fine particulate landscapes may exacerbate the fugitive dust issue, possibly to a level of complete white-out events downwind from the project. 1-18

Impacts from fugitive dust have been addressed during the construction phase of the proposed project. Large areas of disturbance, unmitigated for the control of fugitive dust, have the potential to create white-out conditions. Some (or substantial) grading will be required to facilitate the proposed development. Project plans should consider alternatives to full grading of the area (e.g., leaving strips of vegetation) as other solar projects are doing. Mitigation measures to control fugitive dust at the completion of the grading operation should be addressed (e.g. will the site be compacted or treated to control fugitive dust?). Controlling fugitive dust during normal operations should also be clearly addressed. 1-19

Viewshed/Recreation

The preservation of viewshed, in effect visibility, needs to be addressed. As presented above, fugitive dust may likely be a result of the grading operation and exposing the fine particulate soils that underlie the desert pavements. Fine particle soils brought to the surface during grading will remain at the surface possibly creating fugitive dust problems for the life of the project. Significant viewshed impacts pose serious problems in other areas where fine particulate soil particles are exposed at the surface by anthropogenic activities (e.g. Owens Valley). 1-20

The DEIS states that the viewshed will be significantly impacted by the proposed project as well as other renewable energy projects in the same vicinity (cumulative impacts). However, the DEIS needs to clearly communicate that in addition to visual impacts associated with fugitive dust, visitors to Joshua Tree National Park will experience the same significant degradation of the viewshed (for the life of the project), as described for other areas such as the I-10 corridor, when the project is viewed from park lands. The DEIS should include a description of the current view from prominent overlooks in the park toward the proposed project area and include detailed maps and photos that clearly define the park and 1-21

[1] Saltation is a geologic process by which sand or larger particles are transported by a fluid (air or water) over short distances that can impact other particles causing more particles to become airborne.

project boundaries. Each of the project alternatives addressing project footprint or equipment design (cooling towers, transmission towers, and power stations) should also contain the same descriptive, map, and photo information to specifically inform the public and decision makers about potential impacts to Joshua Tree National Park. 1-21 cont.

Night Sky

The proposed project is located in one of the most pristine areas for night sky viewing. Mitigation measures from light trespass, relating to security, nighttime operations for aircraft and other activities appear to have been properly addressed. We strongly encourage and support any further mitigation that would prevent light trespass from the proposed project. 1-22

Wildlife resources

Measures to reduce impacts to habitat of the Mojave fringe-toed lizard are encouraged (e.g., the Reduced Acreage Alternative). Found in locations within the park near the project site, the Mojave fringe-toed lizard is dependent on the Chuckwalla Valley as it provides nearby habitat that is important to park populations for the purposes of migration. The protection of the habitat and associated corridors will be essential in ensuring strong genetic structure within isolated Mojave fringe-toed lizard populations found in the Chuckwalla Valley and Pinto Basin. 1-23

The plan BIO-20 outlines the mitigation planned by the project owner for reducing the impact to the Mojave fringe-toed lizard. Careful attention to that plan will aid in the future protection of quality habitat for the lizard and will attempt to mitigate for the loss of habitat realized from the implementation of the project. 1-24

If you have any questions or need additional information, please contact the park superintendent's office at 760-367-5502, or Andrea Compton, Chief of Resources at 760-367-5560, Andrea_Compton@nps.gov.

Sincerely,

John Slaughter
Acting Superintendent

Cc: Curt Sauer, Superintendent, Joshua Tree National Park
George Turnbull, Acting Regional Director, Pacific West Region
Carol McCoy, Geologic Resources Division, Natural Resource Program Center
David Reynolds, Land Resources Program, Pacific West Region
Alan Schmierer, Environmental Coordinator, Pacific West Region
Andrea Compton, Chief of Resources, Joshua Tree National Park

Comment Letter 2

Brendan Hughes
<jesusthedude@hotmail.com>

07/01/2010 06:43 PM

To <capssolarpalen@blm.gov>,
<asolomon@energy.state.ca.us>
cc
bcc
Subject Comments on Palen Solar Power Project DEIS

To whom it may concern:

My name is Brendan Hughes and I would like to comment on the proposed Palen Solar Power Project Staff Assessment/Draft EIS. I encourage BLM and CEC to choose the No Action Alternative and amend the CDCA Plan to place this area off-limits to future development. 2-01

This project will have immitigable impacts to biological and visual resources. 2-02 & 03
Additionally, viable alternatives exist that will not destroy intact desert habitat. 2-04

The proposed project will have negative impacts on several endangered or special-status species. This project will destroy 210 acres of the Chuckwalla Critical Habitat Unit for the desert tortoise. Additionally, it will destroy thousands of acres of suitable habitat for desert tortoises. 2-05

These are unacceptable impacts to a federally-threatened species. 2-06

The cumulative impacts of all of these solar projects on desert tortoises could lead to the demise of the entire species in the wild. CEC should not enable the extirpation of the California state reptile. 2-07

Furthermore, habitat will be lost for the Mojave fringe-toed lizard and the burrowing owl, which are sensitive species, as well as many other important plants and animals. This project will also hinder the creation of new Mojave fringe-toed lizard habitat by obstructing sand movement in the northern Chuckwalla Valley. As BLM and CEC staff acknowledge, the biological impacts of this project are immitigable, and therefore it should be denied. 2-08

Severe impacts will also occur to the visual resources of the area, including the Coxcomb Mountains and Eagle Mountains of Joshua Tree National Park, and the Palen-McCoy, Chuckwalla, and Little Chuckwalla Mountains Wilderness Areas. I have hiked in the Palen-McCoy and Little Chuckwalla Wilderness Areas, and I enjoyed the vast, unconfined landscapes that I observed during those hikes. A project such as this would taint future hikes and reduce my ability to enjoy the California Desert. 2-09

Finally, CEC staff identified a "Desert Center" Alternative that would be sited on and in the vicinity of former agricultural fields. I suggest that, if a utility-scale plant needs to be constructed, CEC should only authorize siting to occur on previously-disturbed agricultural land. Very little, if any, undisturbed desert should be required to build such a plant. Solar Millennium should be able to work within these limits. Smaller solar plants are perhaps even more viable than larger ones, as the current Harper Dry Lake and Kramer Junction solar fields demonstrate. CEC should begin encouraging applicants to use previously-disturbed land, and deny outright applications for intact, viable desert habitat. 2-10

Again, I would like to ask BLM and CEC to choose the No Action Alternative for this project, and amend the CDCA plan to place this area off-limits to future development. 2-11

Thank you for your consideration.

Brendan Hughes
61093 Prescott Trail
Joshua Tree, CA 92252

"Ileene Anderson" <ianderson@biologicaldiversity.org>
07/01/2010 02:59 PM

To <CAPSSolarPalen@blm.gov>, "'Allison Shaffer'" <Allison_Shaffer@blm.gov>
cc "'Lisa Belenky'" <lbelenky@biologicaldiversity.org>, <asolomon@energy.state.ca.us>, <docket@energy.state.ca.us>, <brian_croft@fws.gov>,
bcc
Subject CBD comments on Palen Solar Power Plant DEIS

Hello Allison Shaffer,
Please find attached the Center for Biological Diversity's comments on BLM's DEIS for the Palen Solar Power Plant Project. I will be sending a hardcopy with references via overnight mail.
Please feel free to contact me with any questions.
Best regards,
Ileene Anderson

ILeene Anderson
Biologist/Public Lands Desert Director
Center for Biological Diversity
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"Our good fortune will only last as long as our natural resources" Will Rogers
Please consider the impact on the environment before printing this e-mail.
Get the latest on the BP oil spill on the Center's new Gulf Disaster website, updated daily.

CBD comments Palen DEIS final 7-1-10.pdf

CENTER *for* BIOLOGICAL DIVERSITY

VIA EMAIL AND FEDERAL EXPRESS OVERNIGHT DELIVERY

July 1, 2010

Allison Shaffer, Project Manager,
Palm Springs South Coast Field Office
Bureau of Land Management
1201 Bird Center Drive
Palm Springs, California 92262
CAPSSolarPalen@blm.gov.

Re: Comments on the Draft Environmental Impact Statement/Staff Assessment for the Chevron Energy Solutions/Solar Millennium Palen Solar Power Plant (PSPP) and Possible California Desert Conservation Area Plan Amendment (CEC Application For Certification (09-AFC-7))

Dear Project Manager Shaffer:

These comments are submitted on behalf of the Center for Biological Diversity's 255,000 staff, members and on-line activists in California and throughout the western states, regarding the Draft Environmental Impact Statement/Staff Assessment Chevron Energy Solutions/Solar Millennium Palen Solar Power Plant (PSPP) ("DEIS") and Possible California Desert Conservation Area Plan Amendment (CEC Application For Certification (09-AFC-7)) ("proposed project") , issued by the Bureau of Land Management ("BLM").

The development of renewable energy is a critical component of efforts to reduce greenhouse gas emissions, avoid the worst consequences of global warming, and to assist California in meeting emission reductions set by AB 32 and Executive Orders S-03-05 and S-21-09. The Center for Biological Diversity (the "Center") strongly supports the development of renewable energy production, and the generation of electricity from solar power, in particular. However, like any project, proposed solar power projects should be thoughtfully planned to minimize impacts to the environment. In particular, renewable energy projects should avoid impacts to sensitive species and habitats, and should be sited in proximity to the areas of electricity end-use in order to reduce the need for extensive new transmission corridors and the efficiency loss associated with extended energy transmission. Only by maintaining the highest environmental standards with regard to local impacts, and effects on species and habitat, can renewable energy production be truly sustainable. 3-01

As proposed, the project right of way includes over 5,000 acres of public lands and the project as proposed would permanently disturb approximately 3,000 acres of public lands in the Colorado desert that provide habitat for many species including the threatened desert tortoise and the imperiled Mojave fringe-toed lizard. The proposed project also includes new a new gas line, 3-02

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a gen-tie line, and a new substation. The DEIS for the proposed plan amendment and right-of-way application: fails to provide adequate identification and analysis of all of the significant impacts of the proposed project on the desert tortoise, the Mojave fringe-toed lizard, rare plants including Colorado desert microphyll woodlands, and other biological resources; fails to adequately address the significant cumulative impacts of the project; and lacks consideration of a reasonable range of alternatives. 3-02 cont.

Of particular concern is the BLM's failure to include adequate information regarding the impacts to resources and the failure to fully examine the impact of the proposed plan amendment to the California Desert Conservation Act Plan ("CDCA Plan") along with other similar proposed plan amendments and as a result the current piecemeal process may lead to the approval of industrial sites sprawling across the California Desert generally, and the Chuckwalla Valley in particular, within habitat that should be protected to achieve the goals of the bioregional plan as a whole. 3-03 3-04 The DEIS fails to consider potential alternative plan amendments that would protect the most sensitive lands from future development. Alternative siting and alternative technologies (including distributed PV) should have been fully considered in the DEIS, because they could significantly reduce the impacts to many species, soils, and water resources in the Colorado desert. 3-05 Although the area of the proposed project is currently part of the evaluation being undertaken by the BLM for the solar PEIS for solar energy zones, within the western portion of the "Riverside East" proposed solar energy study area ("SESA"), unfortunately, there has been no environmental documentation yet provided for that process and there is as yet no way to discern if the proposed project siting will be compatible with that planning. In scoping comments on the PEIS, the Center raised concerns about the impacts that development in this portion of the proposed SESA would have to species and habitats and particularly to connectivity. As the Center has emphasized in our comments on the various large-scale industrial solar proposals in the California desert, planning should be done *before* site specific projects are approved in order to ensure that resources are adequately protected from sprawl development and project impacts are avoided, minimized and mitigated. 3-06

The Center has been informed that the project applicant continues to work with the agencies on alternative site configurations that may avoid or minimize some of the impacts of the project, however, the DEIS does not provide that information. Any new site configuration alternative will need to be circulated for public review and comment in a Supplemental or Revised DEIS that should also include additional information on those resources that were inadequately identified and analyzed in the DEIS and additional consideration of off-site alternatives and other alternatives. The Center urges the BLM to revise the DEIS to adequately address these and other issues detailed below and re-circulate the DEIS or a supplemental DEIS for public comment. 3-07

In the sections that follow, the Center provides detailed comments on the ways in which the DEIS fails to adequately identify and analyze many of the impacts that could result from the proposed project, including but not limited to: impacts to biological resources, impacts to water resources, impacts to soils, direct and indirect impacts from the gen-tie line and substation, and cumulative impacts. 3-08

Because the project approval process includes a quasi-judicial process in the California 3-09

Energy Commission, the Center hereby incorporates by reference all of the materials before the California Energy Commission regarding the approval of this project. BLM is a party to the CEC process, which is being conducted in concert with the BLM approval process, and BLM has access to all of the documents (most of which are also readily accessible on the internet), therefore, BLM should incorporate all of the documents and materials from that process into the administrative record for the BLM decision as well. 3-09 cont.

I. The BLM's Analysis of the Proposed Plan Amendment and Proposed Project Fail to Comply with FLPMA.

As part of FLPMA, Congress designated 25 million acres of southern California as the California Desert Conservation Area ("CDCA"). 43 U.S.C. § 1781(c). Congress declared in FLPMA that the CDCA is a rich and unique environment teeming with "historical, scenic, archaeological, environmental, biological, cultural, scientific, educational, recreational, and economic resources." 43 U.S.C. § 1781(a)(2). Congress found that this desert and its resources are "extremely fragile, easily scarred, and slowly healed." *Id.* For the CDCA and other public lands, Congress mandated that the BLM "shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C § 1732(b).

The sum total of the plan amendment to the CDCA plan is one sentence: Permission granted to construct solar energy facility (proposed PSPP Project). DEIS at A-6. The DEIS then lists the criteria for consideration of the plan amendment and right of way application and BLM's responses to each issue. DEIS at A-6 to A-9. The Center appreciates BLM's effort in this regard (which were absent in other recent environmental documents prepared for large-scale solar projects), however, given the impact of the proposed project on other multiple uses of these public lands at the proposed site as well as other aspects of the bioregional planning, it is clear that BLM may also need to amend other parts of the plan as well and should have looked at additional and/or different amendments as part of the alternatives analysis. 3-10

Although not clearly included *as part of the proposed plan amendment*, BLM did provide some additional information in the DEIS regarding potential plan amendments that would adopt 3 right of way exclusion areas as part of a mitigation strategy. *See* DEIS, Biological Resources Appendix B: Northern and Eastern Colorado Desert Coordinated Management Plan NECO Land Use Plan Amendments. The DEIS discusses plan amendments that would increase protection for the desert tortoise by designation of a Pinto Basin-Chuckwalla DWMA Tortoise Linkage Area (B-1), a Palen Dunes Solar Exclusion Area (B-2),and a Palen Wilderness- Chuckwalla DWMA Wildlife Linkage Area (B-2 to B-3) as exclusion areas for rights of way. Unfortunately, the proposals do not clearly limit any other threats to protect key habitat values and species. 3-11

While the Center supports additional protections for species and habitats on public land, we have several concerns with the proposed land use amendments not the least of which is the BLM's failure to accurately address the limits of those protections on the ground under the current regulatory and statutory framework that applies to these public lands. For example, most of the lands that would be excluded from new solar ROW siting under the proposal are MUC 3-12

class M lands that are open to multiple other high intensity uses. *See* CDCA Plan at 13. Specific comments on the proposal are discussed below: 3-12 cont.

Pinto Basin-Chuckwalla DWMA Tortoise Linkage Area: The Center supports protection of the key linkage area between Joshua Tree National Park/Pinto Basin DWMA and the Chuckwalla DWMA. However, this proposal is unclear (no map is provided) and it is inadequate to provide the needed protections. For example, the reference to the "unused portions of the First Solar Right of Way" appears to assume that the First Solar proposed project will be permitted although a DEIS has not even been issued for that project yet and certainly no decision has been made. As a result, such an assumption is unlawfully pre-decisional. *Metcalf v. Daley*, 214 F.3d 1135, 1142 (9th Cir. 2000) ("the comprehensive 'hard look' mandated by Congress and required by the statute must be timely, and it must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge designed to rationalize a decision already made.") 3-13, 3-14

The "analysis" provided, such as it is, was clearly rushed. For example, the appendix states in error that this would provide linkage between the Chuckwalla and the Chemehuevi critical habitat units (DEIS at B-1). Moreover, while the DEIS states in a general way that the proposed plan amendment would "preclude further development from all major ground disturbing activities" it would also continue to allow "casual" uses (including ORV use) and does not withdraw the area from mining location – both of these activities and others could lead to significant ground disturbance and impacts to the linkage area under the proposal as stated. 3-15, 3-16

Palen Dunes Solar Exclusion Area: The Center supports protection of the Palen Dunes system and additional habitat protections for the imperiled Mojave fringe-toed lizard and other dune dependent species. However, the proposal is unclear and there is no map of the proposed exclusion area. The DEIS states that the area would be managed to maintain "the most essential portion of the Palen Dune system" but provides no map or other description of which portions BLM considers "most essential" nor does it explain why. Moreover, the area appears to include significant amounts of private land but no discussion is provided on that issue. Finally, as with the linkage area proposal, the primary "protection" is simply not allowing additional solar projects in the dunes exclusion area. While solar projects clearly represent a threat to dunes habitat they are not the *only* threat and as the DEIS states a "wide variety of uses would still be expected to occur in this area." As a result it is unclear whether this proposal will result in significant conservation for the dunes or the species dependent on them. 3-17, 3-18

Palen Wilderness- Chuckwalla DWMA Wildlife Linkage Area: The Center supports protection of a linkage between the Palen Wilderness and the Chuckwalla DWMA. However, as with the other proposals, the protections only limit the threat from solar, there is no map or other clear delineation of the proposed protected linkage, and appears to also assume that another proposed solar project – the Genesis Ford Dry Lake Project—will be approved. 3-19

The Center has repeatedly sought stronger protections for desert tortoise and tortoise critical habitat in the DWMAs within the CDCA as a whole and particularly within the NECO planning area. Despite the fact that desert tortoise populations in the NECO DWMAs continue to decline, BLM has continued to allow activities that significantly impact tortoise and critical 3-20

habitat within the DWMAs. For example, the BLM's NECO plan amendment adopted ORV "open wash zones" on 218,711 acres (25%) in the Chemehuevi DWMA and 352,633 acres (43%) in the Chuckwalla DWMA, and in an additional 1,042 square miles (666,880 acres) of desert tortoise habitat outside of both the DWMAs and critical habitat. As a result the NECO plan currently allows virtually unlimited ORV use in large parts of the DWMAs and allows significant damage to desert tortoises and their critical habitat to occur. 3-20 cont.

The Center strongly supports greater protections for the desert tortoise and its habitat and urges BLM to amend the plan to remove all "open wash zones" from all critical habitat and DWMAs in the planning area. 3-21 The BLM should also provide ongoing monitoring of critical habitat and the DWMAs (and make all reports publically available) to ensure that all *existing* route closures and other protections in the DWMAs are implemented and any *new* protective measures have the intended effect. 3-22 In addition, BLM should consider a plan amendment that would change the MUC class of any of the lands in the Palen dunes and the linkage areas that are currently class M to either class C (controlled use) or class L (limited use). 3-23 The Center believes that at least portions of these areas may well be suitable for class C which is generally used for areas that are suitable for wilderness protection and these linkages and dunes would thereby gain additional long term protections. In addition to a change in MUC class, the BLM should consider amending these essential areas into ACEC designation, to clearly identify and manage these areas for conservation of species. 3-24

Even taking into account the proposed plan amendments that would exclude additional solar rights of way as part of the mitigation, BLM has failed to take a comprehensive look at the proposed plan amendment for the ROW to determine: 1) whether industrial scale projects are appropriate for any of the public lands in this area; 2) if so, how much of the public lands are suitable for such industrial uses given the need to balance other management goals including preservation of habitat and water resources; and 3) the location of the public lands suitable for such uses. As noted above, the BLM has also failed to explain how this proposed project would interface with the Solar PEIS process that is already under way and was intended to consider these questions. The Center remains concerned that the result of the current process is a piecemeal approach to project review with site-specific approvals made before planning is completed which threatens to undermine the "bioregional" approach in the CDCA Plan as a whole as well as violate the fundamental planning principles of FLPMA. 3-25

A. The DEIS Fails to Adequately Address the Plan Amendment in the Context of the CDCA Plan.

Unfortunately, the DEIS fails to adequately consider the impacts of the proposed project and plan amendment and reasonable alternatives in the context of FLPMA and the CDCA Plan. FLPMA requires that in developing and revising land use plans, the BLM consider many factors and "use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences . . . consider the relative scarcity of the values involved and the availability of alternative means (including recycling) and sites for realization of those values." 43 U.S.C. § 1712(c). As stated clearly in the CDCA Plan: 3-26

> The goal of the Plan is to provide for the use of the public lands, and resources of the California Desert Conservation Area, including economic, educational, scientific, and recreational uses, in a manner which enhances wherever possible—and which does not diminish, on balance—the environmental, cultural, and aesthetic values of the Desert and its productivity.

3-26 cont.

CDCA Plan at 5-6. The CDCA Plan also provides several overarching management principles:

> MANAGEMENT PRINCIPLES
>
> The management principles contained in the law (FLPMA)—*multiple use, sustained yield, and the maintenance of environmental quality*—are not simple guides. Resolution of conflicts in the California Desert Plan requires innovative management approaches for everything from wilderness and wildlife to grazing and mineral development. These approaches include:
>
> —Seeking simplicity for management direction and public understanding, avoiding complication and confusing in detail which would make the Plan in comprehensive and unworkable.
>
> —Development of decision-making processes using appropriate guidelines and criteria which provide for public review and understanding. These processes are designed to help in allowing for the use of desert lands and resources while preventing their undue degradation or impairment.
>
> *—Responding to national priority needs for resource use and development, both today and in the future, including such paramount priorities as energy development and transmission, without compromising the basic desert resources of soil, air, water, and vegetation, or public values such as wildlife, cultural resources, or magnificent desert scenery. This means, in the face of unknowns, erring on the side of conservation in order not to risk today what we cannot replace tomorrow*.
>
> *—Recognizing that the natural patterns of the California Desert, its geological and biological systems, are the basis for planning*, and that human use patterns, from freeways to fence lines, define its boundaries. Only in this way can the public resources can be understood and protected by the Plan that can be publicly comprehended, accepted, and followed.

3-27

CDCA Plan 1980 at 6 (first emphasis in original, second emphasis added).

The CDCA Plan anticipated that there would be multiple plan amendments over the life of the plan and provides specific requirements for analysis of Plan amendments. Those requirements include determining "if alternative locations within the CDCA are available which would meet the applicant's needs without requiring a change in the Plan's classification, or an amendment to any Plan element" and evaluating "the effect of the proposed amendment on BLM management's desert-wide obligation to achieve and maintain a balance between resource use and resource protection." CDCA Plan at 121. BLM reads this portion of the CDCA plan extremely narrowly and attempts to divorce it from the required NEPA analysis and alternatives.

Looking at the CDCA Plan requirement in context with the NEPA review it is clear that the BLM was required to analyze not only whether alternative locations were available that would not require a plan amendment, but also how the proposed amendment would affect desert-wide resource protection and whether alternative locations and alternative plan amendments would avoid or lessen those impacts—BLM fails to address the latter issue and did not look at any site alternatives. The inclusion of multiple "no action" alternatives, a reduced acreage alternative, and a reconfigured alternative as part of the NEPA analysis failed to cure this omission. 3-27 cont.

The CDCA Plan includes the Energy Production and Utility Corridors Element which is focused primarily on utility corridors with brief discussion of powerplant siting. Even in 1980 the CDCA Plan contemplated that alternative energy projects would likely be developed in the future but did not expressly provide planning direction for solar energy production. Nonetheless, the overarching principles expressed in the Decision Criteria are also applicable to the proposed project here including minimizing the number of separate rights-of-way, providing alternatives for consideration during the processing of applications, and "avoid[ing] sensitive resources wherever possible." CDCA Plan at 93. Nothing in the DEIS shows that BLM considered the landscape level issues and management objectives or alternatives to the proposed plan amendment *in the DEIS*. 3-28

In addition, BLM should have considered the impacts to existing land use plans for these public lands across several scales including, for example: in the Chuckwalla valley, in the Colorado Desert in California; and in the CDCA as a whole. 3-29

B. The DEIS Fails to Adequately Address Impacts to Multiple Use Class M Lands and Loss of Multiple Use in Favor of a Single Use for Industrial Purposes.

As FLPMA declares, public lands are to be managed for multiple uses "in a manner that will protect the quality of the scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values." 43 U.S.C.§ 1701(a)(7) & (8). The CDCA Plan as amended provides for four distinct multiple use classes based on the sensitivity of resources in each area. The proposed project site is in MUC class M lands. DEIS at C.12-35. Under the CDCA Plan, Multiple-use Class M (Moderate Use) "protects sensitive, natural, scenic, ecological, and cultural resources values. For public lands designated as Class M the CDCA Plan intends a "*controlled balance* between higher intensity use and protection of public lands. This class provides for a wide variety o[f] present and future uses such as mining, livestock grazing, recreation, energy, and utility development. Class M management is *also* designed to conserve desert resources and to mitigate damage to those resources which permitted uses may cause." CDCA Plan at 13 (emphasis added). The proposed project is a high-intensity, single use of resources that will displace all other uses and that will significantly diminish (indeed, completely destroy) of approximately 5,000 acres of habitat including impacting aeolian transport in the dunes ecosystem, directly impacting habitat for desert tortoise and blocking a key tortoise habitat linkage area, and other impacts to species and habitats. The DEIS does consider alternative configurations that would avoid some impacts to some resources but still fails to consider how the impacts to sand dunes and Aeolian transport along with the loss of a large area of habitat will affect the biological resources of this area. Moreover, BLM does not address how 3-30

the loss of multiple uses in such a large area might affect other nearby public lands in the CDCA such as creating greater pressures on those land for the remaining multiple uses. 3-30 cont.

The DEIS does not consider whether and how new access roads created for the proposed project may increase off-road vehicle use in this area and thereby significantly increase impacts from ORVs on species and habitats surrounding the proposed project. As another example, the DEIS is unclear as to the extent that the proposal would require changes in the route network resulting in several routes which would need to be moved—those changes to the route network are simply not addressed in the DEIS (nor are the likely direct, indirect and cumulative impacts of changing those route designations adequately identified or analyzed, as discussed in detail below). Any changes to routes would require BLM to amend the route designations in the area because these routes are part of a network that was adopted through a plan amendment. When BLM does consider these issues, as it must, in a revised or supplemental DEIS, a range of alternatives must be considered in addition to the fact that such changes will undoubtedly change use of the previously existing nearby routes, most likely causing increased use on other nearby routes. Even if BLM attempts to simply reroute along the fenceline for the proposed project a plan amendment would be required and BLM must then consider that new unauthorized routes to provide connections to the other routes, and/or entirely new unauthorized routes may be created by off-road vehicle users *to avoid the industrial site entirely*. There is no evidence that recreational off-road vehicle users will be content to drive for miles along a fence adjoining an industrial site rather than striking off cross-country to connect with more scenic routes. Past experience shows that the latter is quite understandably a much more likely outcome and BLM should recognize this in analyzing the impacts of this project on the existing route network and any proposal to amend that network. 3-31

C. Fails to Adequately Address Other Ongoing Planning Efforts

As noted above, the DEIS fails to adequately address the proposed project in the context of other connected projects (including multiple renewable energy projects, substations and additional transmission lines) and the ongoing PEIS planning process for solar development in six western states undertaken by BLM and DOE. The scoping and early maps for the PEIS did identify this area as a proposed solar energy study area.[1] Unfortunately, that planning process has been slow to move forward. Without prior planning, there is a high risk that the direct, indirect and cumulative impacts of the proposed project in conjunction with others may lead to sprawl development in the area and undermine the planning for renewable energy industrial zones that BLM has undertaken. 3-32

Of particular concern is the failure of the DEIS to analyze the impacts of the gen-tie and the Red Bluff substation which is listed as a cumulative project but no location is provided and the BLM has failed to explore alternatives that would minimize impacts of the placement of that substation. The Devers to Palo Verde No. 2 environmental review preferred alternative (as revised for the California-only line adopted by the CPUC) did not analyze a substation in this area. The BLM cannot lawfully piecemeal this project approval. Moreover, the BLM has failed to explain how this site specific approval would interface with, or alternatively undermine, the solar programmatic planning by federal agencies for the western states. This critical issue 3-33

[1] http://solareis.anl.gov/documents/maps/studyareas/Solar_Study_Area_CA_Ltt_7-09.pdf

regarding planning on public lands is not adequately addressed in the DEIS which only mentions the PEIS process briefly, and then includes the PEIS as a foreseeable future project with no explanation (DEIS at B.3-13). The BLM does not analyze how the PEIS could be affected by the approval of this and other projects in the area and does not address how the piecemeal analysis of the substation and gen-tie line may undermine the planning for a solar zone in this area. Such analysis *after the fact* is not consistent with the planning requirements of FLPMA or, indeed, any rational land use planning principles. 3-33 cont.

D. BLM Failed to Inventory the Resources of these Public Lands Before Making a Decision to Allow Destruction of those Resources

FLPMA states that "[t]he Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values," and this "[t]his inventory shall be kept current so as to reflect changes in conditions and to identify new and emerging resource and other values." 43 U.S.C. § 1711(a). FLPMA also requires that this inventory form the basis of the land use planning process. 43 U.S.C. § 1701(a)(2). *See Center for Biological Diversity v. Bureau of Land Management*, 422 F.Supp.2d 1115, 1166-67 (N.D. Cal. 2006) (discussing need for BLM to take into account known resources in making management decisions); *ONDA v. Rasmussen,* 451 F.Supp. 2d 1202, 1212-13 (D. Or. 2006) (finding that BLM did not take a hard look under NEPA by relying on outdated inventories and such reliance was inconsistent with BLM's statutory obligations to engage in a continuing inventory under FLPMA). It is clear that BLM should not approve a management plan amendment based on outdated and inadequate inventories of affected resources on public lands. 3-34

As detailed below in the NEPA sections, here BLM has failed to compile an adequate inventory of the resources of the public lands that could be affected by the proposed project *before* preparing the DEIS (including, e.g., rare plants, golden eagle surveys, and other biological resources) which is necessary in order to adequately assess the impacts to resources of these public lands in light of the proposed plan amendment and BLM has also failed to adequately analyze impacts on known resources. Indeed, the DEIS states that surveys are ongoing after the DEIS was issued See DEIS at C.2-10 ("Follow-up spring and fall 2010 special-status plant surveys will be performed for 10 plant species within the Project Disturbance Area and along the proposed transmission line alignment and substation.") Similarly for golden eagles, inadequate surveys were conducted before the DEIS was prepared. *See* DEIS at C.2-4, C.2-39. Although the Center understands that golden eagle surveys have now been completed, because that information was not included in the DEIS and no analysis of impacts is provided, the BLM must revise and recirculate the DEIS or a supplement to include that new information. Moreover, for the Red Bluff substation which is a necessary project component, no site has been identified and the potential impacts have not been disclosed or analyzed and, as a result, the location of the gen-tie line has also not been fully examined. 3-35

Therefore, it appears that a revised DEIS or supplemental DEIS must be prepared to include several categories of new information including new survey data about the resources of the site and potential impacts of the project on resources of our public land and water, and that document must be circulated for public review and comment. 3-36

E. The DEIS Fails to Provide Adequate Information to Ensure that the BLM will Prevent Unnecessary and Undue Degradation of Public lands

FLPMA requires BLM to "take any action necessary to prevent unnecessary or undue degradation of the lands" and "minimize adverse impacts on the natural, environmental, scientific, cultural, and other resources and values (including fish and wildlife habitat) of the public lands involved." 43 U.S.C. §§ 1732(b), 1732(d)(2)(a). Without adequate information and analysis of the current status of the resources of these public lands, BLM cannot fulfill its duty to prevent unnecessary or undue degradation of the public lands and resources. Thus, the failure to provide an adequate current inventory of resources and environmental review undermines BLM's ability to protect and manage these lands in accordance with the statutory directive.

3-37

BLM has failed to properly identify and analyze impacts to the resources including the impacts from all of the project components. As detailed below, the BLM's failure in this regard violates the most basic requirements of NEPA and in addition undermines the BLM's ability to ensure that the proposal does not cause unnecessary and undue degradation of public lands. *See Island Mountain Protectors*, 144 IBLA 168, 202 (1998) (holding that "[t]o the extent BLM failed to meet its obligations under NEPA, it also failed to protect public lands from unnecessary or undue degradation."); *National Wildlife Federation*, 140 IBLA 85, 101 (1997) (holding that "BLM violated FLPMA, because it failed to engage in any reasoned or informed decisionmaking process" or show that it had "balanced competing resource values").

II. The DEIS Fails to Comply with NEPA.

NEPA is the "basic charter for protection of the environment." 40 C.F.R. § 1500.1(a). In NEPA, Congress declared a national policy of "creat[ing] and maintain[ing] conditions under which man and nature can exist in productive harmony." *Or. Natural Desert Ass'n v. Bureau of Land Mgmt.,* 531 F.3d 1114, 1120 (9th Cir. 2008) (quoting 42 U.S.C. § 4331(a)). NEPA is intended to "ensure that [federal agencies] … will have detailed information concerning significant environmental impacts" and "guarantee[] that the relevant information will be made available to the larger [public] audience." *Blue Mountains Biodiversity Project v. Blackwood,* 161 F.3d 1208, 1212 (9th Cir. 1998).

Under NEPA, before a federal agency takes a "'major [f]ederal action[] significantly affecting the quality' of the environment," the agency must prepare an environmental impact statement (EIS). *Kern v. U.S. Bureau of Land Mgmt.,* 284 F.3d 1062, 1067 (9th Cir. 2002) (quoting 43 U.S.C. § 4332(2)(C)). "An EIS is a thorough analysis of the potential environmental impact that 'provide[s] full and fair discussion of significant environmental impacts and … inform[s] decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.'" *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.,* 387 F.3d 989, 993 (9th Cir. 2004) (citing 40 C.F.R. § 1502.1). An EIS is NEPA's "chief tool" and is "designed as an 'action-forcing device to [e]nsure that the policies and goals defined in the Act are infused into the ongoing programs and actions of the Federal Government.'" *Or. Natural Desert Ass'n,* 531 F.3d at 1121 (quoting 40 C.F.R. § 1502.1).

An EIS must identify and analyze the direct, indirect, and cumulative effects of the proposed action. This requires more than "general statements about possible effects and some risk" or simply conclusory statements regarding the impacts of a project. *Klamath Siskiyou Wildlands Center v. BLM,* 387 F.3d 989, 995 (9th Cir. 2004) (citation omitted); *Oregon Natural Resources Council v. BLM,* 470 F.3d 818, 822-23 (9th Cir. 2006). Conclusory statements alone "do not equip a decisionmaker to make an informed decision about alternative courses of action or a court to review the Secretary's reasoning." *NRDC v. Hodel*, 865 F.2d 288, 298 (D.C. Cir. 1988).

NEPA also requires BLM to ensure the scientific integrity and accuracy of the information used in its decision-making. 40 CFR § 1502.24. The regulations specify that the agency "must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential." 40 C.F.R. § 1500.1(b). Where there is incomplete information that is relevant to the reasonably foreseeable impacts of a project and essential for a reasoned choice among alternatives, the BLM must obtain that information unless the costs of doing so would be exorbitant or the means of obtaining the information are unknown. 40 C.F.R. § 1502.22. Here the costs are reasonable to obtain information needed to complete the analysis and the BLM must provide additional information in the EIS—through a supplement or revised EIS. Even in those instances where complete data is unavailable, the EIS also must contain an analysis of the worst-case scenario resulting from the proposed project. *Friends of Endangered Species v. Jantzen*, 760 F.3d 976, 988 (9th Cir. 1985) (NEPA requires a worst case analysis when information relevant to impacts is essential and not known and the costs of obtaining the information are exorbitant or the means of obtaining it are not known) *citing Save our Ecosystems v. Clark*, 747 F.2d 1240, 1243 (9th Cir. 1984); 40 C.F.R. § 1502.22. 3-38

A. Purpose And Need and Project Description are Too Narrowly Construed and Unlawfully Segment the Analysis

1. Purpose and Need:

Agencies cannot narrow the purpose and need statement to fit only the proposed project and then shape their findings to approve that project without a "hard look" at the environmental consequences. To do so would allow an agency to circumvent environmental laws by simply "going-through-the-motions." It is well established that NEPA review cannot be "used to rationalize or justify decisions already made." 40 C.F.R. § 1502.5; *Metcalf v. Daley*, 214 F.3d 1135, 1141-42 (9th Cir. 2000) ("the comprehensive 'hard look' mandated by Congress and required by the statute must be timely, and it must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge designed to rationalize a decision already made.") As Ninth Circuit noted an "agency cannot define its objectives in unreasonably narrow terms." *City of Carmel-by-the-Sea v. U.S. Dept. of Transportation*, 123 F.3d 1142, 1155 (9th Cir. 1997); *Muckleshot Indian Tribe v. U.S. Forest Service*, 177 F. 3d 900, 812 (9th Cir. 1999). The statement of purpose and alternatives are closely linked since "the stated goal of a project necessarily dictates the range of 'reasonable' alternatives." *City of Carmel*, 123 F.3d at 1155. The Ninth Circuit recently reaffirmed this point in *National Parks Conservation Assn v.* 3-39

BLM, 586 F.3d 735, 746-48 (9th Cir. 2009) (holding that "[a]s a result of [an] unreasonably narrow purpose and need statement, the BLM necessarily considered an unreasonably narrow range of alternatives" in violation of NEPA).

The purpose behind the requirement that the purpose and need statement not be unreasonably narrow, and NEPA in general is, in large part, to "guarantee[ ] that the relevant information will be made available to the larger audience that may also play a role in both the decision-making process and the implementation of that decision." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989). The agency cannot camouflage its analysis or avoid robust public input, because "the very purpose of a draft and the ensuing comment period is to elicit suggestions and criticisms to enhance the proposed project." *City of Carmel-by-the-Sea*, 123 F.3d at 1156. The agency cannot circumvent relevant public input by narrowing the purpose and need so that no alternatives can be meaningfully explored or by failing to review a reasonable range of alternatives.

3-39 cont.

The BLM's purpose and need for the proposed Palen project is "respond to Palen Solar I's application under Title V of FLPMA (43 U.S.C. 1761) for a ROW grant to construct, operate, and decommission a solar thermal facility on public lands in compliance with FLPMA, BLM ROW regulations, and other Federal applicable laws" (DEIS at A-11), and also states that the "BLM authorities include:

> • Executive order 13212, dated May 18, 2001, which mandates that agencies act expediently and in a manner consistent with applicable laws to increase the "production and transmission of energy in a safe and environmentally sound manner."
> • The EPAct, which requires the Department of the Interior (BLM's parent agency) to approve at least 10,000 MW of renewable energy on public lands by 2015.
> • Secretarial Order 3285, dated March 11, 2009, which "establishes the development of renewable energy as a priority for the Department of the Interior."

DEIS at A-12. The DEIS notes that an amendment to the CDCA Plan is needed in order to approve the project but does not clearly identify the plan amendment as a part of the project being evaluated. Rather, the DEIS states: "If the BLM decides to approve the issuance of a ROW grant, the BLM will also amend the CDCA Plan as required." DEIS at A-11. BLM's purpose and need is very narrowly construed to the proposed project itself and an amendment to the Plan *for the project only*. The purpose and need provided in the DEIS is impermissibly narrow under NEPA for several reasons, most importantly because it foreclosed meaningful alternatives review in the DEIS. Because the purpose and need and the alternatives analysis are at the "heart" of NEPA review and affect nearly all other aspects of the EIS, on this basis and others, BLM must revise and re-circulate the DEIS.

3-40

The DOE purpose and need statement provides:

> The Applicant has applied to the Department of Energy (DOE) for a loan guarantee under Title XVII of the Energy Policy Act of 2005 (EPAct 05), as amended by Section 406 of the American Recovery and Reinvestment Act of 2009, P.L. 111-5 (the "Recovery Act"). DOE is a cooperating agency on this EIS

> pursuant to an MOU between DOE and BLM signed in January 2010. The purpose and need for action by DOE is to comply with its mandate under EPAct by selecting eligible projects that meet the goals of the Act.

DEIS at A-12.

In discussing the cumulative scenario, the DOE loan guarantee program is also described as one of the incentive programs for funding renewable energy projects:

> Example[s] of incentives for developers to propose renewable energy projects on private and public lands in California, Nevada and Arizona, include the following:
>
> ● U.S. Treasury Department's Payments for Specified Energy Property in Lieu of Tax Credits under §1603 of the American Recovery and Reinvestment Act of 2009 (Public Law 1115) - Offers a grant (in lieu of investment tax credit) to receive funding for 30% of their total capital cost at such time as a project achieves commercial operation (currently applies to projects that begin construction by December 31, 2010 and begin commercial operation before January 1, 2017).
>
> ● U.S. Department of Energy (DOE) Loan Guarantee Program pursuant to §1703 of Title XVII of the Energy Policy Act of 2005 - Offers a loan guarantee that is also a low interest loan to finance up to 80% of the capital cost at an interest rate much lower than conventional financing. The lower interest rate can reduce the cost of financing and the gross project cost on the order of several hundred million dollars over the life of the project, depending on the capital cost of the project.

DEIS at B.3-2.

The Center is well aware that deadlines for funding, particularly for the American Recovery and Reinvestment Act ("ARRA") funds, have driven the pace of the environmental review for this project and others and, while such funding mechanisms are important, deadlines cannot be used as an excuse for rushed and inadequate NEPA review. The BLM and DOE must be concerned with the adequate NEPA review and even if the agencies can properly have an objective of *timely* approval of projects they cannot properly have as purpose and need of the project a *rushed* inadequate environmental impact review.

3-40 cont.

Moreover, in its discussion of the need for renewable energy production the DEIS fails to address risks associated with global climate change in context of including both the need for climate change mitigation strategies (e.g., reducing greenhouse gas emissions) and the need for climate change adaptation strategies (e.g., conserving intact wild lands and the corridors that connect them). All climate change adaptation strategies underline the importance of protecting intact wild lands and associated wildlife corridors as a priority adaptation strategy measure.

3-41

The habitat fragmentation, loss of connectivity for terrestrial wildlife, and introduction of predators and invasive weed species associated with the proposed project in the proposed

location may run contrary to an effective climate change adaptation strategy. Siting the proposed project in the proposed location impacting sand dune ecosystems, occupied habitat and important habitat linkage areas, major washes and other fragile desert resources could undermine a meaningful climate change adaptation strategy with a poorly executed climate change mitigation strategy. Moreover, the project itself will emit greenhouse gases and the DEIS contains no discussion of ways to avoid, minimize or off set these emissions although such mitigation is clearly feasible and other technologies have far less or no GHG emissions during operations are also likely to have fewer emissions when calculated on a lifecycle basis. The way to maintain healthy, vibrant ecosystems is not to fragment them and reduce their biodiversity.

3-41 cont.

B. The DEIS Does Not Adequately Describe Environmental Baseline

BLM is required to "describe the environment of the areas to be affected or created by the alternatives under consideration." 40 CFR § 1502.15. The establishment of the baseline conditions of the affected environment is a practical requirement of the NEPA process. In *Half Moon Bay Fisherman's Marketing Ass'n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988), the Ninth Circuit states that "without establishing . . . baseline conditions . . . there is simply no way to determine what effect [an action] will have on the environment, and consequently, no way to comply with NEPA." Similarly, without a clear understanding of the current status of these public lands BLM cannot make a rational decision regarding proposed project. *See Center for Biological Diversity v. U.S. Bureau of Land Management, et al*., 422 F. Supp. 2d 1115, 1166-68 (N.D. Cal. 2006) (holding that it was arbitrary and capricious for BLM to approve a project based on outdated and inaccurate information regarding biological resources found on public lands).

3-42

The DEIS fails to provide adequate baseline information and description of the environmental setting in many areas including in particular the status of rare plants, animals and communities including golden eagles, rare plants, and the sand dune ecosystem.

The baseline descriptions in the DEIS are inadequate particularly for the areas where surveys are ongoing. As discussed below, because of the deficiencies of the baseline data for the proposed project area, the DEIS fails to adequately describe the environmental baseline. Many of the rare and common but essential species and habitats have incomplete and/or vague on-site descriptions that make determining the proposed project's impacts difficult at best. Some of the rare species/habitats baseline conditions are totally absent, therefore no impact assessment is provided either. A supplemental document is required to fully identify the baseline conditions of the site, and that baseline needs to be used to evaluate the impacts of the proposed project.

C. Failure to Identify and Analyze Direct and Indirect Impacts to Biological Resources

The EIS fails to adequately analyze the direct, indirect, and cumulative impacts of the proposed project on the environment. The Ninth Circuit has made clear that NEPA requires agencies to take a "hard look" at the effects of proposed actions; a cursory review of environmental impacts will not stand. *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1150-52, 1154 (9th Cir. 1998). Where the BLM has incomplete or insufficient information,

NEPA requires the agency to do the necessary work to obtain it where possible. 40 C.F.R. §1502.22; *see National Parks & Conservation Ass'n v. Babbitt,* 241 F.3d 722, 733 (9th Cir. 2001) ("lack of knowledge does not excuse the preparation of an EIS; rather it requires [the agency] to do the necessary work to obtain it.")

Moreover, BLM must look at reasonable mitigation measures to avoid impacts in the DEIS but failed to do so here. Even in those cases where the extent of impacts may be somewhat uncertain due to the complexity of the issues, BLM is not relieved of its responsibility under NEPA to discuss mitigation of reasonably likely impacts at the outset. Even if the discussion may of necessity be tentative or contingent, NEPA requires that the BLM provide some information regarding whether significant impacts could be avoided. *South Fork Band Council of Western Shoshone v. DOI* , 588 F.3d 718 , 727 (9th Cir. 2009).

The lack of comprehensive surveys is particularly problematic. Failure to conduct sufficient surveys prior to construction of the project also effectively eliminates the most important function of surveys - using the information from the surveys to minimize harm caused by the project and reduce the need for mitigation. Often efforts to mitigate harm are far less effective than preventing the harm in the first place. In addition, without understanding the scope of harm before it occurs, it is difficult to quantify an appropriate amount and type of mitigation. 3-43

The DEIS recognizes (at pg. ES-15) that based on the information provided in the biological resources analysis does not complies with all of the laws, ordinances, regulations, and standards (LORS). Additionally impacts are not fully mitigated. For this reason alone, a supplemental or revised DEIS needs to be provided that complies with all the LORS and additional alternatives are included (including a preferred alternative) that avoids and reduces the impacts to biological resources. 3-44

The DEIS also acknowledges that the 2009 biological surveys are inadequate and supplementary 2010 surveys will be done (DEIS at C.2-3). However the results of those surveys are not available in the DEIS. Therefore, it is impossible to evaluate the potential impact of the proposed project based on the lack of adequate survey data. 3-45

The DEIS recognizes that the project is within two Wildlife Habitat Management Areas (WHMAs) as established under NECO – the Palen-Ford WHMA and Desert Wildlife Management Area (DWMA) Connectivity WHMA (DEIS at C.2-14). No mitigation is proposed to mitigate the identified losses of these important WHMAs (DEIS at C.2-64). 3-46

1. Desert Tortoise

The desert tortoise has lived in the western deserts for tens of thousands of years. In the 1970's their populations were noted to decline. Subsequently, the species was listed as threatened by the State of California in 1989 and by the U.S. Fish and Wildlife Service in 1990, which then issued a Recovery Plan for the tortoise in 1994. The U.S. Fish and Wildlife Service is in the process of updating the Recovery Plan, and a Draft Updated Recovery Plan was issued 3-47

in 2008, however it has not been finalized. Current data indicate a continued decline across the range of the listed species[2] despite its protected status and recovery actions. 3-47 cont.

The original and draft Updated Recovery Plans both recognize uniqueness in desert tortoise populations in California. This particular subpopulation of tortoise at the proposed project site are part of the Eastern Colorado Recovery unit[3]. Recent population genetics studies[4] have further confirmed 1994 Recovery Plan conclusions the Eastern Colorado Recovery unit was one of the most genetically unique recovery units. While the proposed project site may have low desert tortoise densities (the DEIS fails to identify the actual number of desert tortoise estimated to be onsite), this particular recovery unit has also been documented to have the second highest declines in population over the last two years – 37% decline [5]. The DEIS fails to identify and consider the localized impact to this recovery unit that is already in steep decline. 3-48

While Bio-10 requires a Desert Tortoise Relocation/Translocation Plan (DEIS at pg. C.2-130), no desert tortoise relocation/translocation plan was included in the DEIS. Recent desert tortoise translocations have resulted in significant short-term mortality up to 45%[6] and unknown long-term survivorship. It is imperative to have this important plan available in the revised DEIS in order for the public and decision makers to be able to evaluate the effectiveness of the proposed strategies. 3-49

Mechanisms need to be included to assure that any and all mitigation acquisitions will be conserved in perpetuity for the conservation of the desert tortoise. If those acquisitions are within existing Desert Wildlife Management Areas (DWMAs), higher levels of protection than are currently in place for DWMAs need to be put in place. NEPA mandates consideration of the relevant environmental factors and environmental review of "[b]oth *short- and long-term* effects" in order to determine the significance of the project's impacts. 40 C.F.R. § 1508.27(a) (emphasis added). BLM has clearly failed to do so in this instance with respect to the impact to the desert tortoise. 3-50

The 1:1 mitigation ratio of desert tortoise habitat outside of critical habitat is actually inadequate to mitigate for the destruction of habitat. Mitigation presumes that acquisition will be appropriate tortoise habitat (occupied or unoccupied) which is currently existing and providing benefits to the species, to off-set the elimination of the proposed project site. However, this strategy is still *a net loss of habitat* to the desert tortoise, as currently they are using or could use both the mitigation site and the proposed project site. Therefore, in order to aid in recovery of this declining species, at a minimum a 2:1 mitigation ratio should be required as mitigation for the total elimination of desert tortoise habitat on the proposed project site. 3-51

If tortoises are relocated or translocated, then the relocation and/or translocation areas need to be secured for tortoise conservation, to preclude moving the animals subsequently if additional projects move forward on the relocation or translocation site(s). 3-52

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[2] USFWS 2009
[3] USFWS 1994
[4] Murphy et al. 2007
[5] USFWS 2009.
[6] Gowan and Berry 2010.

2. Desert Bighorn Sheep

The DEIS completely dismisses any desert bighorn sheep impacts from the proposed project because of the I-10 interstate. While we agree that the I-10 is currently a barrier to the movement of bighorn (and other species), clearly the DEIS fails to evaluate the opportunity via the propose project to re-establish historic linkage for bighorn sheep across the Chuckwalla Valley between the Palen Mountains (Bighorn Wildlife Habitat Management Area [WHMA]) and the Chuckwalla Mountains (Bighorn WHMA). The DEIS simply proposes to add another significant block to bighorn and wildlife movement in the area, without considering ways to ameliorate or improve the existing conditions. 3-53

3. Mojave fringe-toed lizard/Sand dunes/Sand Transport System

We agree with the DEIS conclusion that the impacts of the proposed project to the sand transport corridor, the sand dune habitat and the Mojave fringe-toed lizard will be significant impacts that cannot be mitigated unless the Project is reconfigured to avoid the obstruction of sand transport processes and the sand habitat of the Mojave fringe-toed lizard (DEIS at C.2-1). Clearly a supplemental DEIS must examine alternatives that reduce the significant impact to these rare communities, processes and species. 3-54

The proposed project would "directly impact 1,735 acres of Mojave fringe-toed lizard habitat and would interfere with part of a regional sand transport corridor, affecting approximately 1,412 acres of downwind sand dunes" (DEIS at pg. C.2-4). The DEIS proposes to mitigate Mojave fringe-toed lizard habitat at different mitigation ratios based on unexplained reasoning. For example occupied habitat of stabilized and partially stabilized dunes are proposed to be mitigated at 3:1, while occupied sand fields are to be mitigated at 1:1 (DEIS at pg C.2-65). Additionally indirect impacts (i.e. impacts caused to downwind sand deposits from impacts to the sand transport system) are proposed at only0.5:1 (DEIS at pg. C.2-65). Other solar energy projects proposed to impact Mojave fringe-toed lizard habitat have identified mitigation ratios of 5:1 and 3:1 for direct impacts to all occupied Mojave fringe-toed lizard habitat and lesser ratios for indirect impacts. The DEIS fails to identify why different mitigation ratios are being used in different areas, when clearly the direct impacts will eliminate all occupied habitat of Mojave fringe-toed lizards on the site, and really directly impact down wind sand deposits as well. In addition, Table 6 notes that the acreage of stabilized and partially stabilized sand dunes to be directly impacted "may change upon verification of the extent of stabilized and partially stabilized sand dunes present in the Project Disturbance Area" (DEIS at pg.66). Clearly a supplemental DEIS needs to clarify exactly how much Mojave fringe-toed lizard habitat would be impacted by the proposed project and identify a consistent mitigation ratio for impacts to the Mojave fringe-toed lizard. 3-55

The DEIS also fails to evaluate the impacts of the proposed project on Mojave fringe-toed lizard outside of the project site. As Barrows et al. (2006)[7] found, edge effects are significant for fringe-toed lizards and, in addition, the increase in predators associated with 3-56

[7] Barrows et al. 2006

developed edges may also have a significant adverse effect on fringe-toed lizards and other species. 3-56 cont.

4. Rare and Special Status Plants

As mentioned above, the botanical surveys were one of the inadequate surveys identified, and 2010 surveys were/are being done (DEIS at C.2-3). These incomplete data sets preclude evaluation of the impacts, or more importantly the ability to design the project to avoid and minimize impacts. Clearly a supplemental DEIS is required to present these missing data. 3-57

5. Migratory and Other Birds and Burrowing Owls

Birds

The DEIS downplays the fatalities that have been documented to occur from birds running into mirrors[8]. Adjacent to the proposed project site are agricultural fields, which also attract birds. The DEIS does not quantify the number of birds (rare, migratory or otherwise) that use/traverse the project site from the avian point count surveys, nor does it evaluate the impact to birds. McCrary[9] estimated 1.7 birds deaths per week on a 32 ha site with mirrors and a power tower configuration. The proposed project site is approximately 1,578 ha (almost 50 times larger). While it is a solar trough technology and has a different kind of mirror and power plant configuration other researchers have evaluated, impacts to avian species from reflective surfaces and power lines[10] are also a concern. The DEIS states that "there is insufficient information available to conclude with certainty that the PSPP would not be an ongoing source of mortality to birds for the life of the project" (DEIS at C.2-98). We note that because of insufficient information the opposite conclusion could also be drawn. The revised DEIS needs to analyze likely impacts to birds from the proposed project and mirror configuration based on the point counts. The failure to provide the baseline data from which to make any impact assessment violates NEPA. This failure to analyze impacts is not only a NEPA violation, but for migratory birds, may also lead to a violation of the Migratory Bird Treaty Act, 16 U.S.C. §§ 703 -711, because migratory birds may be "taken" if the proposed project is constructed. Bio-16 requires an Avian Protection Plan which is proposed to "provide the information needed to determine if operation of the Project posed a collision risk for birds, and would provide adaptive management measures to mitigate those impacts to less than significant levels" (DEIS at pg. C.2-98). However, the Avian Protection Plan is not available to provide an assessment of impacts to migratory birds. 3-58

While evaporation ponds noted as being part of the project in the DEIS (DEIS at pg. ES-11) we could not actually locate additional discussion of them in the DEIS. Open water of any kind in the desert is an attractant to wildlife, and this very important issue needs to be addressed in the supplemental DEIS particularly with regards to the number and size of the basins, 3-59 3-60

[8] McCrary 1986
[9] Ibid
[10] Klem 1990, Erickson et al. 2005

attraction to animals including birds (including ravens), and strategies to keep them from attracting animals. 3-60 cont.

Additionally Executive Order 13186 states "Each Federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations is directed to develop and implement, within 2 years, a Memorandum of Understanding (MOU) with the Fish and Wildlife Service (Service) that shall promote the conservation of migratory bird populations." [11] Furthermore the EO states that goals pursuant to the MOU include "3) prevent or abate the pollution or detrimental alteration of the Environment for the benefit of migratory birds, as practicable;" and "(6) ensure that environmental analyses of Federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern;". Clearly, the supplemental DEIR needs to adequately identify the migratory bird issues on site and evaluate the impact to those species in light of the guidance in Executive Order 13186. 3-61

Burrowing Owls

The DEIS notes that burrowing owl including mated pairs are located in the proposed project area (DEIS at C.2-86-87). Preliminary results from the 2006-7 statewide census identified that the Sonoran desert harbors few Western burrowing owls.[12] The DEIS fails to evaluate the potential impact of the proposed project on this regional distribution of owls. 3-62

While "passive relocation" does minimize immediate direct take of burrowing owls, ultimately the burrowing owls' available habitat is reduced, and "relocated" birds are forced to compete for resources with other resident burrowing owls and may move into less suitable habitat, ultimately resulting in "take". While Bio-18 requires a Burrowing Owl mitigation plan, that plan is not provided. Bio-18 also requires a Burrowing Owl Relocation and Translocation Plan which is also not provided. As with other species, the lack of these plans does not enable the evaluation of proposed mitigation. Additionally, the requirements of the plan do not explicitly include long-term monitoring of passively relocated birds in order to evaluate survivorship of passively relocated birds. 3-63

Golden Eagle

While no golden eagles were documented on the project site, as the DEIS notes "focused surveys for nest sites were not conducted, nor was an assessment made of use of the Project site by wintering golden eagles" (DEIS at pg. C.2-4). In addition, it appears that 2 golden eagle nests are located less than 10 miles away from the project site (DEIS Figure 10b – no page number). The DEIS fails to present exactly how to mitigate the loss of a substantial amount of foraging habitat for the golden eagle. The fact still remains that significant amounts of foraging habitat will decrease carrying capacity of the landscape and could result in a potential loss of habitat needed to support a nesting pair, which would impact reproductive capacity. 3-64

[11] http://ceq.hss.doe.gov/nepa/regs/eos/eo13186.html
[12] IBP 2008

Scientific literature on this subject is clear - the presence of humans detected by a raptor in its nesting or hunting habitat can be a significant habitat-altering disturbance even if the human is far from an active nest[13]. Regardless of distance, a straight-line view of disturbance affects raptors, and an effective approach to mitigate impacts of disturbance for golden eagles involves calculation of viewsheds using a three-dimensional GIS tool and development of buffers based on the modeling[14]. Golden eagles have also been documented to avoid industrialized areas that are developed in their territory.[15] Additionally, the DEIS does not actually clearly analyze the impacts to and mitigations for the golden eagle under the Bald Eagle and Golden Eagle Protection Act, which prohibits, except under certain specified conditions, the take, possession, and commerce of such birds.

3-64 cont.

6. Badger and Desert Kit Foxes

Badgers and desert kit foxes were identified to occur throughout the project area (DEIS C.2-4). Literature on the highly territorial badger indicates that badger home territories range from 340 to 1,230 hectares[16]. Therefore, the proposed project could displace *at least* one badger territory. While surveys prior to construction are clearly essential, even passive relocation of badgers into suitable habitat may result "take". Excluding badger from the site is likely to cause badgers to move into existing badger's territory. The same scenario of passive relocation for kit fox may also result in "take". Studies need to be provided on both on- and off-site badger and kit fox territories if animals are to be passively relocated in order to increase chances of persistence. At a minimum, the revised or supplemental DEIS should identify suitable habitat nearby if the project is relying on passive relocation as a mitigation strategy.

3-65

7. Cryptobiotic soil crusts and Desert Pavement

The proposed project is located in the Mojave Desert Air Quality Management District area, which is already in non-attainment for PM-10 particulate matter[17]. The construction of the proposed project further increases emissions of these types of particles because of the disruption and elimination of potentially thousands of acres of cryptobiotic soil crusts. Cryptobiotic soil crusts are an essential ecological component in arid lands. They are the "glue" that holds surface soil particles together precluding erosion, provide "safe sites" for seed germination, trap and slowly release soil moisture, and provide CO_2 uptake through photosynthesis[18].

3-66

The FEIS does not describe the on-site cryptobiotic soil crusts. The proposed project will disturb an unidentified portion of these soil crusts and cause them to lose their capacity to stabilize soils and trap soil moisture. The DEIS fails to provide a map of the soil crusts over the project site, and to present any avoidance or minimization measures. It is unclear how many acres of cryptobiotics soils will be affected by the project. The DEIS must identify the extent of

[13] Richardson and Miller 1997
[14] Camp et al. 1997; Richardson and Miller 1997
[15] Walker et al. 2005
[16] Long 1973, Goodrich and Buskirk 1998
[17] http://www.mdaqmd.ca.gov/index.aspx?page=214
[18] Belnap 2003, Belnap et al 2003, Belnap 2006, Belnap et al. 2007

the cryptobiotic soils on site and analyze the potential impacts to these diminutive, but essential desert ecosystem components as a result of this project. 3-66 cont.

While desert pavements are mentioned as occurring on the proposed project site (DEIS at C.2-16), quantitative acreage of pavement are not identified. The impact to air quality from disturbance of desert pavement is not analyzed. 3-67

8. Insects

The DEIS fails to address insects on the proposed project site. In fact no surveys or evaluation of rare or common insects are included in the DEIS. Dune habitats are notorious for supporting endemic insects, typically narrow habitat specialists[19]. 3-68

9. Decommissioning and Reclamation Plan

Desert lands are notoriously hard to revegetate or rehabilitate[20] and revegetation never supports the same diversity that originally occurred in the plant community prior to disturbance[21]. The task of revegetating almost eleven square miles will be a Herculean effort that will require significant financial resources. In order to assure that the ambitious goals of the revegetation effort is met post project closure, it will be necessary to bond the project, so that all revegetation obligations will be met and assured. The bond needs to be structured so that it is tied to meeting the specific revegetation criteria.

The project will cause permanent impacts to the on-site plant communities and habitat for wildlife despite "revegetation", because the agency's regulations based on the Northern and Eastern Colorado Plan's rehabilitation strategies[22] only requires 40% of the original density of the "dominant" perennials, only 30% of the original cover. Dominant perennials are further defined as "any combination of perennial plants that originally accounted cumulatively for at least 80 percent of relative density".[23] These requirements fail to truly "revegetate" the plant communities to their former diversity and cover even over the long term. While Bio-22 requires the development of a Decommissioning Plan, that plan is not available for public review. In fact the DEIS states that "Draft Conceptual Decommissioning Plan (AECOM 2010d) does not provide sufficient information to guide the decommissioning of the channel or restoration of the Project Disturbance Area, nor does it provide any information that could be used to develop an estimate of the funding needed for those activities (DEIS at pg. C.2-99). BLM's own regulations 43 CFR 3809.550 et seq. require a detailed reclamation plan and a cost estimate, they need to be included in the revised EIS. A comprehensive decommissioning plan must be developed not just for the proposed channels, but for the whole project site. This plan must be included in the revised or supplement DEIS in order to evaluate the effectiveness as mitigation. 3-69

10. Fire Plan

[19] Dunn 2005.
[20] Lovich and Bainbridge 1999
[21] Longcore 1997
[22] http://www.blm.gov/ca/st/en/fo/cdd/neco.html
[23] Ibid

Fire in desert ecosystems is well documented to cause catastrophic landscape scale changes[24] and impacts to the local species[25]. The DEIS mentions the impacts of fire via the proliferation of nonnative weeds (DEIS at C.2-17), it fails to analyze the impacts of fire on adjacent natural desert habitat. The DEIS fails to adequately analyze the impact that an escaped on-site-started fire could have on the natural lands adjacent to the project site if it escaped from the site. The DEIS also fails to address the mitigation of this potential impact. Instead it defers it to the Worker Environmental Awareness Program (WEAP) and only requires "a discussion of fire prevention measures to be implemented by workers during project activities" (DEIS at C.2-153). A fire prevention and protection plan needs to be developed and required to prevent the escape of fire onto the adjacent landscape (avoidance), lay out clear guidelines for protocols if the fire does spread to adjacent wildlands (minimization) and a revegetation plan if fire does occur on adjacent lands originating from the project site (mitigation) or caused by any activities associated with construction or operation of the site even if the fire originates off of the project site.

3-70

11. Failure to Identify Appropriate Mitigation

Because the DEIS fails to provide adequate identification and analysis of impacts, inevitably, it also fails to identify adequate mitigation measures for the project's environmental impacts. "Implicit in NEPA's demand that an agency prepare a detailed statement on 'any adverse environmental effects which cannot be avoided should the proposal be implemented,' 42 U.S.C. § 4332(C)(ii), is an understanding that an EIS will discuss the extent to which adverse effects can be avoided." *Methow Valley*, 490 U.S. at 351-52. Because the DEIS does not adequately assess the project's direct, indirect, and cumulative impacts, its analysis of mitigation measures for those impacts is necessarily flawed. The DEIS must discuss mitigation in sufficient detail to ensure that environmental consequences have been fairly evaluated." *Methow Valley*, 490 U.S. at 352; *see also Idaho Sporting Congress*, 137 F.3d at 1151 ("[w]ithout analytical detail to support the proposed mitigation measures, we are not persuaded that they amount to anything more than a 'mere listing' of good management practices"). As the Supreme Court clarified in *Robertson*, 490 U.S. at 352, the "requirement that an EIS contain a detailed discussion of possible mitigation measures flows both from the language of [NEPA] and, more expressly, from CEQ's implementing regulations" and the "omission of a reasonably complete discussion of possible mitigation measures would undermine the 'action forcing' function of NEPA."

3-71

Although NEPA does not require that the harms identified actually be mitigated, NEPA does require that an EIS discuss mitigation measures, with "sufficient detail to ensure that environmental consequences have been fairly evaluated" and the purpose of the mitigation discussion is to evaluate whether anticipated environmental impacts *can be avoided*. *Methow Valley*, 490 U.S. at 351-52. As the Ninth Circuit recently noted: "[a] mitigation discussion without at least *some* evaluation of effectiveness is useless in making that determination." *South Fork Band Council of Western Shoshone v. DOI* , 588 F.3d 718 , 727 (9th Cir. 2009) (emphasis

[24] Brown and Minnich 1986, Lovich and Bainbridge 1999, Brooks 2000, Brooks and Draper 2006, Brooks and Minnich 2007

[25] Dutcher 2009

in original).

Here, the DEIS does not provide a full analysis of possible mitigation measures to avoid or lessen the impacts of the proposed project and therefore the BLM cannot properly assess the likelihood that such measures would actually avoid the impacts of the proposed project. 3-71 cont.

D. Key Plans Not Included

The DEIS fails to include key plans for public review. Plans identified in the DEIS and relied upon for adequate mitigation but which are unavailable include:

- Weed Management Plan (DEIS at C.2-170)
- Biological Resources Mitigation Implementation and Monitoring Plan (DEIS at C.2-153)
- Raven Management and Monitoring Plan (DEIS at C.2-169)
- detailed revegetation plan for temporary disturbance (DEIS at C.2-158)
- Decommissioning and Reclamation Plan (for permanent closure) (DEIS at C.2-181)
- Burrowing Owl Mitigation and Monitoring Plan (DEIS at C.2-173)
- Burrowing Owl Relocation/Translocation Plan (DEIS at C.2-86)
- Avian Protection Plan (DEIS at C.2-171)
- Desert Tortoise Relocation/Translocation Plan (DEIS at C.2-162)
- Desert Tortoise Management Plan for Compensatory Mitigation Lands (DEIS at C.2-89)
- Special-status Plant Impact Avoidance and Mitigation Plan (DEIS at C.2-175)
- Management Plan for Sand Dune/Fringe-toed Lizard Compensation lands (DEIS at C.2-177)
- Ground Water Dependent Vegetation Monitoring Plan (DEIS at C.2-182)
- Compensatory Mitigation Plan for State Waters (DEIS at C.2-179)
- Desert Tortoise Compensatory Mitigation Plan (DEIS at C.2-89)

3-72

Plans that are not currently required but need to be included:

- Bat Protection Plan
- Plan for restoring sheet flow to the terrain downslope of the Project boundaries
- Management Plan for Sand Dune/Fringe-toed Lizard
- Fire Plan

All of these plans are key components to evaluating the avoidance, minimization and mitigation to biological resources by the proposed project. Their absence makes it impossible to evaluate the impacts from the proposed project. Each of these plans needs to be included in the supplemental EIS.

E. Impacts to Water Resources— Surface and Groundwater Water Impacts

As the DEIS notes, the proposed project will impact a large number of washes and ephemeral streams and is on an alluvial fan. These areas provide important habitat values that will be completely lost by the grading proposed for the project site. Moreover, the loss of natural surface water flows and the re-direction of surface waters will have significant impacts to the 3-73

dunes ecosystems. The impacts on soils and particularly on sand transport from the proposed project have not been adequately addressed in the DEIS. 3-73 cont.

The Center appreciates that the proposed Palen project would be dry-cooled with water use averaging 300 acre-feet/year. DEIS at C.9-4. While this proposed project would use significantly less water than proposed for other projects (particularly the proposed Genesis project which seeks to use an average of 1,644 acre-feet/yr), even with dry cooling, the amount of water use by the project will be significant in this arid area and the DIES does not contain sufficient information to show that surface resources on other public lands will not be affected by the drawdown of the water table *over the life of the project*. Moreover, the cumulative impacts to groundwater resources from this project and others in the area could be significant annually and over the life of the project. 3-74 3-75

Reserved Water Rights: As BLM is well aware, the California Desert Protection Act ("CDPA") expressly reserved water rights for wilderness areas that were created under the act including the Palen-McCoy Wilderness and others. 16 U.S.C. §410aaa-76.[26] The CDPA reserved sufficient water to fulfill the purposes of the Act which include to "preserve unrivaled scenic, geologic, and wildlife values associated with these unique natural landscapes," "perpetuate in their natural state significant and diverse ecosystems of the California desert," and "retain and enhance opportunities for scientific research in undisturbed ecosystems." 103 P.L. 433, Sec. 2. The priority date of such reserved water rights is 1994 when the CDPA was enacted. Therefore, at minimum, the BLM must ensure that use of water for the proposed project (and cumulative projects) *over the life of the proposed projects* will not impair those values in the wilderness that depend on water resources (including perennial, seasonal, and ephemeral creeks, springs and seeps as well as any riparian dependent plants and wildlife). 3-76

Although no *express* reservation of rights has been made for many of the other public lands in the CDCA, the DEIS should have addressed the federal reserved water rights afforded to the public to protect surface water sources on all public lands affected by the proposed project. Pursuant to Public Water Reserve 107 ("PWR 107"), established by Executive Order in 1926, government agencies cannot authorize activities that will impair the public use of federal reserved water rights.

PWR 107 creates a federal reserved water right in water flows that must be maintained to protect public water uses. *U.S. v. Idaho*, 959 P.2d 449,453 (Idaho, 1998) *cert. denied; Idaho v. U.S.* 526 U.S. 1012 (1999); *Cappaert v. U.S.*, 426 U.S. 128, 145 (1976). PWR 107 applies to reserve water that supports riparian areas, reserve water that provides flow to adjacent creeks and isolated springs that are "nontributary" or which form the headwaters of streams. *U.S. v. City & County of Denver*, 656 P.2d 1, 32 (Colo., 1982). Accordingly, BLM cannot authorize activities that will impair the public use of reserved waters covered by PWR 107. 3-77

[26] The reservation excluded two wilderness areas with regard to Colorado River water. See 103 P.L. 433; 108 Stat. 4471; 1994 Enacted S. 21; 103 Enacted S. 21, SEC. 204. COLORADO RIVER. ("With respect to the Havasu and Imperial wilderness areas designated by subsection 201(a) of this title, no rights to water of the Colorado River are reserved, either expressly, impliedly, or otherwise.")

BLM must examine the federal reserved water rights within the area affected by the proposed project and other proposed projects in this area that will use significant amounts of groundwater. This examination must include a survey of the any water sources potentially affected by the proposed project. The BLM must ensure that any springs, seeps, creeks or other water sources on public land and particularly within the wilderness areas are not degraded by the proposed projects' use of water and continue meet the needs of the existing wildlife and native vegetation that depend on those water resources. 3-77 cont.

PWR 107 also protects the public lands on which protected water sources exist. Accordingly, BLM should not only consider the impact of projects on water sources present on public lands, but also the direct and indirect impacts of the proposed project on the surrounding lands as well as impacts to the ecosystem as a whole. 3-78

The Center is also concerned that the discussion in the DEIS is also incomplete because it fails to address any potential water rights that could arguably be created from use of groundwater by the proposed project on these public lands. While the Center recognizes that this issue may involve somewhat complex legal issues, at minimum, the BLM must address this question and to ensure that any water rights that could *arguably* be created will be conveyed back to the BLM owner and run with the land at the end of the proposed project ROW term. The BLM must provide a mechanism to insure that in no case will the use of water for the proposed project on these public lands result in water rights accruing to the project applicant that it could arguably convey to any third party. Therefore, any water rights *arguably* created by groundwater pumping on these public lands for the proposed project must not ultimately accrue to any third party for use *off-site or on-site* in the future for any other project. Moreover, BLM should ensure that the applicant will not use the groundwater associated with the project off-site for any purpose. 3-79

The DEIS states (at pg. ES-16) that based on the information provided in the soils and water analysis it is undetermined if the project proposal and mitigations complies with all of the LORS –based primarily on the lack of a jurisdictional determination from the Army Corps of Engineers. However, the DEIS then assumes impacts can be mitigated. 3-80

F. The DEIS Fails to Adequately Identify, Analyze and Off-set Impacts to Air Quality and GHG Emissions.

Federal courts have squarely held that NEPA requires federal agencies to analyze climate change impacts. *Center for Biological Diversity v. National Highway Traffic Safety Administration*, 508 F.3d 508 (9th Cir. 2007). As most relevant here, NEPA requires consideration of greenhouse gas emissions ("GHG emissions") associated with all projects and, in order to fulfill this requirement the agencies should look at all aspects of the project which may create greenhouse gas emissions including operations, construction, and life-cycle emissions from materials. Where a proposed project will have significant GHG emissions, the agency should identify alternatives and/or mitigation measures that will lessen such effects. 3-81

As part of the NEPA analysis federal agencies must assess and, wherever possible, quantify or estimate GHG emissions by type and source by analyzing the direct operational

impacts of proposed actions. Assessment of direct emissions of GHG from on-site combustion sources is relatively straightforward. For many projects, as with the proposed project, energy consumption will be the major source of GHGs. The indirect effects of a project may be more far-reaching and will require careful analysis. Within this category, for example, the BLM should evaluate, GHG and GHG-precursor emissions associated with construction, electricity use, fossil fuel use, water consumption, waste disposal, transportation, the manufacture of building materials (lifecycle analysis), and land conversion. Moreover, because many project may undermine or destroy the value of carbon sinks, including desert soils, projects may have additional indirect effects from reduction in carbon sequestration, therefore both the direct and quantifiable GHG emissions as well as the GHG effects of destruction of carbon sinks should be analyzed.

The discussion of greenhouse gas emissions ("GHG") in the DEIS notes that the solar project will produce GHGs primarily from the gas boilers and Heat Transfer Fluid ("HTF") heaters. The GHG emissions from the boilers during project operations is estimated to be 7,408 metric tons CO2 equivalent (however the emissions from the HTF heaters are not listed), with the metric tons CO2 equivalent annually for total operations emissions (including all sources) of 10,124 metric tons CO2 equivalent annually. DEIS at C.1-68 (Greenhouse gas table 3). The boilers and heaters are stated to be for start up or freeze control (DEIS at C.1-69), but the DEIS assumes that they may be allowed to be used for very long periods of time – up to 12 hours per day for the boilers up to 5,100 hours per year (no clear limits on the HTF heaters is provided) . *See* DEIS at C.1-25. No explanation is provided for these long hours of supplemental natural gas use for this solar power plant and no additional limits are discussed or analyzed in violation of NEPA. The DEIS also fails to adequately explore whether an alternative solar technology (such as PV) would reduce greenhouse gas emissions both during operations and over the life-cycle of the components of the proposed project. There is no discussion of reducing these sources by using alternative fuels or highly efficient vehicles and equipment and no discussion of providing off sets for these GHG emissions.

3-81 cont.

Another GHG emission source for this proposed project is SF6 from electrical equipment leakage. DEIS at C.1-68. However, the DEIS does not mention additional sources of SF6 from transmission lines associated with the project. Moreover, leakage of SF6 is of particular concern as it is many times more potent greenhouse gas than CO2—indeed, its potential as a GHG has been estimated at 23,900 times that of CO2 (for a 100 year time horizon) and it can persist in the atmosphere far longer than CO2 as well—up to 3,200 years.[27] The DEIS fails to state the actual amount of SF6 that is estimated to leak from equipment and provides only that 12 MTCO2E is expected in emissions each year. No information is provided on the calculation. Moreover, the DEIS does not analyze any alternatives to avoid or minimize the long-term emissions of this powerful GHG from operations and no mitigation measures are provided.

[27] P. Forster et al., *Changes in Atmospheric Constituents and in Radiative Forcing, in* CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS. CONTRIBUTION OF WORKING GROUP I TO THE FOURTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (Solomon, S., et al. eds., Cambridge University Press 2007) at p. 212, Table 2.14.

The GHG emissions from the construction phase of the project are stated to be over 101,000 metric tons CO2 equivalent (Greenhouse gas table 2, DEIS C.1-68). Again, there is no discussion of reducing these emissions by using more efficient equipment or vehicles. 3-82

The DEIS also fails to adequately address other air quality issues including PM10 both during construction and operation which is of particular concern in this area which is a nonattainment area for PM10 and ozone. It is clear that extensive on-site grading will result in significant amounts of bare soils and increased PM10 may be introduced into the air by wind and that the use of the area during construction and operations will lead to additional PM10 emissions from the site. Although some mitigation measures are suggested they are not specific and enforceable and because the extent of the impact has not been adequately addressed as an initial matter there is no way to show that the mitigation measures proffered will reduce the impacts to less than significance. 3-83

BLM fails to identify any significant GHG emissions and therefore does not provide for avoidance, minimization, or mitigation. BLM has also failed to include the loss of carbon sequestration from soils in its calculations or to provide a lifecycle analysis of GHG emissions that include manufacturing and disposal. Moreover, it is undisputed that in the near-term GHG emissions will increase emissions during construction, and in the manufacturing and transportation of the components. BLM fails to consider any alternatives to the project that would minimize such emissions or to require that these near-term emissions be off set in any way. 3-84

Although the proposed project may reduce GHG's overall it will also emit GHGs during both construction and operations that are not accounted for or off-set, BLM completely fails to explore this aspect of the impacts of the project in the DEIS in violation of NEPA. 3-85

G. The Analysis of Cumulative Impacts in the DEIS Is Inadequate

A cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7. The Ninth Circuit requires federal agencies to "catalogue" and provide useful analysis of past, present, and future projects. *City of Carmel-By-The-Sea v. U.S. Dept. of Transp.*, 123 F.3d 1142, 1160 (9th Cir. 1997); *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 809-810 (9th Cir. 1999).

"In determining whether a proposed action will significantly impact the human environment, the agency must consider '[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment.' 40 C.F.R. § 1508.27(b)(7)." *Oregon Natural Resources Council v. BLM,* 470 F.3d 818, 822-823 (9th Cir. 2006). NEPA requires that cumulative impacts analysis provide "some quantified or detailed information," because "[w]ithout such information, neither courts nor the public . . . can be assured that the Forest Service provided the hard look that it is required to provide." *Neighbors*

of Cuddy Mountain v. United States Forest Service, 137 F.3d 1372, 1379 (9th Cir. 1988); *see also id.* ("very general" cumulative impacts information was not hard look required by NEPA). The discussion of future foreseeable actions requires more than a list of the number of acres affected, which is a necessary but not sufficient component of a NEPA analysis; the agency must also consider the actual environmental effects that can be expected from the projects on those acres. *See Klamath-Siskiyou Wildlands Ctr. v. BLM*, 387 F.3d 989, 995-96 (9th Cir. 2004) (finding that the environmental review documents "do not sufficiently identify or discuss the incremental impact that can be expected from each [project], or how those individual impacts might combine or synergistically interact with each other to affect the [] environment. As a result, they do not satisfy the requirements of the NEPA.") Finally, cumulative analysis must be done as early in the environmental review process as possible, it is not appropriate to "defer consideration of cumulative impacts to a future date. 'NEPA requires consideration of the potential impacts of an action *before* the action takes place.'" *Neighbors*, 137 F.3d at 1380 *quoting City of Tenakee Springs v. Clough*, 915 F.2d 1308, 1313 (9th Cir. 1990) (emphasis in original).

The DEIS identifies many of the cumulative projects but does not meaningfully analyze the cumulative impacts to resources in the California desert from the many proposed projects (including renewable energy projects and others). Moreover, because the initial identification and analysis of impacts unfinished, the cumulative impacts analysis cannot be complete. For example, the identification of plant communities on site is unfinished and incomplete as is the evaluation of the impacts of the gen-tie line and the Red Bluff substation, the cumulative impacts are also therefore inadequate. 3-86

The DEIS also fails to consider all reasonably foreseeable impacts in the context of the cumulative impacts analysis. *See Native Ecosystems Council v. Dombek, et al,* 304 F.3d 886 (9th Cir. 2002) (finding future timber sales and related forest road restriction amendments were "reasonably foreseeable cumulative impacts"). The DEIS also fails to provide the needed analysis of how the impacts might combine or synergistically interact to affect the environment in this valley or region. *See Klamath-Siskiyou Wildlands Ctr. v. BLM*, 387 F.3d 989, 995-96 (9th Cir. 2004). 3-87

The NEPA regulations also require that indirect effects including changes to land use patterns and induced growth be analyzed. "Indirect effects," include those that "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include *growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems*." 40 C.F.R. s.1508.8(b) (emphasis added). *See TOMAC v. Norton*, 240 F. Supp.2d 45, 50-52 (D.D.C. 2003) (finding NEPA review lacking where the agency failed to address secondary growth as it pertained to impacts to groundwater, prime farmland, floodplains and stormwater run-off, wetlands and wildlife and vegetation); *Friends of the Earth v. United States Army Corps of Eng'rs*, 109 F. Supp.2d 30, 43 (D.D.C. 2000) (finding NEPA required analysis of inevitable secondary development that would result from casinos, and the agency failed to adequately consider the cumulative impact of casino construction in the area); *see also Mullin v. Skinner*, 756 F. Supp. 904, 925 (E.D.N.C. 1990) (Agency enjoined from proceeding with bridge project which induced growth in island community until it prepared an adequate EIS identifying and discussing in detail

the direct, indirect, and cumulative impacts of and alternatives to the proposed Project); *City of Davis v. Coleman*, 521 F.2d 661 (9th Cir. 1975) (requiring agency to prepare an EIS on effects of proposed freeway interchange on a major interstate highway in an agricultural area and to include a full analysis of both the environmental effects of the exchange itself and of the development potential that it would create).

Among the cumulative impacts to resources that have not been fully analyzed are impacts to desert tortoise, impacts to Mojave fringe-toed lizard and sand dunes ecosystems, impacts to golden eagles, and impacts to water resources. The cumulative impacts to the resources of the California deserts has not been fully identified or analyzed, and mitigation measures have not been fully analyzed as well. 3-88

H. The EIS' Alternatives Analysis is Inadequate

NEPA requires that an EIS contain a discussion of the "alternatives to the proposed action." 42 U.S.C. §§ 4332(C)(iii),(E). The discussion of alternatives is at "the heart" of the NEPA process, and is intended to provide a "clear basis for choice among options by the decisionmaker and the public." 40 C.F.R. §1502.14; *Idaho Sporting Congress*, 222 F.3d at 567 (compliance with NEPA's procedures "is not an end in itself . . . [but] it is through NEPA's action forcing procedures that the sweeping policy goals announced in § 101 of NEPA are realized.") (internal citations omitted). NEPA's regulations and Ninth Circuit case law require the agency to "rigorously explore" and objectively evaluate "all reasonable alternatives." 40 C.F.R. § 1502.14(a) (emphasis added); *Envtl. Prot. Info. Ctr. v. U.S. Forest Serv.*, 234 Fed. Appx. 440, 442 (9th Cir. 2007). "The purpose of NEPA's alternatives requirement is to ensure agencies do not undertake projects "without intense consideration of other more ecologically sound courses of action, including shelving the entire project, or of accomplishing the same result by entirely different means." *Envtl. Defense Fund, Inc. v. U.S. Army Corps of Engrs.*, 492 F.2d 1123, 1135 (5th Cir. 1974). An agency will be found in compliance with NEPA only when "all reasonable alternatives have been considered and an appropriate explanation is provided as to why an alternative was eliminated." *Native Ecosystems Council v. U.S. Forest Serv.,* 428 F.3d 1233, 1246 (9th Cir. 2005); *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228-1229 (9th Cir. 1988). The courts, in the Ninth Circuit as elsewhere, have consistently held that an agency's failure to consider a reasonable alternative is fatal to an agency's NEPA analysis. *See, e.g., Idaho Conserv. League v. Mumma*, 956 F.2d 1508, 1519-20 (9th Cir. 1992) ("The existence of a viable, but unexamined alternative renders an environmental impact statement inadequate."). 3-89

If BLM rejects an alternative from consideration, it must explain why a particular option is not feasible and was therefore eliminated from further consideration. 40 C.F.R. § 1502.14(a). The courts will scrutinize this explanation to ensure that the reasons given are adequately supported by the record. *See Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 813-15 (9th Cir. 1999); *Idaho Conserv. League*, 956 F.2d at 1522 (while agencies can use criteria to determine which options to fully evaluate, those criteria are subject to judicial review); *Citizens for a Better Henderson*, 768 F.2d at 1057.

Here, BLM too narrowly construed the project purpose and need such that the DEIS did not consider an adequate range of alternatives to the proposed project.

The alternatives analysis is inadequate even with the inclusion of the alternative site configuration and a reduced acreage alternative. Additional feasible alternatives should be considered which would avoid all of the dunes habitat as well as alternatives that would have looked at alternative sites for the Red Bluff substation to avoid impacts to additional resources. 3-90

In addition a phased alternative should have been included which would allow the portions of the project that have the fewest impacts to move forward while also affording the project proponent time to find and acquire permits for more appropriate sites for one or more additional phases of the project reconfigured on other BLM lands or on previously degraded disturbed lands in this area (for example such as the lands discussed in the North of Desert Center alternative) and also to explore other off-site alternatives. 3-91

The document also includes other alternatives that were stated as being "Site Alternatives Evaluated only under CEQA" which includes the proposed site and one off-site alternative – the North of Desert Center alternative. 3-92 The document eliminated from consideration a distributed renewable energy alternative. The BLM (as well as the CEC) should have also looked alternative siting on previously degraded lands such as nearby farmlands, distributed solar alternatives, and other alternatives that could avoid impacts of the proposed project as well as impacts of the associated transmission lines and substations. 3-93 In addition, as discussed above, the BLM should have looked at alternatives for construction and operations that would reduce GHG emissions by using alternative technology and/or on site conservation measures and offsets. 3-94

The BLM failed to consider any off-site alternative that would significantly reduce the impacts to biological resources including dunes ecosystems, desert tortoise habitat and key movement corridors, golden eagles, and others. Because such alternatives are feasible, on this basis and other the range of alternatives is inadequate. The Center urges the BLM to revise the DEIS to adequately address a range of feasible alternatives and other issues detailed above and then to re-circulate a revised or supplemental DEIS for public comment. 3-95

In addition, in order to meet the DOE's purpose and need states that: "The two principal goals of the loan guarantee program are to encourage commercial use in the United States of new or significantly improved energy-related technologies and to achieve substantial environmental benefits. The purpose and need for action by DOE is to comply with their mandate under EPAct by selecting eligible projects that meet the goals of the Act." DEIS at B.2-12. Assuming for the sake of argument alone that these are proper project objectives, the DEIS should have considered alternatives that would provide funding to other types of projects. Such alternatives could include, for example, conservation and efficiency measures that both avoid and reduce energy use within high-energy use load-centers including the Los Angeles area and the Inland Empire. 3-96

Alternative measures could include funding community projects for training and implementation of conservation measures such as increased insulation, sealing and caulking, and new windows for older buildings and new or improved technologies for accomplishing these important goals. For example, air conditioning creates the largest demand for energy during peak times and there already exist methods to reduce the energy use from air conditioning but implementation has lagged well behind technology. Conservation and efficiency measures are an excellent and quick way of reducing demand in both the short- and long-term and reduce the

need for additional power sources. In addition, many of the existing conservation and efficiency measures can provide immediate jobs and training in high population areas with significant unemployment (particularly among low skilled workers and youth). 3-96 cont.

The existence of these and other feasible but unexplored alternatives shows that the BLM's analysis of alternatives in the DEIS is inadequate. 3-97

IV. Conclusion

Thank you for your consideration of these comments. In light of the many omissions in the environmental review to date, we urge the BLM to revise and re-circulate the DEIS or prepare a supplemental DEIS before making any decision regarding the proposed plan amendment and right-of-way application. In the event BLM chooses not to revise the DEIS and provide adequate analysis, the BLM should reject the right-of-way application and the plan amendment. Please feel free to contact us if you have any questions about these comments or the documents provided. 3-98

Sincerely,

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Comment Letter 4

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Subject Palen Solar comments, Sierra Club

Attached please find Sierra Club comments on the above referenced project.

Comments re Palen Solar Power Project.pdf

Comment Letter 4

July 1, 2010

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BY EMAIL, FAX AND US MAIL

RE: Sierra Club comments on the proposed Palen Solar Power Project Staff Assessment and Draft Environmental Impact Statement

On behalf of the Sierra Club, we are writing to provide you with comments on the Staff Assessment and Draft Environmental Impact Statement (SA/DEIS) for the Palen Solar Power Project (08-AFC-13). The United States Department of the Interior, Bureau of Land Management's (BLM) SA/DEIS is a joint document prepared with the California Energy Commission ("Commission") in order to meet the requirements of the National Environmental Policy Act ("NEPA") and California Environmental Quality Act ("CEQA").

1

The Sierra Club is the oldest conservation organization in the United States, with over 600,000 members nationwide, and 151,000 members in California alone. Sierra Club is steadfastly committed to preserving the legacy of California's wildlands for future generations, while simultaneously recognizing that climate change has the potential to make radical changes in our habitats and landscapes. Sierra Club is working aggressively to reduce carbon emissions by supporting large scale renewable projects and by quickly ramping up energy efficiency and rooftop solar.

In order to help meet California's and the nation's renewable energy goals, the Sierra Club supports appropriately sited large-scale renewable development, i.e, projects that avoid or greatly minimize environmental impacts to wildlife and plants and the ecosystems they depend upon. For example, there are hundreds of thousands of acres of privately held agricultural lands in California that have marginal productivity or no longer support farming. These lands, with relatively high solarity and poor habitat values, present many opportunities to help meet our goals for large scale solar. The Sierra Club encourages companies and agencies to prioritize these types of lands going forward. 4-01

I. Introduction

The applicant Solar Millenium proposes to develop an electric-generating facility with a nominal capacity of 500 megawatts (MW) using a concentrated solar "trough" generating system. The Palen project is proposed to be located in the eastern portion of Riverside County, California, north of Interstate 10 near Desert Center. The site is approximately 80 miles east of Palm Springs and 34 miles west of Blythe. Except for one 40 acre private parcel which has been incorporated, the proposed project is comprised entirely of BLM managed lands. Construction and operation of the project would directly disturb 3,899 acres (6 square miles) and indirectly disturb an undetermined number of acres off-site.

The project also includes an electrical transmission line, wells, propane supply tanks, a bioremediation site, and a site access road. The project would consume approximately 1500 acre feet of water during construction and 300 acre feet of local groundwater per year thereafter for operations, washing mirrors, etc. Propane stored in two 18,000 tanks would be used to heat project operating fluid at night and bring it up to operating temperature in the morning in an auxiliary boiler. The project would be connected to the proposed new SCE Red Bluff Substation via 10 miles of a new gen-tie line, and its power would be transmitted to load centers via either the existing Devers to Palo Verde line or the new Devers to Palo Verde 2 line, which the Sierra Club supports. The project would have a several acre bioremediation site to deal with small amounts of leaking hazardous fluids; larger amounts would have to be removed and treated offsite. The actual electrical capacity factor would be a small fraction of the nameplate 500 MW. The project will

be "dry cooled" but will have some wet cooling of components during summer. There is no proposal at this site to "store" thermal energy for use after sundown.

The Palen project is proposed in a portion of the Colorado Desert of California that is an intact, functioning ecosystem.[1] The immediate project area, however, is already subject to edge effects because of adjacent existing rural development on one side and Interstate 10 on another. But the Project site is also located in the main Aeolian sand transport corridor, supplying sand dunes that are onsite and down-wind from the project. If built as proposed, the project would not only destroy onsite sand dunes but would also sever this critical sand transport system, causing severe impacts to the downwind dune ecosystem. It also has potential to sever an important tortoise corridor connection between the Chuckwalla Desert Wildlife Management Area (DWMA) and the Palen Valley and Wilderness. These and other significant impacts of the project remain to be adequately addressed. 4-02

II BLM & the Commission's Responsibilities under NEPA & CEQA

The National Environmental Policy Act ("NEPA") is our "basic national charter for the protection of the environment." 40 C.F.R. § 1500.1. Congress enacted NEPA "[t]o declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; [and] to enrich the understanding of the ecological systems and natural resources important to the Nation." 42 U.S.C. § 4321. To accomplish these purposes, NEPA requires all agencies of the federal government to prepare a "detailed statement" that discusses the environmental impacts of, and reasonable alternatives to, all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(2)(C). This statement is commonly known as an environmental impact statement ("EIS"). See 40 C.F.R. Part 1502.

The EIS must "provide full and fair discussion of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." 40 C.F.R. § 1502.1. This discussion must include an analysis of "direct effects," which are "caused by the action and occur at the same time and place," as well as "indirect effects which . . . are later in time or farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. § 1508.8. An EIS must also consider the cumulative impacts of the proposed federal agency action together with past, present and reasonably foreseeable future actions, including all federal and non-federal activities. 40 C.F.R. § 1508.7. Furthermore, an EIS must

[1] Sierra Club scoping comments on Palen Solar Power Project, December 2009

"rigorously explore and objectively evaluate all reasonable alternatives" to the proposed project. 40 C.F.R. § 1502.14(a).

The regulations implementing NEPA identify several factors that, when present, indicate that the environmental effects of a proposed action are significant. These include the presence of highly uncertain impacts, impacts to species listed as threatened under the Endangered Species Act, and cumulatively significant impacts. 40 C.F.R. §§ 1508.27(b)(5), (b)(7), (b)(9). This project contains federally listed sensitive species, California special status species, flood hazards, and will have a cumulatively significant impact on the desert environment.

The California Energy Commission, as the lead agency under CEQA, is responsible for preparing a document to inform the public and decision makers as to the project's environmental impacts. Pub. Res. Code § 25519(c), 21080.5. CEQA is designed to fulfill two important goals in the protection of the environment. EIR's (or their functional equivalent) must inform the public and decision makers about all potential, significant environmental effects of a project. Pub. Res. Code § 21100(b)(1). It is necessary to highlight the potential environmental effects "with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences." 14 Cal. Code Reg. § 15151. An agency must diligently examine these effects and "must use its best efforts to find out and disclose all that it reasonably can." Id. § 15144.

This SA/DEIS is legally and technically flawed under both NEPA and CEQA. As drafted, it is inadequate as an informational document because essential information was omitted, or is not available to the public or key agencies. The SA/DEIS also fails under substantive provisions of California law requiring the full mitigation of impacts to threatened species. This project will have serious negative impacts to at least two sensitive desert species: threatened Desert Tortoise and Mojave Fringe-Toed Lizard. As such the SA/DEIS should have contained all feasible mitigation measures and reasonable alternatives available. Accordingly, the BLM and the Commission must conclude that the Calico Project will cause significant and irreparable environmental harm and reject the Project. Alternatively, we request that BLM and the Commission fully and completely address the following deficiencies and concerns surrounding the SA/DEIS. 4-03

III. The SA/DEIS is Inadequate Because it Lacks Critical Data For Issues that Will Impact the Environment and Defers Information Gathering and Analysis

A major flaw with the SA/DEIS is the omission of relevant critical data in several important respects. Boiled down, the SA/DEIS omitted disclosure of the full-range of potentially significant impacts associated with the Project. Although the 4-04

SA/DEIS acknowledged these data gaps, it provided no legal reason under NEPA or CEQA as to why these gaps were permitted.

This is inadequate under both NEPA & CEQA. Under NEPA's implementing regulations: "If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement." 40 C.F.R. § 1502.22. The agency did not claim that this information was cost prohibitive to obtain, and the information that is omitted from the SA/DEIS is certainly "essential to a reasoned choice." 40 C.F.R. § 1502.22(a).

NEPA's implementing regulations make it clear that "NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." 40 C.F.R. 1501.1 (emphasis added). CEQA contains similar requirements; public participation is at the heart of CEQA, therefore the public must be able to review and comment on technically accurate and complete EIR's. CEQA requires agencies to inform the public and responsible officials of the environmental consequences of their decisions before they are made, thereby protecting the environment and informed self-government. (Berkeley Keep Jets Over the Bay Com. v. Board of Port Comrs. (2001) 91 Cal.App.4th 1344, 1354.)

4-04 cont.

The following are a sample of the acknowledged areas where there is missing data in the SA/DEIS.

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- Biological Resources Mitigation and Monitoring Plan, Revegetation Plan, Decommissioning Plan, Drainage Erosion and Sedimentation Control Plan, Groundwater Level Monitoring and Reporting Plan, Programmatic Agreement for Cultural Resources, and other essential Project elements have not been developed due to critical data that is lacking.
- Waste Discharge Requirements have not been developed. SA/DEIS C.9-97
- Spring and fall surveys for special status plant species within the disturbance areas are planned but not yet performed or available. SA/DEIS C.2-3
- Information related to translocation of the tortoise, specifically location of the proposed site for relocating tortoise and verification of disease testing requirements is missing or located in an appendix not accessible by the public, and as such that program can not be assessed. SA/DEIS C.2-161-2

These and other omissions and data gaps violate both NEPA and CEQA. The role of a SA/DEIS under NEPA is to provide the public with enough information to adequately assess the environmental dangers of a particular project. Indeed, if reasonably complete information is not included, "neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." Robertson v. Methow Valley Citizens Council, U.S. 332, 352 (1989). Under CEQA, courts have made clear that environmental assessments must provide sufficient information to allow both decision-makers and the public to understand the consequences of the project. Napa Citizens for Honest Gov't v. Napa County Board of Supervisors, (2001) Cal.App.4th 342, 356. The information presented in an EIS must be of high quality. 40 C.F.R. § 1500.1(b). "Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." Id. "Agencies shall insure the professional integrity, including scientific integrity, of the decisions and analysis in environmental impact statements." 40 C.F.R. § 1502.24. "They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement." Id. The amount of missing, incomplete, or incorrect data requires the BLM and the Commission to deny the Applicant's proposal, or at the very least, complete gathering all of the necessary information for public review and comment. 4-04 cont.

IV. The Analysis of Impacts to Sensitive Animals, Plants, and Other Biological Resources is Inadequate Under NEPA and CEQA

a. The SA/DEIS Inadequately Analyzed Impacts to Sensitive Reptiles

1. Desert Tortoise

The Mojave population of the desert tortoise (Gopherus agassizii) was listed as a federally threatened species in 1990. 55 FR 12,178. In California, state laws have been in place since 1939 to protect the desert tortoise. The species was listed as threatened under the California Endangered Species Act in 1989 and is considered a "Species at Risk" under California's Wildlife Action Plan. According to the final federal listing, construction projects and energy development have significantly contributed to the destruction of native habitat. Id. Under NEPA, the BLM's SA/DEIS was required to fully disclose all project-related adverse environmental effects which cannot be avoided. 42 U.S.C.S. § 4332(2)(C). The SA/DEIS did not adequately address the Project's impacts on desert tortoise. 4-05

The Project site lies within a broad alluvial plain which drains the Palen Mountains to the north. SA/DEIS C.2-1. It contains 210 acres of designated critical habitat for desert tortoise, which will be mitigated at a ratio of 5:1, and 3,899 acres of suitable habitat proposed to be mitigated at a ratio of 1:1; this mitigation, 4-06

however does not account for indirect impacts to tortoise of predation, road kill, harassment, etc. SA/DEIS c.2-62

4-06 cont.

The desert tortoise in and around the Project site are part of the Eastern Colorado Recovery Unit, which is primarily found in desert washes and creosote bush dominated valleys. SA/DEIS C.2-14. Desert tortoise recovery plans emphasize that activities occurring outside the boundaries of existing tortoise conservation areas can negatively affect tortoise populations. See U.S. Fish and Wildlife Service, Draft revised recovery plan for the Mojave population of the desert tortoise (Gopherus agassizii) at 33 (2008). Both the 1994 and draft 2008 Recovery Plans recommend that land managers focus recovery efforts toward tortoise conservation areas; however, the Plans also emphasize that land managers should try to limit the loss of habitat outside conservation areas as much as possible. Id. The SA/DEIS acknowledges that the proposed project will "result in the direct and permanent loss of all occupied tortoise habitat onsite. SA/DEIS C.2-67.

4-07

Protocol surveys for desert tortoise were performed in 2009, and relatively low numbers of tortoise were found on the project site. SA/DEIS C.2-35. However, as proposed the Project is located in the Tortoise Connectivity DWMA identified in the Northern and Eastern Colorado Desert Management (NECO) Plan, and will block the north-south movement corridor of the desert tortoise from the Chuckwalla DWMA to the Palen Valley and Palen-McCoy Wilderness. SA/DEIS C.2-4. Little information is provided discussing the effects this permanent limitation will have on the overall health of the species or on their genetic diversity. This is a significant burden for the desert tortoise, and as such, the habitat fragmentation of the project should be considered too high to approve. The Reduced Project Alternative may resolve this issue for desert tortoise, but fails to adequately do so for Mojave fringe-toed lizard, see below.

Additionally for desert tortoise, the SA/DEIS fails to adequately identify the dangers that disease poses to trans-located tortoises. Relocating tortoise without disease testing could imperil the health of both the animals to be moved and the resident populations into which tortoises will be released. Based on the reports of Berry, et al. (2008), Mack, et al. (2008) and Mack and Berry (2009) that disease is not uniformly distributed across geographical areas, it is reasonable to assume that there will be pockets of diseased animals and pockets of healthy animals within the 5 kilometer range of the project site. Not fully testing animals that are to be "relocated" could result in the introduction of diseases into otherwise healthy populations. Also, as noted by the CDFG, "moving tortoises up to 5 km distance without disease testing presents risks to other populations." SA/DEIS C.2-57. Not testing the host populations within the 5 kilometer range could result in the introduction of healthy tortoises from the project site into a population that is diseased. Therefore, any translocation should follow the Desert Tortoise Council Guidelines for Handling Desert Tortoise During Construction. Additionally, any tortoises that are moved more than 1000' should be fully tested for disease and the host population should be tested to the same extent as well.

4-08

2. Mojave Fringe-toed Lizard

The Mojave fringe-toed lizard (MFTL) is a BLM sensitive species that is found in sandy, hot, sparsely vegetated habitats. SA/DEIS C.2-28. It is restricted to habitats with fine, loose sand. Id. Because it is restricted to these sandy locations, and because of increasing development pressures, its habitat has become highly fragmented. Id. The habitat fragmentation has in turn left the species vulnerable to local extirpations. It is important to protect the fragile sandy ecosystem upon which the Mojave fringe-toed lizard is dependent. Id. 4-09

The SA/DEIS acknowledges that of the 3,899 acre project footprint, nearly half the acreage is suitable habitat for the Mojave fringe-toed lizard. SA/DEIS C.2-36, and that direct, indirect and cumulative impacts of the Project to this sensitive species will be significant and unmitigable. SA/DEIS C.2-1 and 4. However, although the SA/DEIS recognizes the fact that this population of MFTL is at the southernmost extreme of the species' range, it only identifies impacts to the local population and the species in general (SA/DEIS C.2-4) but fails to fully consider the importance of this population to genetic diversity and climate adaptation of the species.[2] With the hotter and drier conditions expected with climate change,[3] the southernmost, lower elevation populations of MFTL are likely better adapted to extremes of heat and aridity than those in the higher, cooler areas of the Mojave desert.[4] Thus it is essential to conserve the populations at the southern extreme of the species for genetic diversity, species fitness[5] and ability of the species to adapt to climate change stressors. 4-10

In analyzing the Reduced Project Alternative, the SA/DEIS asserts that this alternative would avoid significant unmitigated impacts to MFTL. SA/DEIS C.2-2 and 5. However, this alternative still intrudes on an identified active shallow sand dune area ("Zone III") which is identified MFTL habitat SA/DEIS Biological Resources Figure A and MFTL Observations Figure 5.3-9 from scoping package. The SA/DEIS has an affirmative obligation to avoid impacting this zone, not only because of onsite loss of habitat but also because of offsite impacts to sand flow and resultant species-level impacts to MFTL. The project should be realigned and reconfigured closer to the Interstate, and also there are BLM lands to the west of the Project that could be utilized to configure an acceptable Alternative. 4-11

Additionally, the SA/DEIS has analyzed the potential for the various configurations of the Project and their fences to serve as perches for birds of prey, 4-12

[2] Issue identified by Alan Muth at CEC/BLM Palm Springs workshop for Palen project.
[3] California Resources Agency *California Climate Change Adaptation Strategy Discussion Draft* 2009 p 4, Figures 5&6
[4] Personal communication, Cameron Barrows to Joan Taylor
[5] Booy et al, *Genetic Diversity and the Survival of Populations*, 2000

increasing the impact to desert tortoise, but it has failed to do so for MFTL (and other vulnerable species) outside the Project foot print. 4-12 cont.

The SA/DEIS must be revised and pertinent information and analysis on the above, including a feasible alternative to avoid impacts to MFTL and sand transport must be provided to the public. 4-13

b. The SA/DEIS does not Adequately Address the Impacts to Sensitive Mammals

2. Desert Kit Fox and American Badger

The desert kit fox and American Badger are found on the project site. SA/DEIS C.2-5. Although the Applicant has not performed focused surveys for these species for the kit fox, there is suitable habitat on site, and several individuals as well as many burrows and scat were observed throughout the site. Id. The SA/DEIS provides no information as to the number of kit foxes that will be affected. The SA/DEIS does acknowledge that kit fox and American badger are protected species. Id. Nevertheless, the SA/DEIS provides almost no information as to how the species will be avoided. The only suggestion is that a preconstruction survey should be done, and dens should be flagged, and further that habitat acquired for desert tortoise would suffice as mitigation for these mammals SA/DEIS C.2-64. However, the SA/DEIS offers no assurance that habitat suitable for desert tortoise will have the carrying capacity or the primary constituent elements required for desert kit fox and American badger. Once again, this is insufficient under NEPA & CEQA as it provides virtually no scientific information for the public or agencies to use in determining the adequacy of proposed mitigation. 4-14 4-15

c. The Cumulative Impacts Analysis is Deficient

A discussion of the cumulative environmental effects of a proposed action is an essential part of the environmental review process, otherwise the agency cannot evaluate the combined environmental effect of related actions. Cumulative impact is defined in NEPA's implementing regulations as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions .... Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7

Under NEPA, an EIS must provide a sufficiently detailed catalogue of past, present, and reasonably foreseeable future projects, and provide an adequate analysis of how these projects, in conjunction with the proposed action, are thought to have impacted or are expected to impact the environment. See Muckleshoot Indian Tribe v. United States Forest Serv., (9th Cir.1999) 177 F.3d 800, 810 (per

curiam) (quoting 40 C.F.R. § 1508.7). In addition to an adequate cataloging of past projects, NEPA also requires a discussion of consequences of those projects. However, the SA/DEIS fails to properly assess and address the severe cumulative biological and other impacts of the project.

Considered in the context of other proposed large energy projects in the region, the cumulative impacts of the Project are significant in nearly every issue category. On a human time scale, these cumulative impacts will be pervasive, causing landscape-level biological, cultural, visual and other impacts that will be permanent or last hundreds of years after the expected lifetime of the Project. The SA/DEIS fails to provide adequate analysis, identification, and mitigation or avoidance of Project cumulative impacts. 4-16

Inter alia, the SA/DEIS fails to provide an adequate analysis of how these related projects, in conjunction with the proposed action, are thought to have impacted or are expected to impact the environment. The acreages and intent of the identified related projects are given, but actual cumulative impacts of these projects on the affected environment are not analyzed in adequate specificity. In particular, the cumulative biological context is deficient. The SA/DEIS fails to analyze the threshold questions about the cumulative context: What is the existing condition for the species at risk? What is the expected future condition for the species and biological processes at risk from the cumulative impacts of this and other existing and reasonably foreseeable actions? And what relative contribution to these impacts is the proposed project expected to make? 4-17

Clearly, the SA/DEIS has not assembled enough information and performed the requisite analysis (and the responsible agencies do not have adequate planning guidance) to determine: 1) the level of cumulative impacts to habitats, species and ecosystems, especially in the context of likely climate-change-necessitated habitat and species migration, or: 2) the limits of acceptable change; or 3) how to avoid significant cumulative impacts that would foreclose future opportunities to sustain desert ecosystems and species. This is a violation not only of NEPA and CEQA, but of State and Federal mandates requiring sustainable resource protection, such as FLPMA and the 2009 California Climate Change Adaptation Strategy (herein incorporated by reference). The latter stated, "In the face of a changing climate it is imperative that Departments work to maintain healthy, connected, genetically diverse populations" to "aids [sic] the movement of species within reserve areas as they adjust to changing conditions associated with climate change." 2009 California Climate Change Adaption Strategy, 56. This guidance document also directed California Department of Fish and Game to ensure that CEQA review addressed climate change issues in this context.[6] 4-18

[6] CEQA Review/Department Guidance – The Department of Fish and Game will initiate the development of internal guidance for staff to help address climate adaptation and to ensure climate change impacts are appropriately addressed in CEQA documents. Id. 61.

At c.2-4 the SA/DEIS acknowledges that even with mitigation, certain cumulative Project impacts remain significant. To offset cumulative biological impacts to the I-10 region, the SA/DEIS proposes new plan designations to designate two new linkage areas and one solar exclusion area. SA/DEIS Appendix B 1-3. In context with the vast land conversion contemplated with renewable energy development, the concept of setting aside landscape-level conservation areas to mitigate for severe cumulative impacts of the project is laudable, and in fact it is mandated by NEPA and CEQA. However, there are some serious deficiencies in the proposed mitigation. Plan amendments can be changed; they are not permanent. The proposed mitigation of only Plan amendments does not provide the necessary permanent, unchangeable mitigation for severe cumulative impacts that will persist at least for hundreds of years beyond the life of the cumulative projects. The mitigation also does not specify management prescriptions, and it allows undefined activities, "Casual use of the area would remain unaffected." (Biological Resources, Appendix B-3) 4-19

As a thorough cumulative impact analysis is required for public and the agencies to make an informed decision regarding the consequences of a proposed action, the SA/DEIS must be revised to thoroughly examine the above-referenced deficiencies. 4-20

V. The Alternatives Analysis is Inadequate Because BLM Unlawfully Rejected Feasible Alternatives

a. BLM's Statement(s) of Purpose and Need Reflects the Applicant's Needs, and Is Too Narrowly Drawn.

The Alternatives Analysis "is the heart of the environmental impact statement."[7] CEQ regulations require that an alternatives analysis presents the environmental impacts of the proposal and the alternatives in comparative form, sharply defining issues and providing a clear basis for choice among options by the decision-maker and the public. 43 CFR § 1502.14. In the SA/DEIS Alternatives Analysis, BLM did not consider the Private Land and other private offsite alternatives under NEPA on the basis that these alternatives would not accomplish the purpose and need of the proposed action. [8] 4-21

The decision not to examine these alternatives was incorrect because BLM's statement of purpose and need for the SA/DEIS is too narrowly drawn. Courts have held that although an agency has discretion to define the purpose and need of a project, it cannot use "unreasonably narrow" terms to define a project's objective.

[7] 40 C.F.R. § 1502.14.

[8] "since the proposed actions under review in this document are whether to approve or deny, or approve with modification an application for the Calico Solar project to be sited on public land, analysis of a private land alternative would not be consistent with the stated purpose and need of the proposal." SA/DEIS B.2-18.

The Department of Interior ("DOI") regulation, 40 C.F.R. § 1502.13 merely requires that an EIS briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action. DOI's NEPA handbook explains that the "purpose and need statement for an externally generated action must describe the BLM purpose and need, not an applicant's or external proponent's purpose and need. " Department of Interior, Bureau of Land Management, National Environmental Policy Act Handbook 35 (citing 40 C.F.R. § 1502.13) (emphasis added).

Here, however, in contravention of NEPA guidelines, the BLM only looked to the Applicant's purpose and need. The SA/DEIS stated that the purpose and need is "to respond to Palen Solar I, LLC's application under Title V of FLPMA, 43 U.S.C. § 1761, for a ROW grant to construct, operate, and decommission a solar thermal facility on public lands in compliance with FLPMA, BLM ROW regulations, and other Federal applicable laws." SA/DEIS ES-6. Based on this narrow statement of purpose and need, BLM has declined to examine any private land off-site alternatives (as well as dismissing alternative technologies, distributed generation, energy efficiency and demand response). In so doing, BLM impermissibly rejected reasonable alternatives that resolved most if not all significant biological impacts of the project [9]on the basis of inconsistency with the applicant's purpose and need. Moreover, BLM did so in spite of numerous scoping comments requesting consideration of a private/disturbed land alternative.[10]

4-21 cont.

As the Energy Policy Act, and related Secretarial and Executive Orders direct BLM to "encourage the development of environmentally responsible renewable energy" while complying with existing environmental laws, - the project purpose and need statement need not be so narrowly drawn as to preclude the consideration of alternative locations and technologies. To do so reflects the needs of the project applicant, not the needs of BLM, in violation of NEPA. In fact, an agency's refusal to consider an alternative that would require some action beyond that of its congressional authorization is counter to NEPA's intent to provide options for agencies. See 40 C.F.R. 1502.14. BLM's decision to narrow its purpose and need to preclude the analysis of alternative sites, and to avoid analysis of offsite alternatives because they are outside of its jurisdiction, renders the SA/DEIS deficient.

4-22

[9] The North of Desert Center alternative would have less severe cultural, visual and biological impacts, SA/DEIS B.2-82, and would reduce Project impacts to less than significant." B.2-49

[10] SA/DEIS ES-9ff.

VI Conclusion

For these reasons, the SA/DEIS violates NEPA, CEQA and potentially FLPMA. Accordingly, it should be revised and re-released. Also, the CDCA and NECO Plans should be revised to give desert-wide guidance, prior to approval of the substantial public land conversion currently proposed by renewable energy projects. In terms of specific local impacts, we would like to reiterate that we support development of a reduced or reconfigured Project that would avoid impacts to Mojave fringe-toed lizard and ensure NECO-mandated tortoise connectivity. 4-23 4-24 4-25

Thank you for the opportunity to comment on this important project.

Very truly yours,

Joan Taylor

Joan Taylor, Chair
California/Nevada Desert Energy Committee
Sierra Club
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Comment Letter 5

Alice Bond
<alice_bond@tws.org>
07/01/2010 03:21 PM

To "CAPSSolarPalen@blm.gov" <CAPSSolarPalen@blm.gov>
cc "jim_abbott@ca.blm.gov" <jim_abbott@ca.blm.gov>, Alan Solomon <Asolomon@energy.state.ca.us>, "jwald@nrdc.org" <jwald@nrdc.org>, Jeff Aardahl <jaardahl@defenders.org>,
bcc
Subject comments on proposed Palen Solar Power Plant

To Whom It May Concern:

Please accept and fully consider the following comments on the Draft EIS for the Palen Solar Power Project on behalf of The Wilderness Society, Natural Resources Defense Council, and Defenders of Wildlife.

Thank you,

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Palen DEIS comments Final.pdf Exhibit 1 - Desert Siting Criteria Memo June 29.pdf

THE WILDERNESS SOCIETY
NATURAL RESOURCES DEFENSE COUNCIL
DEFENDERS OF WILDLIFE

July 1, 2010

CAPSSolarPalen@blm.gov

Re: Draft Environmental Impact Statement and California Desert Conservation Area Plan Amendment for the Proposed Palen Solar Power Project

Ms. Allison Shaffer:

This letter constitutes the comments on the above-captioned proposed solar project and draft environmental impact statement (DEIS) of The Wilderness Society (TWS), the Natural Resources Defense Council (NRDC), and the Defenders of Wildlife, all national environmental membership organizations with long histories of advocacy on behalf of the lands and resources administered by the Bureau of Land Management (BLM). More recently these organizations have been intensively involved in the Bureau's work to develop a comprehensive solar program as well as its efforts to "fast track" the permitting of individual utility-scale solar projects in California so that they may be eligible for grant funding under the American Recovery and Reinvestment Act of 2009 (ARRA).

Introduction. Our organizations recognize the need to develop the nation's renewable energy resources and to do so rapidly in order to respond effectively to the challenge of climate change. Unique natural resources here in California are already being affected by climate change, including, for example, the pikas of Yosemite National Park and the Joshua trees in Joshua Tree National Park. We also recognize that renewable energy development can help create jobs in communities that are eager for them, because of the nation's economic crisis. For these and other related reasons, our organizations are working with regulators and project proponents to move renewable energy projects forward. That said, renewable development is not appropriate everywhere on the public lands and must be balanced against the equally urgent need to protect unique and sensitive resources of the California Desert Conservation Area (CDCA). California is lucky indeed that we have sufficient renewable resources, including solar resources, to do their development in an environmentally and fiscally sensitive way.[1]

5-01

As we and our colleagues at sister organizations have repeatedly stated, the best way to develop the solar resources of the CDCA is through comprehensive, pro-active planning by both the federal government and the state to identify the most appropriate areas for such development -- *i.e.*, solar development zones -- and to guide development to those zones. *See, e.g.,* letter dated June 29, 2009 to Interior Secretary Salazar and California's Governor Schwarzenegger and signed by 11 organizations, including our own, attached as Exhibit 1.

We support the BLM's adoption of zone designation for its forthcoming solar programmatic EIS because of the benefits inherent in this approach, including but not limited to clustering

5-02

[1] California's Renewable Energy Transition Initiative found, for example, that the state potentially could access 500 GW of renewable energy, an order of magnitude greater than the state's peak demand and far beyond the ability of our electric grid could handle.

development of large-scale projects in appropriate places, rather than permitting them to be located across the landscape in numerous locations. We also applaud the agency's – and the Interior Department's – commitment to work closely with the State of California in the development of the Desert Renewable Energy Conservation Plan which, as you may already know, will designate not only renewable energy development zones, but also zones for conservation as well as include a comprehensive mitigation strategy. The integration and completion of both of these efforts offers the promise of a balanced plan that will facilitate development of renewable resources in the Desert while protecting desert resources.

5-02 cont.

Despite our fundamental belief in the critical importance of agency-guided development of renewable energy, rather than developer-initiated development, we have, as indicated, been investing a great deal of time and effort into the fast track projects. We have done so in response to the emphasis the Department, the BLM and the developers place on meeting ARRA deadlines as well as the potential role these projects could play in meeting the renewable generation and economic goals of the state and federal governments. We have also done so because we wanted to make the projects, and especially the utility-scale solar projects, as environmentally sensitive as they can be and because we wanted to ensure, to the extent possible, that their accompanying environmental documents are as sound as they can be. It is now apparent to us that not even the best of the environmental documents being produced for the fast track projects and/or the best projects should be models or precedents for the future.

The fast track project sites were chosen without the benefit of siting criteria developed either by desert activists, environmental organizations, scientists and others, *see* Renewable Siting Criteria for California Desert Conservation Area, attached to June 29, 2009 letter referred to above, or by the BLM. The BLM in fact has yet to develop any siting guidance that would help field staff, developers and others identify appropriate sites – i.e., those with relatively low resource values and fewer resource conflicts. Moreover, the projects themselves were designated by Interior and the BLM as fast track projects without consideration of potential environmental issues. And, equally important, the timetable established for review of these projects did not take into account their scale, the agency's lack of experience with the technologies involved, and the agency's lack of expertise permitting these kinds of projects.

5-03

Regardless of the outcome of the environmental review process for this or any other fast track project, we urge the BLM and the Interior Department to acknowledge publicly the deficiencies of the current process and to commit publicly to improving it. More specifically, we urge both entities to affirm that neither the current process, nor any of the project sites, nor any of the environmental documents, establish any legal or procedural precedents for future decision-making, siting or environmental review. We make this urgent recommendation notwithstanding the fact that this particular project appears to be proposed for a site with acceptable areas and the accompanying DEIS represents a slight improvement in several respects over other such documents.

The Palen Solar Power Plant Project. The proposed project site has some characteristics that are conducive to solar development including a location near to existing infrastructure. The proposed site is 0.5 miles north of Interstate 10, which is also a designated utility corridor with existing and planned transmission lines. See Palen Solar Power Plant Project CEC-BLM SA/DEIS at A-4 and B.2-14. It is also 10 miles from the unincorporated area of Desert Center, id. A-4, and there are approximately 750 acres of agricultural land and 149 acres of developed land (roadways and cleared land) within a one-mile buffer to the east and southeast of the proposed project site. Id. C.2-16. Another characteristic conducive to solar development is the transmission capacity that exists approximately ten miles west of the Palen project site. It appears that a gen-tie line would be

5-04

built to connect to the Southern California Edison transmission system near Desert Center (the exact location is unknown at this time). Id. B.3-12. 5-04 cont.

Equally important, portions of this ROW application appear to be of comparatively lower natural resource values than some of the other ROW applications currently being considered for ARRA funding. The entire site implicates no Area of Critical Environmental Concern (ACEC) designated by the BLM or other special agency designation. Although the proposed site overlaps with approximately 210 acres of desert tortoise critical habitat, id. C.2-63, it is our understanding that this is because the habitat boundaries had been adjusted to follow section lines and are not necessarily an accurate representation of habitat suitability. The Desert Wildlife Management Area boundary (DWMA), located outside of the proposed project area, is a more accurate representation of habitat suitability for desert tortoise. Although the site does provide habitat and connectivity for desert tortoise, a federally endangered species, and signs indicating the presence of and use by desert tortoise were found in the study area, no live desert tortoise were found on the site, id. C.2-35, unlike other ARRA project sites such as Tessera's Calico project and Solar Millennium's Ridgecrest project which support sizable populations of this endangered species. See Calico Solar Power Project CEC-BLM SA/DEIS at C.2-3 and Ridgecrest Solar Power Project CEC-BLM SA/DEIS 5.3-1. While the above characteristics render some portions of the site more appropriate than some other locations for solar development, we do still have concerns about project impacts and the DEIS document. 5-05

Our principal concerns with the impacts of the Palen Solar project at this time relate to four biological resources: impacts to the sand transport corridor and stabilized and partially stabilized sand dunes in the eastern portion of the proposed project; impacts to desert tortoise connectivity and other wildlife movement corridors; impacts to the Chuckwalla DWMA and desert tortoise critical habitat from the proposed Red Bluff substation; and the availability of sufficient water for the proposed project. 5-06

Biological Resources: The proposed project would have direct impacts to 1,735 acres of Mojave fringe-toed lizard habitat in the eastern portion of the proposed project site where fine sandy soils are present in the active and stabilized sand dunes. Id. C.2-83. Because of impacts to downwind active sand dunes from the disruption of the sand transport corridor, the project would also have significant impacts to the downwind habitat for this species. Id. Populations of the Mojave fringe-toed lizard are naturally fragmented which "leaves the species vulnerable to local extirpations from additional habitat disturbance and fragmentation." Id. C.2-84. The Mojave fringe-toed lizard is considered sensitive by state and federal agencies and impacts from this project, as currently configured, are significant and unmitigable. Id. In light of this finding, we strongly urge the BLM to continue to modify this project in order to avoid impacts to the sand transport corridor and Mojave fringe-toed lizard habitat. One modification we support is an alternative that largely avoids the eastern one-half of the proposed project in order to provide a suitable level of protection for this sensitive species and its habitat. 5-07 5-08

A second area of concern is impacts to desert tortoise connectivity and other wildlife movement corridors. While this site is mostly considered low to moderate quality desert tortoise habitat (3,899 acres), id. C.2-63, the proposed project would significantly affect a desert tortoise habitat connectivity zone established pursuant to the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) to provide for movements north and south under I-10 and through existing drainage crossings. Id. ES-11 and C.2-82. This habitat connectivity zone connects high-quality desert tortoise habitat in between the Chuckwalla DWMA, Chuckwalla Valley, and the Chemehuevi DWMA. Id. ES-11. Large washes through the center of the project site (running southwest to northeast) provide wildlife movement corridors for various species and habitat 5-09

connectivity for desert tortoise. Id. C.2-82. Impacts to desert tortoise connectivity from the proposed project are unmitigable as the project is currently configured. Id. C.2-83. Again, we urge the BLM to modify the project in order to avoid and significantly reduce impacts to desert tortoise connectivity and wildlife movement corridors. 5-10

A third area of concern is the potential environmental impacts from the construction and operation of the proposed Red Bluff substation and the gen-tie line. Although the exact location of the substation is unknown, id. B.3-12, the DEIS states that it will be located in the Chuckwalla DWMA and desert tortoise critical habitat unit. Id. C.2-110. We urge the BLM to evaluate alternative sites for the substation to avoid impacts to the desert tortoise and Mojave fringe-toed lizard. 5-11

Finally, the letter from the Colorado River Board of California dated March 22, 2010 indicates that the issue of groundwater availability for this project has not yet been settled. No new water from the Colorado River is available for this project including groundwater from lands underlying the "accounting surface" "except through the contract of an existing BCPA Section 5 contract holder", page 2. The availability of sufficient water for the construction and operation of this facility is a key issue for this project and must be addressed in subsequent environmental analysis. The BLM must document for itself and the public that the developer in fact has the water needed for this project in hand; otherwise the agency cannot approve this proposed project. 5-12

Cultural Resources: Analysis of the proposed project's impacts to cultural resources is still ongoing. Id. C.3-1. The agencies are currently undertaking a negotiated stakeholder Programmatic Agreement (PA) that they expect to complete midsummer. Id. C.3-15. The PA will also address mitigation for project impacts to cultural resources. In addition, cultural resources data compilation for the reconfigured alternative is ongoing and the analysis of impacts to cultural resources will be included in the Supplemental Staff Assessment that the CEC has already committed to prepare. Id. ES-17. The BLM must also incorporate this information into its review of this proposed project and assess all project impacts – direct, indirect and cumulative – to cultural resources. 5-13 Pending additional information and analysis on cultural resources, we reiterate our recommendation from our scoping comments that the BLM develop strategies to minimize and mitigate impacts on the area's outstanding cultural resources and engage in consultation with local Native American tribes. 5-14 Finally, we do not believe the BLM can finalize a NEPA document for this project without fully complying with the Section 106 requirements of the National Historic Preservation Act. The relevant findings regarding impacts to cultural resources and Native American values associated with the proposed project must be disclosed in the NEPA analysis. 5-15

DEIS Elements: Our concerns with the draft environmental review document itself relate to three key elements: the purpose and need statement, the alternatives considered, and the cumulative impact analysis, all of which were problems with the Bureau's first solar DEIS, the Ivanpah DEIS, and are showing incremental improvement with subsequent DEIS documents including the Palen Solar Power Plant DEIS. 5-16 We are also concerned about how the BLM will ensure that the new proposal(s) and new information that have come to light or will come to light after publication of the DEIS will be fully analyzed and made available to the public. 5-17 To maximize the legal defensibility of the Palen environmental review process, the BLM should seriously consider issuing a supplemental DEIS. Our organizations also believe that the DEIS should have addressed the impacts that climate change will have on species and their habitats. 5-18

The purpose and need statement for this project is slightly broader than the one in the Ivanpah draft, but it remains too narrow. Ivanpah's original purpose and need was explicitly limited to a 5-19

stark dichotomy: "approve" or "deny" the company's application for a solar project and, as the result, the first draft document addressed only the "no action" option and the "proposed project." A supplemental draft with a revised purpose and need and additional alternatives was issued in an attempt to remedy this egregious approach to "the heart" of the process established by the National Environmental Policy Act (NEPA).

The Palen EIS draft states that the BLM's purpose and need is "to respond to" the company's ROW application. Id. A-11. The BLM should avoid both this mindset as well as too narrow a statement of purpose and need in order to help ensure that its EISs are legally defensible documents. In place of the statement that was used here, our organizations urge the adoption of the following to achieve these goals:

> The purpose of the proposed action is to "facilitate environmentally responsible commercial development of solar energy projects"[2] consistent with the statutory authorities and policies applicable to the Bureau of Land Management, including those providing for contributions towards achieving the renewable energy and economic stimulus and renewable energy development objectives under the Energy Policy Act of 2005 (EPAct), the American Recovery and Re-Investment Act, and Presidential and Secretarial orders as well as the Federal Land Policy and Management Act (FLPMA).
>
> The need for this action is to implement Federal policies, orders and laws that mandate or encourage the development of renewable energy sources, including the Energy Policy Act of 2005, which encourages the Department of the Interior to seek to approve at least 10,000 MW of non-hydropower renewable energy on public lands by 2015, and the Federal policy goal of producing 10% of the nation's electricity from renewable resources by 2010 and 25% by 2025; to enable effective implementation of the economic incentives for qualifying projects intended by the American Recovery and Reinvestment Act; and to support the State of California's renewable energy and climate change objectives, consistent with BLM's mandates and responsibilities under FLMPA.

5-19 cont.

This kind of purpose and need statement would clearly satisfy applicable legal requirements, see, e.g., National Parks Conservation Assn v. BLM, 586 F.3rd 735 (9th Cir. 2009), and thus help ensure that environmentally acceptable projects – which this project may end up being –will not only be permitted but will also be built without unnecessary delays.

Alternatives: The DEIS for the Palen Solar project shows some improvement over the Ivanpah DEIS in its treatment of alternatives – in addition to the proposed project, two build alternatives are presented for NEPA analysis and three no project approval alternatives.[3] See Palen DEIS at B.2-3.

5-20

We recommended in previous comments on this proposed project that the BLM consider alternative configurations for this project that avoid impacts to the northeast and eastern portions of the site where the stabilized and partially stabilized sand dunes are located. We also urged the BLM to work to address impacts from the project to Mojave fringe-toed lizard and desert tortoise

[2] This quotation is from Secretary Salazar himself.
[3] One CEQA-only alternative is analyzed. See Palen DEIS at B.2-19.

movement including a desert tortoise connectivity zone established to provide for movements north and south under I-10 through existing drainage crossings. Id. C.2-82. 5-20 cont.

The BLM has included two alternatives that reduce impacts to biological resources in comparison to the proposed project: the reconfigured alternative modifies the shape of the western and eastern power blocks to avoid some impacts to desert washes and wildlife movement corridors, id. B.2-1, and the reduced acreage alternative further eliminates portions of the proposed project that would have unmitigable impacts to both the sand transport corridor in the northern and northeastern portion and the wildlife movement corridor and reduces the project to 375 MW, id. B.2-1. 5-21

It appears that the reconfigured project would reduce impacts to the main wash through the project site (that acts as a local sand source, provides Mojave fringe-toed lizard habitat and a wildlife movement corridor), but would still have substantial indirect impacts to stabilized and partially stabilized sand dunes. Id. C.2-2 and C.2-5. The 375 MW smaller project alternative would provide the benefits described above from the reconfigured alternative and would also substantially reduce the impacts to the sand transport corridor, sand dune habitat, and Mojave fringe-toed lizard of the construction and operation of the proposed project. Id. 5-22

The reduced acreage alternative also eliminates the project overlap with 210 acres of Critical Habitat for desert tortoise in the southwestern portion of the project area. Id. B.2-1. However, as indicated above, it is our understanding that the project's overlap with desert tortoise Critical Habitat is because the critical habitat boundaries had been adjusted to follow section lines and are not necessarily an accurate representation of habitat suitability. In fact, almost the entirety of the Chuckwalla Desert Critical Habitat Unit is located south of I-10, while the small area that overlaps with the proposed project is north of the interstate. It is unclear that avoiding this area would reduce significant biological impacts. 5-23

We are pleased that the BLM recognizes the significant impacts that would occur to the Mojave fringe-toed lizard, its habitat, and the sand transport corridor from the proposed project footprint as well as the reconfigured alternative. Id. B.2-12, C.2-5 and C.2-83. We urge the BLM to continue to work with the applicant to address potential impacts to biological resources. The most effective way of mitigating significant impacts is through avoidance, which would entail consideration and adoption of an alternative that ensures important habitat and sensitive species in the northeast and eastern portions of the project site. Changes to the configuration and size of the project to reduce such impacts that have been developed after the release of the DEIS must be fully analyzed and made available to the public. 5-24

However, we are still concerned that the BLM's approach to the analysis of alternatives for the proposed project has unnecessarily limited the range of alternatives. The BLM states that it considers alternatives proposed to be located on lands outside of its jurisdiction to be "unreasonable." Id. B.2-2. In defining what is a "reasonable" range of alternatives, NEPA requires consideration of alternatives "that are practical or feasible" and not just "whether the proponent or applicant likes or is itself capable of carrying out a particular alternative"; in fact, "**[a]n alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable**." Council on Environmental Quality, *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations*, *Questions 2A and 2B*, *available at* http://ceq.hss.doe.gov/nepa/regs/40/40p3.htm; 40 C.F.R. §§ 1502.14, 1506.2(d). The California Energy Commission (CEC) considers alternatives that include private lands provided site control can be obtained in a reasonable timeframe and with some certainty. In the case of the North of Desert Center private land alternative, the CEC found this alternative includes approximately 151 5-25

parcels with 40 separate landowners and that site control could be challenging to obtain due to the number of private land owners. See Palen DEIS at B.2-2. 5-25 cont.

Finally, we are concerned with the BLM's failure to include adequate information regarding the environmental impacts from the construction and operation of the proposed Red Bluff substation and the gen-tie line in the DEIS. Although the exact location of the substation is unknown, id. B.3-12, the DEIS states that it will be located in the Chuckwalla DWMA and desert tortoise critical habitat unit. Id. C.2-110. The DEIS should have included alternatives for the substation location that would have avoided this DWMA and impacts to the desert tortoise and Mojave fringe-toed lizard. We urge the BLM to address this deficiency in subsequent environmental review documents. 5-26

Cumulative Impacts: In order to properly site renewable energy projects, it is essential that a cumulative impacts analysis be conducted to fully evaluate the implications of this type of development on public lands. Cumulative impact is defined as the impact on the environment which results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future action regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. 40 C.F.R. § 1508.7.

There are multiple solar and transmission projects proposed in the vicinity of the Palen Solar power plant that will contribute to overall cumulative impacts to sensitive resources in this area. A list of existing and future foreseeable projects along the 1-10 corridor in Eastern Riverside County is included in the DEIS. See Palen DEIS at B.3-8 to B.3-13. In addition to the proposed solar and transmission projects, the DEIS identifies residential development projects, a large race track, and several other projects that will also contribute to cumulative impacts. Id. B.3-9 to B.3-13. While not all of these projects are being permitted by the Bureau, all reasonable efforts must be made to obtain information regarding their potential impacts and construction timing so that a full picture of cumulative impacts can be presented in the final EIS. 5-27

The DEIS utilizes qualitative information about these existing and foreseeable projects to develop estimates and model impacts to key topics such as air quality and biological resources. More quantitative information is highly desirable, to supplement this qualitative material. In addition, the DEIS should address impacts from this project in the context of other connected projects including the associated Red Bluff substation. Further, the cumulative impact analysis should evaluate at-risk species and their habitats in the region to identify the condition and trend for these species and whether additional impacts from current and foreseeable future projects would conform to BLM policy on special status species management (Manual 6840), wildlife habitat management (Manual 6500), as well as legal mandates for public land management established by FLPMA.

FLPMA mandates that public lands: "…be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will pro-vide for outdoor recreation and human occupancy and use;" (Sec. 5 102(8)). FLPMA also addresses management of public lands within the CDCA: "the California desert environment is a total ecosystem that is extremely fragile, easily scarred, and slowly healed. (Sec. 601(a)(2)); and "the California desert environment and its resources, including certain rare and endangered species of wildlife, plants, and fishes, and numerous archeological and historic sites, are seriously threatened by air pollution, inadequate Federal management authority, and pressures 5-28

of increased use, particularly recreational use, which are certain to intensify because of the rapidly growing population of southern California; (Sec. 601(a)(3)); and lastly, " It is the purpose of this section to provide for the immediate and future protection and administration of the public lands in the California desert within the framework of a program of multiple use and sustained yield, and the maintenance of environmental quality. (Sec. 601(b)).

5-28 cont.

Climate Change Impacts: The DEIS's discussion of climate change focuses on the reduction of greenhouse gases and the development of renewable energy resources. That is, it looks at the effects of the proposed action on climate change. It does not, however, analyze the impacts of climate change on species of concern in the project area, on their habitats, or on the importance of maintaining habitat connectivity in the sustaining species diversity and landscape level movements. The latter impacts are clearly relevant. *See, e.g.*, Secretarial Order 3289, Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources (February 22, 2010). Such an analysis will allow the BLM to assess and reduce the vulnerabilities of the proposed action to climate change, integrate climate change adaptation into the proposed action and alternatives and produce accurate predictions of environmental consequences of the proposed actions and alternatives.

5-29

New Information: Lastly, we are concerned, as indicated above, about the new information, including information on the proposed project's impacts to cultural resources in the reconfigured alternative, id. C.3-1, information about the location of the Red Bluff substation, id. B.3-12, information on further modifications to the configuration of the preferred alternative, id. A-2, and the complete survey results including data from special status plant and golden eagle surveys conducted this year, id. C.2-94, that has been developed since the DEIS was printed. In addition, the California Energy Commission will release a new document, the Palen Revised Staff Assessment, with relevant information to this project and information that was not available in the Palen DEIS. Id. A-2. If BLM issues a supplemental DEIS, new information in the Palen Revised Staff Assessment should be incorporated into that document.

5-30

BLM should make every effort to ensure that all this new information is made available to the public (and other agencies) along with assessments and analyses of the information as well as that the public is given an opportunity to comment thereon. Public input on agency proposals is one of the hallmarks of NEPA review and it is to prevent the undermining of that critical aspect that limits have been imposed on agency efforts to "load up" final EISs with excessive amounts of new information.

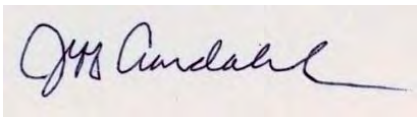
5-31

Conclusion. In conclusion, some areas within the site proposed for this project appear to have fewer resource conflicts than some of the other sites currently being reviewed for fast-track projects, but nonetheless the impacts to the resources identified in these comments and to other desert resources must be fully analyzed, avoided, and mitigated through the BLM process. As we have previously noted, renewable development is not appropriate everywhere on the public lands and must be balanced against the equally urgent need to protect unique and sensitive resources of the CDCA. California is lucky indeed that we have sufficient renewable resources, including solar resources, to do their development in an environmentally responsible manner.

5-32

Thank you in advance for considering our comments. If you have any questions about them, please do not hesitate to contact us.

Sincerely,



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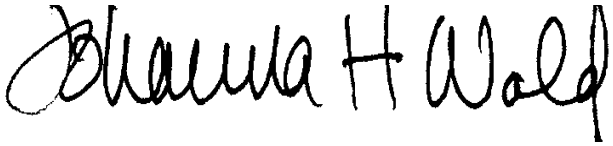

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Audubon California
California Native Plant Society * California Wilderness Coalition
Center for Biological Diversity * Defenders of Wildlife
Desert Protective Council * Mojave Desert Land Trust
National Parks Conservation Association
Natural Resources Defense Council * Sierra Club * The Nature Conservancy
The Wilderness Society * The Wildlands Conservancy

Renewable Siting Criteria for California Desert Conservation Area

Environmental stakeholders have been asked by land management agencies, elected officials, other decision-makers, and renewable energy proponents to provide criteria for use in identifying potential renewable energy sites in the California Desert Conservation Area (CDCA). Large parts of the California desert ecosystem have survived despite pressures from mining, grazing, ORV, real estate development and military uses over the last century. Now, utility scale renewable energy development presents the challenge of new land consumptive activities on a potentially unprecedented scale. Without careful planning, the surviving desert ecosystems may be further fragmented, degraded and lost.

The criteria below primarily address the siting of solar energy projects and would need to be further refined to address factors that are specific to the siting of wind and geothermal facilities. While the criteria listed below are not ranked, they are intended to inform planning processes and were designed to provide ecosystem level protection to the CDCA (including public, private and military lands) by giving preference to disturbed lands, steering development away from lands with high environmental values, and avoiding the deserts' undeveloped cores. They were developed with input from field scientists, land managers, and conservation professionals and fall into two categories: 1) areas to prioritize for siting and 2) high conflict areas. The criteria are intended to guide solar development to areas with comparatively low potential for conflict and controversy in an effort to help California meet its ambitious renewable energy goals in a timely manner.

Areas to Prioritize for Siting

- Lands that have been mechanically disturbed, i.e., locations that are degraded and disturbed by mechanical disturbance:
  - Lands that have been "type-converted" from native vegetation through plowing, bulldozing or other mechanical impact often in support of agriculture or other land cover change activities (mining, clearance for development, heavy off-road vehicle use).[1]
- Public lands of comparatively low resource value located adjacent to degraded and impacted private lands on the fringes of the CDCA:[2]
  - Allow for the expansion of renewable energy development onto private lands.
  - Private lands development offers tax benefits to local government.
- Brownfields:
  - Revitalize idle or underutilized industrialized sites.
  - Existing transmission capacity and infrastructure are typically in place.

- Locations adjacent to urbanized areas:[3]
  - Provide jobs for local residents often in underserved communities;
  - Minimize growth-inducing impacts;
  - Provide homes and services for the workforce that will be required at new energy facilities;
  - Minimize workforce commute and associated greenhouse gas emissions.
- Locations that minimize the need to build new roads.
- Locations that could be served by existing substations.
- Areas proximate to sources of municipal wastewater for use in cleaning.
- Locations proximate to load centers.
- Locations adjacent to federally designated corridors with existing major transmission lines.[4]

High Conflict Areas

In an effort to flag areas that will generate significant controversy the environmental community has developed the following list of criteria for areas to avoid in siting renewable projects. These criteria are fairly broad. They are intended to minimize resource conflicts and thereby help California meet its ambitious renewable goals. The criteria are not intended to serve as a substitute for project specific review. They do not include the categories of lands within the California desert that are off limits to all development by statute or policy.[5]

- Locations that support sensitive biological resources, including: federally designated and proposed critical habitat; significant[6] populations of federal or state threatened and endangered species,[7] significant populations of sensitive, rare and special status species,[8] and rare or unique plant communities.[9]
- Areas of Critical Environmental Concern, Wildlife Habitat Management Areas, proposed HCP and NCCP Conservation Reserves.[10]
- Lands purchased for conservation including those conveyed to the BLM.[11]
- Landscape-level biological linkage areas required for the continued functioning of biological and ecological processes.[12]
- Proposed Wilderness Areas, proposed National Monuments, and Citizens' Wilderness Inventory Areas.[13]
- Wetlands and riparian areas, including the upland habitat and groundwater resources required to protect the integrity of seeps, springs, streams or wetlands.[14]
- National Historic Register eligible sites and other known cultural resources.
- Locations directly adjacent to National or State Park units.[15]

EXPLANATIONS

[1] Some of these lands may be currently abandoned from those prior activities, allowing some natural vegetation to be sparsely re-established. However, because the desert is slow to heal, these lands do not support the high level of ecological functioning that undisturbed natural lands do.

[2] Based on currently available data.

[3] Urbanized areas include desert communities that welcome local industrial development but do not include communities that are dependent on tourism for their economic survival.

[4] The term "federally designated corridors" does not include contingent corridors.

[5] Lands where development is prohibited by statute or policy include but are not limited to:

National Park Service units; designated Wilderness Areas; Wilderness Study Areas; BLM National Conservation Areas; National Recreation Areas; National Monuments; private preserves and reserves; Inventoried Roadless Areas on USFS lands; National Historic and National Scenic Trails; National Wild, Scenic and Recreational Rivers; HCP and NCCP lands precluded from development; conservation mitigation banks under conservation easements approved by the state Department of Fish and Game, U.S. Fish and Wildlife Service or Army Corps of Engineers a; California State Wetlands; California State Parks; Department of Fish and Game Wildlife Areas and Ecological Reserves; National Historic Register sites.

[6] Determining "significance" requires consideration of factors that include population size and characteristics, linkage, and feasibility of mitigation.

[7] Some listed species have no designated critical habitat or occupy habitat outside of designated critical habitat. Locations with significant occurrences of federal or state threatened and endangered species should be avoided even if these locations are outside of designated critical habitat or conservation areas in order to minimize take and provide connectivity between critical habitat units.

[8] Significant populations/occurrences of sensitive, rare and special status species including CNPS list 1B and list 2 plants, and federal or state agency species of concern.

[9] Rare plant communities/assemblages include those defined by the California Native Plant Society's Rare Plant Communities Initiative and by federal, state and county agencies.

[10] ACECs include Desert Tortoise Desert Wildlife Management Areas (DWMAs). The CDCA Plan has designated specific Wildlife Habitat Management Areas (HMAs) to conserve habitat for species such as the Mohave ground squirrel and bighorn sheep. Some of these designated areas are subject to development caps which apply to renewable energy projects (as well as other activities).

[11] These lands include compensation lands purchased for mitigation by other parties and transferred to the BLM and compensation lands purchased directly by the BLM.

[12] Landscape-level linkages provide connectivity between species populations, wildlife movement corridors, ecological process corridors (e.g., sand movement corridors), and climate change adaptation corridors. They also provide connections between protected ecological reserves such as National Park units and Wilderness Areas. The long-term viability of existing populations within such reserves may be dependent upon habitat, populations or processes that extend outside of their boundaries. While it is possible to describe current wildlife movement corridors, the problem of forecasting the future locations of such corridors is confounded by the lack of certainty inherent in global climate change. Hence the need to maintain broad, landscape-level connections. To maintain ecological functions and natural history values inherent in parks, wilderness and other biological reserves, trans-boundary ecological processes must be identified and protected. Specific and cumulative impacts that may threaten vital corridors and trans-boundary processes should be avoided.

[13] Proposed Wilderness Areas: lands proposed by a member of Congress to be set aside to preserve wilderness values. The proposal must be: 1) introduced as legislation, or 2) announced by a member of Congress with publicly available maps. Proposed National Monuments: areas proposed by the President or a member of Congress to protect objects of historic or scientific interest. The proposal must be: 1) introduced as legislation or 2) announced by a member of Congress with publicly available maps. Citizens' Wilderness Inventory Areas: lands that have been inventoried by citizens groups, conservationists, and agencies and found to have defined "wilderness characteristics." The proposal has been publicly announced.

[14] The extent of upland habitat that needs to be protected is sensitive to site-specific resources. For example: the NECO Amendment to the CDCA Plan protects streams within a 5-mile radius of Townsend big-eared bat maternity roosts; aquatic and riparian species may be highly sensitive to changes in groundwater levels.

[15] Adjacent: lying contiguous, adjoining or within 2 miles of park or state boundaries. (Note: lands more than 2 miles from a park boundary should be evaluated for importance from a landscape-level linkage perspective, as further defined in footnote 12).

Bonnie Heeley <bheeley@adamsbroadwell.com>
07/02/2010 10:30 AM

To "CAPSSolarPalen@blm.gov" <CAPSSolarPalen@blm.gov>
cc "Jason W. Holder" <jholder@adamsbroadwell.com>
bcc
Subject FW: CURE's Comments Concerning DEIS for Palen Solar Power Project (1)

Ms. Shaffer:

Yesterday I mistakenly emailed CURE's Comments Concerning the Draft Environmental Impact Statement for Palen Solar Power Project (09-AFC-7) to CAPSSolar**Blythe**@blm.gov rather than CAPSSolar**Palen**@blm.gov. I apologize for this error and hope that it has not caused your office any inconvenience. I am forwarding the emails. The hardcopy was sent via overnight mail yesterday.

We also note that on the Energy Commission's Proof of Service List CAPSSolar**Blythe**@blm.gov is shown as the email address for the Palen matter. We are not sure if this is intentional or an error.

See below for the Comments; exhibits to follow.

Bonnie Heeley
Adams Broadwell Joseph & Cardozo
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bheeley@adamsbroadwell.com

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From: Bonnie Heeley
Sent: Thursday, July 01, 2010 5:19 PM
To: 'CAPSSolarBlythe@blm.gov'
Subject: CURE's Comments Concerning DEIS for Palen Solar Power Project (1)

Ms Shaffer:

I will be sending CURE's Comments and Attachments in several emails. The original will follow via overnight mail.

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CURE Comments (2).pdf

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July 1, 2010

VIA E-MAIL [ORIGINAL TO FOLLOW VIA OVERNIGHT MAIL]

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Email: CAPSSolarPalen@blm.gov

Re: CURE's Comments Concerning Draft Environmental Impact Statement for Palen Solar Power Project (09-AFC-7)

Dear Ms. Shaffer:

On behalf of California Unions for Reliable Energy ("CURE"), please accept these comments on the Draft Environmental Impact Statement ("DEIS"), prepared pursuant to the National Environmental Policy Act ("NEPA"),[1] for Palen Solar I, LLC's ("Applicant") proposed 500- MW Palen Solar Power Project (the "Project," "Proposed Action," or "PSPP"). The Project requires an amendment to the California Desert Conservation Area ("CDCA") Plan, a right-of-way ("ROW") from the Bureau of Land Management ("BLM") to construct, operate and decommission the facility, California Energy Commission ("CEC") certification to construct and operate the facility, a cultural resources Programmatic Agreement ("PA"), a streambed alteration agreement, certification of waste discharge requirements and incidental take permits, among other agency actions.

As explained more fully below, the DEIS does not comply with the requirements of NEPA, or the California Environmental Quality Act ("CEQA")[2] for required discretionary approvals by California State agencies. Therefore, BLM may 6-001

[1] 42 U.S.C. §§ 4321 et seq. (2010).

[2] Public Resources Code, § 21000 *et seq.*

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not approve the CDCA Plan amendment or ROW until an adequate DEIS is prepared and circulated for public review and comment. 6-001 cont.

CURE is a coalition of labor unions whose members construct, operate, and maintain power plants throughout California. CURE encourages sustainable development of California's energy and natural resources. Environmental degradation jeopardizes future growth and jobs by causing construction moratoriums, depleting limited air pollutant emissions offsets, consuming limited fresh water resources, and imposing other stresses on the environmental carrying capacity of the state. This in turn reduces future employment opportunities for CURE's members. Additionally, union members live and work in the communities and regions that suffer the impacts of projects that are detrimental to human health and the environment. CURE therefore has a direct interest in enforcing environmental laws to minimize the adverse impacts of projects that would otherwise degrade the environment. Finally, CURE members are concerned about projects that risk serious environmental harm without providing countervailing economic benefits. The NEPA process allows for a balanced consideration of a project's socioeconomic and environmental impacts, and it is in this spirit that we offer these comments.

The BLM and the CEC have prepared a joint Staff Assessment/Draft Environmental Impact Statement for the Project to satisfy the requirements of NEPA and CEQA. We have been informed that the BLM's NEPA document and the CEC's CEQA functional equivalent document are no longer proceeding along a joint track towards completion. These comments are directed toward the BLM's Draft Environmental Impact Statement ("DEIS") document, and the extent to which the analyses comply with the requirements of NEPA.

We have reviewed the DEIS and its technical appendices in conjunction with other studies and materials developed as part of the concurrent review of the Project by BLM and CEC. The following technical consultants assisted us:

- Jim Cornett, M.S. (biological resources impacts).
- Matt Hagemann, P.G. (hazards and hazardous materials impacts)

Their comments and qualifications are appended hereto as Attachment A ("Cornett Comments") and Attachment B ("Hagemann Comments"). **We request that you consider and respond to these consultants' comments separately and individually**.

2357-037a

I. INTRODUCTION

California is experiencing an unprecedented wave of new alternative energy power plant development throughout its territory. As of January 2010, 244 renewable projects have been proposed in California.[3] 10 of these proposed projects would be located within 15 miles of the Project, and an additional 12 future projects would be located further away along the I-10 corridor. The DEIS acknowledges that 125 renewable energy projects would be "scattered throughout the California Desert Conservation Area" managed by the BLM.[4] While these plants will employ relatively clean solar thermal, solar photovoltaic, or wind technology and each would presumably be equipped with modern pollution control technologies, each one will unavoidably tax the state's limited air, water, land, and biological resources to a potentially significant cumulative extent. The final toll taken by this historic energy boom on California's environment, public health, and natural resource base may not be known for several years or longer, but currently available and substantial evidence shows that the effects will be severe. The public lands managed by the BLM will be similarly taxed. The DEIS for this Project is wholly inadequate, because it fails to adequately consider, among other impacts, the cumulative effects in the region that will cause environmental degradation. 6-002

This Project, as well as numerous other pending renewable energy projects, seeks funding through the American Recovery and Reinvestment Act of 2009. As recently stated in a proclamation by President Obama, the ARRA "reaffirmed NEPA's role in protecting public health, safety, and environmental quality, and in ensuring transparency, accountability, and public involvement in our Government."[5]

Under these unprecedented circumstances, it is even more imperative that this environmental document identify and analyze all foreseeable direct, indirect, and cumulative project impacts with the utmost degree of accuracy, care and detail. It is equally if not more imperative that any and all reasonable alternatives that are less environmentally damaging be presented and discussed as thoroughly as

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[3] DEIS, p. B.3-1; see also *Id.*, Cumulative Impacts Tables 1A and 1B; see also Press Release, Office of the Governor, Governor Schwarzenegger Announces 244 Proposed Renewable Energy Projects Throughout the State (Dec. 29, 2009), available at http://gov.ca.gov/press-release/14092/.

[4] *Id.* at p. C.12-33.

[5] Presidential Proclamation regarding the 40th Anniversary of the National Environmental Policy Act, December 31, 2009.

possible, together with any and all feasible mitigation measures. The strictures of NEPA and the maxims of sound public policy and informed environmental planning require nothing less. Based on these concerns, CURE and its members have a strong interest in ensuring that this Project complies with all applicable federal, State and local laws and regulations.

With that said, we must conclude with disappointment that this particular DEIS, while evidently drafted by skilled and conscientious experts, is so rife with omissions, incomplete analyses, and obsolete information regarding a changing Project that it simply does not even come close to complying with NEPA standards. As these comments will demonstrate, the DEIS is fatally deficient and must be substantially revised and recirculated for further public review and comment before it may be finalized.[6] 6-003

As explained at length below, the Project will generate a multitude of impacts in a number of impact areas, including: land use, air quality, public health, water supply, water quality, biological resources, and cultural resources. The DEIS either mischaracterizes, misanalyzes, underestimates, or fails to identify many of these impacts. The DEIS, for example, fails entirely to identify the impacts that will be caused by the proposed 8-12 mile-long transmission line[7] to the planned Red Bluff substation. 6-004

Furthermore, the DEIS fails to mention or discuss a number of reasonable and perfectly feasible measures that could avoid or mitigate impacts to levels of insignificance with relative ease and with minimal expense. At the same time, many of the mitigation measures described in the DEIS will not in fact mitigate impacts to the extent claimed and in some instances will generate additional impacts that are not evaluated. For example, the DEIS does not describe the locations of available compensation habitat and does not address the impacts that may be caused by habitat enhancement. 6-005

Finally, the DEIS impermissibly truncates the scope of alternatives discussed, and consequently fails to consider reasonable feasible alternative approaches to the project footprint, floodwater drainage facilities, and wildlife movement that would avoid altogether several of the project's most serious impacts. The only justification for eliminating these 6-006

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[6] 40 C.F.R. § 1502.9(a) (2009) ["If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion"].

[7] The DEIS and other documents prepared by the Applicant inconsistently describes the length of the transmission line. *Compare Id.* at p. D.5-5 [describing 8-mile long transmission line], B.1-11 [describing 10-mile distance to Red Bluff substation] *with* Updated Plan of Development, dated July 20, 2009, p. 35 [describing 12-mile long gen tie line]. 6-007

alternatives appears to be that the Applicant believes they are too costly. This simply flies in the face of both the letter and spirit of NEPA. 6-006 cont.

Below, after a brief summary of applicable legal requirements governing EIS preparation, we present our general comments and our more specific comments organized according to resource category. The general comments address analytical flaws that pervade the DEIS, while the specific comments address errors in individual analyses.

II. THE DEIS FAILS TO SATISFY NEPA'S PURPOSE AND GOALS

NEPA requires that agencies take a "hard look" at the environmental consequences of a proposed action.[8] A hard look is defined as a "reasoned analysis containing quantitative or detailed qualitative information."[9] The level of detail must be sufficient to support reasoned conclusions by comparing the amount and the degree of the impact caused by the proposed action and the alternatives.[10] An EIS must provide a "full and fair discussion of significant environmental impacts and shall inform the decision-makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment."[11] "General statements about 'possible' effects and 'some risk' do not constitute a 'hard look' absent a justification regarding why more definitive information could not be provided."[12] "[L]ack of knowledge does not excuse the preparation of an EIS; rather it requires [the agency] to do the necessary work to obtain it."[13]

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[8] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989); *Dubois v. U.S. Dep't of Agric.*, 102 F.3d 1273, 1284 (1st. Cir. 1996); see also *South Fork Band Council Of Western Shoshone Of Nevada v. U.S. Dept. of Interior*, 588 F.3d 718, 727 (9th Cir. 2009) ["NEPA requires that a hard look be taken, if possible, *before* the environmentally harmful actions are put into effect"].

[9] BLM, NEPA HANDBOOK, P. 55 (Jan. 2008) ("NEPA Handbook"), available at: http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.24487.File.dat/h1790-1-2008-1.pdf.

[10] NEPA Handbook, p. 55; *see also* 40 C.F.R. § 1502.1 (2009).

[11] 40 CFR 1502.1.

[12] *Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372, 1380 (9th Cir. 1998).

[13] *National Parks & Conservation Association v. Babbitt*, 241 F.3d 722, 733 (9th Cir.2001), *abrogated on other grounds by Monsanto Co. v. Geertson Seed Farms*, 2010 WL 2471057, 12 (U.S.) (U.S., 2010) [An injunction should issue only if the traditional four-factor test is satisfied].

NEPA review makes information on the environmental consequences of a proposed action available to the public, which may then offer its insight to assist the agency's decision-making.[14] An EIS is more than just a disclosure device, however, it is an "action-forcing device" which ensures that NEPA's requirements are infused into the ongoing programs and actions of the federal government.[15] An EIS must provide a full and fair discussion of every significant impact, as well as inform decision-makers and the public of reasonable alternatives which would avoid or minimize adverse impacts.[16] The impacts analysis must include a discussion of the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented.[17] The discussion of impacts must include both "direct and indirect effects (secondary impacts) of a proposed project."[18] The agency need not speculate about all conceivable impacts, but it must evaluate the reasonably foreseeable significant effects of the proposed action.[19] In this context, reasonable foreseeability means that "the impact is sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision."[20]

In addition to a scientifically defensible analysis of project impacts, an EIS must also include a discussion of "appropriate mitigation measures not already included in the proposed action or alternatives."[21] An EIS is not complete unless it contains "a reasonably complete discussion of possible mitigation measures."[22] Mitigation includes "avoiding the impact altogether by not taking a certain action or parts of an action."[23] It also includes "minimizing impacts by limiting the degree or magnitude of the action and its implementation."[24] The mandate to thoroughly

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[14] *See Robertson*, 490 U.S. at 350; *Dubois*, 102 F.3d at 1284.

[15] 40 C.F.R. § 1502.1.

[16] *Id.*

[17] *Id.* at § 1502.16.

[18] *Id.* at § 1502.16(b); *see also Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992).

[19] *Sierra Club v. Marsh*, 976 F.2d at 767.

[20] *Ibid; see also Dubois v. Dept. of Agriculture*, 102 F.3d 1273, 1286 (1st Cir. 1996).

[21] 40 C.F.R. § 1502.14(f).

[22] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989).

[23] 40 C.F.R. § 1508.20(a).

[24] *Id.* at subd. (b).

evaluate all feasible mitigation measures is critical to NEPA's purposes.[25] Hence, a "perfunctory description" or a "mere listing" of possible mitigation measures is not adequate to satisfy NEPA's requirements.[26] That individual harms are somewhat uncertain due limited understanding of the Project characteristics and baseline conditions does not relieve BLM of the responsibility under NEPA to discuss mitigation of reasonably likely impacts at the outset.[27]

An EIS must "[r]igorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."[28] This requirement is discussed in greater detail in a subsequent section of this letter.

Finally, an EIS should be "concise, clear, to the point, and supported by evidence that the agency has made the necessary environmental analyses."[29] A concise and clear EIS that is supported by evidence ensures that federal agencies are informed of environmental consequences ***before*** making decisions and that the information is available to the public.[30] As the Council on Environmental Quality ("CEQ") explains in its regulations, "[e]nvironmental impact statements shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made."[31]

The DEIS for the proposed Project fails to comply with these basic requirements. First, the lack of complete, accurate and consistent information in the DEIS precludes an informed comparison of the alternatives and an analysis of the Proposed Action. Second, the BLM failed to take a hard look at all of the Project's impacts. Finally, the BLM impermissibly limited its alternatives analysis by relying on an arbitrarily narrow purpose and need statement. For these reasons, the DEIS precludes a meaningful analysis of the Project, and the BLM must revise

6-008

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[25] *Id.* at § 1500.1(c).)

[26] *Neighbors of Cuddy Mountain*, 137 F.3d at 1380; *Idaho Sporting Cong. v. Thomas*, 137 F.3d 1146, 1151 (9th Cir. 1998).

[27] *See South Fork Band Council of Western Shoshone of Nevada*, 588 F.3d at 727, citing *National Parks*, 241 F.3d at 733.

[28] 40 C.F.R. § 1502.14(a).

[29] *Id.*

[30] *Inland Empire Pub. Lands Council v. U.S. Forest Serv.*, 88 F.3d 754, 758 (9th Cir. 1996).

[31] 40 C.F.R. § 1502.2(g).

2357-037a

the DEIS and recirculate the revised DEIS for public review and comment before making a decision. 6-008 cont.

III. GENERAL COMMENTS

A. Information in the DEIS Concerning the Size and Characteristics of the Proposed Action is Incomplete and Inaccurate.

A complete and consistent description of the Proposed Action and the affected environment is necessary for the public and decision makers to understand the effects of the proposed action and its alternatives.[32] A clear description results in more focused and meaningful public input and BLM participation, a more complete identification of issues, development of reasonable alternatives, sound analysis and interpretation of effects, focused analysis and a sound and supportable decision.[33]

It follows that information in the DEIS that is incomplete, inconsistent and/or inaccurate will skew the environmental consequences analysis and prevent informed public input. Courts have held that "[w]here the information in the initial EIS was so incomplete or misleading that the decisionmaker and the public could not make an informed comparison of the alternatives, revision of an EIS [was] necessary to provide a reasonable, good faith, and objective presentation of the subjects required by NEPA."[34]

The DEIS contains incomplete, inconsistent and inaccurate information that precludes a full understanding of the Proposed Action, a meaningful analysis of all Project impacts, and prevents an informed comparison of the alternatives. This violates the basic requirements of NEPA. 6-009

The importance of an accurate and complete description of the Project and its environmental impacts is especially critical here, given the immense scale of the Project. At 5,200 acres (8.125 square miles), the ROW for this single power plant project is larger than many cities in California including Monterey Park, Alhambra,

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[32] *See* 40 C.F.R. § 1502.15; *see also State of Cal. v. Block*, 690 F.2d 753. 761 (9th Cir. 1982) [starting point for analysis of whether a "critical decision" with respect to site development is "to describe accurately the 'federal action' being taken"].

[33] NEPA Handbook pp. 42-45.

[34] *Natural Res. Def. Council v. U.S. Forest Serv.*, 421 F.3d 797, 811 (9th Cir. 2005), citing *Animal Def. Council v. Hodel*, 840 F.2d 1432, 1439 (9th Cir. 1988).

La Habra, and Daly City.[35] A map of the Project lay-out demonstrates that nearly the entire area will be disturbed by roads, power units, buildings, underground utilities and support structures. This will dramatically impact every aspect of the ecosystem on the Project site and surrounding the Project area. 6-009 cont.

The DEIS inconsistently describes the number of acres that will be disturbed by the proposed Palen Solar Power Project ("PSPP" or "Project"): the figures range from 2,740 to 3,899 disturbed acres.[36] These inconsistent figures appear to reflect the varying ways in which the total "Project disturbance" area was considered (i.e., Project footprint, solar fields, transmission line, etc.), but this is not clear from the various DEIS references. The Application for Certification ("AFC") for the Project at the CEC similarly provided inconsistent figures for the Project disturbance area and facility footprint.[37] 6-010

Significantly, none of the inconsistently reported amounts of disturbed acreage took into account the proposed transmission line to the planned Red Bluff substation and the associated road.[38] Thus, as discussed in the following section, the DEIS failed to consider *any* of the impacts associated with this transmission line route. 6-011

The introduction to Applicant's responses to Energy Commission staff's Data Requests ("DR" or "DRs") regarding biological resources attempts to clarify the Project disturbance area.[39] This explanation only induces further confusion. The introduction recites the AFC Disturbance Area as 3,874 acres and the revised Project Disturbance Area as 3,945.8 acres. These figures suggest that at least some of the DEIS analyses failed to consider the impacts of the Project as a whole. Moreover, the revised Project Disturbance Area reported in the introduction to DR responses took into account the Transmission Line Disturbance Area for the 6-012

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[35] *See* 2000 Census: US Municipalities Over 50,000: Ranked by 2000 Population, available at: http://www.demographia.com/db-uscity98.htm.

[36] *See*, e.g., DEIS, Proposed Project, pp. B.1-1 [2,970 acres disturbed], B.2-16 [2,740 occupied by Units 1 and 2], Biological Resources, C.2-1 [3,899 acres disturbed], Health and Safety, C.5-21 [2,740 acres disturbed], C.9-3 [2,970 acres disturbed], C.12-14 [4.5 square miles].

[37] *See* AFC, § 2.0, Fact Sheet [2,970 acres disturbed]; *see also id.* at pp. 5.3-9 [3,871 acres disturbed and 2,970-acre facility footprint], 5.4-1 [3,871 acres disturbed].

[38] *See Id.* at p. C.6-1.

[39] *See* BIO-1.

formerly proposed transmission line to the south of the Project site, not the current much longer transmission line to the west of the Project site.[40] 6-012 cont.

The estimated amount of cut and fill for the Project is also inconsistent. In the Streambed Alteration Notification submitted to the California Department of Fish and Game ("CDFG") and in the DEIS, only 4.5 million cubic yards of earth movement is reported.[41] In contrast, the response to DR-S&W-181 states that 16.3 million cubic yards will be moved. Thus, the DEIS may have underreported the amount of earth movement by a factor of almost four. 6-013

As discussed further below, the DEIS also failed to accurately identify all Project characteristics. Project characteristics not considered in the DEIS, include: 6-014

- The transmission line to the Red Bluff substation and associated access roads and spur roads,
- Redesigned drainage facilities for the Project site,
- Newly proposed evaporation ponds for wastewater, and
- A new on-site concrete batch plant.[42]

The BLM must revise the DEIS to provide a reasonable, consistent, good faith and objective presentation of the Proposed Action characteristics, the qualities of the affected environment, and the environmental consequences of the Proposed Action and its alternatives. 6-015

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[40] *Ibid.*

[41] *See* Attachment C, Notification of Lake or Streambed Alteration, § 10, Project Description [describing preliminary site grading plan]; *see also* DEIS, p. C.9-35.

[42] *See* Attachment D, document entitled "Environmental Evaluation of Project Updates," submitted to CEC as Attachment 2 to Applicant's Initial Comments on SA/DEIS.

B. The DEIS Impermissibly Segments Environmental Review by Failing to Consider Project Impacts Associated with the Proposed Transmission Line, Redesigned Drainage Facilities, Evaporation Ponds, and On-site Concrete Batch Plant.

1. Scoping Under NEPA Requires Evaluation of All Impacts Associated with a "Single Course of Action."

"Major Federal actions" include not only those actions undertaken by federal agencies, but also "actions with effects that may be major and which are potentially subject to Federal control and responsibility."[43] This includes "projects and programs entirely or *partly* financed, assisted, conducted, *regulated, or approved by* federal agencies . . . ."[44]

When evaluating a project's environmental impacts under NEPA, a federal agency must consider the entire project. "Proposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement."[45] This principle was established early in the development of NEPA law, and applies even when the federal involvement is limited to approving a relatively small aspect of the project.[46]

For example, in *Cady*, the U.S. Geological Survey approved a mining plan to be undertaken by a private mining company.[47] The mining plan covered 770 acres over 5 years; but the mining company had leased over 30,000 acres for a 20-year period. The court held that the agency was required to prepare an EIS for the whole project.[48]

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[43] 40 C.F.R. § 1508.18.

[44] *Id.* at § 1508.18, subd. (a) (emphasis added).

[45] *Id.* at § 1502.4, subd. (a).

[46] *E.g., Maryland Conservation Council, Inc. v. Gilchrist*, 808 F.2d 1039, 1042 (4th Cir. 1986); *Sierra Club v. Hodel*, 544 F.2d 1036, 1040-41 (9th Cir. 1976); *Cady v. Morton*, 527 F.2d 786, 795 (9th Cir. 1975).

[47] 527 F.2d at 795.

[48] *Ibid.* An agency's duty to evaluate all environmental impacts associated with a privately undertaken project may even be triggered by its duty to protect lands adjacent to the project area. *Sierra Club* dealt with a County's plan to improve a road within an existing BLM right-of-way. (848 F.2d at 1073.) Portions of the road were adjacent to wilderness study areas. The court held that

The DEIS must address closely related "connected actions," as well as similar actions and cumulative actions.[49] Under NEPA, actions are connected if they:

(i) Automatically trigger other actions which may require environmental impact statements.
(ii) Cannot or will not proceed unless other actions are taken previously or simultaneously.
(iii) Are interdependent parts of a larger action and depend on the larger action for their justification.[50]

The BLM's Processing Guidance document, which addresses general requirements for processing solar power projects in the California Desert District, is consistent with the requirement that transmission lines must be treated as part of the Proposed Action.[51] The guidance documents states that the transmission line and associated infrastructure must be analyzed in the DEIS, to the extent information concerning the transmission line is available at the time the analysis is prepared.[52] Further, the BLM NEPA handbook instructs BLM to evaluate whether studying connected actions in a single NEPA document would improve the quality of analysis and efficiency of the NEPA process, and provide a stronger basis for decision-making.[53]

The DEIS only covers the Project's footprint and a formerly proposed transmission line ROW and substation to the south of the Project site.[54] While some chapters of the DEIS mention the proposed route to the Red Bluff

6-016

BLM's statutory duty to protect wilderness study areas from unnecessary degradation "injects an element of federal control for the required action that elevates this situation to one of major federal action." (*Id.* at 1090-91.)

[49] 40 CFR §1508.25(a).

[50] 40 CFR §1508.25(a)(1).

[51] Processing Guidance, pp. 2, 6.

[52] References in the DEIS and the July 2009 Updated Plan of Development to the Red Bluff substation indicate information regarding this transmission line route was available at the time the DEIS was prepared. *See, e.g.* DEIS, D.5-5 [describing 8-mile long transmission line], B.1-11 [describing 10-mile distance to Red Bluff substation]; *see also* Updated Plan of Development, dated July 20, 2009, p. 35 [describing 12-mile gen tie line].

[53] NEPA Handbook, p. 45.

[54] *See, e.g.*, DEIS, C.2-13 [Biological Resources chapter description of proposed project, describing original 1.2-mile transmission line corridor to the south of Project site].

substation,[55] the DEIS does not address the impacts associated with transmission lines now under consideration. The DEIS also fails to consider several new Project components that the Applicant has proposed since release of the DEIS.[56] Failure to consider all aspects of the proposed action violates NEPA because it improperly segments the Project.

6-016 cont.

The transmission line to the Red Bluff substation is an integral component of the Project. The Project requires the transmission line in order to deliver the power it will generate to Southern California Edison ("SCE") and to the grid.[57] As such, the transmission line is a necessary conduit for the Project's electricity, and is merely one aspect of the larger Project. By authorizing the transmission line ROW, BLM would enable the Project to proceed. Similarly, the concrete batch plant is necessary for Project construction, and the evaporation ponds are necessary for Project operations. Thus, BLM must also consider these Project characteristics during its environmental review under NEPA, and must provide an opportunity for the public to comment on revisions to the proposed Project and the associated impacts.

6-017

> NEPA requires responsible opposing viewpoints to be included in the final EIS. [Citations.] This reflects the paramount Congressional desire to internalize opposing viewpoints into the decision-making process to ensure that an agency is cognizant of all the environmental trade-offs that are implicit in a decision. [Citations.] To effectuate this aim, NEPA requires not merely public notice, but public participation in the evaluation of the environmental consequences of a major federal action. [Citation.] ¶ *Failure to disclose a Proposed Action before the issuance of a final EIS can defeat this aim, at least when the Proposed Action differs radically from the alternatives mentioned in a draft EIS.*[58]

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[55] *See* DEIS, p. B.1-11 [describing 10-mile distance to Red Bluff substation]; *see also Id.* at pp. C.11-1, C.11-4; *see also* Updated Plan of Development, dated July 20, 2009, p. 35 [describing 12-mile gen tie line]; *see also* Applicant's Responses to CEC Data Requests Set 1, Vol. A, Biological Resources, (January 6, 2010), Figures: DR-BIO-60-2, DR-BIO-63-1, DR-BIO-64-1, DR-BIO-91, DR-BIO-98-2, DR-BIO-98-3, DR-BIO-98-4, DR-BIO-101.

[56] *See generally* Attachment D, Environmental Evaluation of Project Updates.

[57] DEIS, p. D.5-1.

[58] *State of Cal. v. Block*, 690 F.2d 753, 771 (9th Cir. 1999), citations omitted and italics added.

Further, NEPA requires preparation of a supplement to a draft EIS when "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."[59] A supplemental EIS is required if a new proposal "will have a significant impact on the environment in a manner not previously evaluated and considered."[60]

The change in the transmission line route from the route analyzed in the DEIS (from the Project site to a nearby proposed Substation to the south) to a proposed substation that is substantially further away is one example of new information that necessitates recirculation of a supplemental EIS. The newly proposed transmission line route and its associated roads will cross numerous desert washes and will traverse a substantially longer expanse of undisturbed desert. This aspect of the Project will have impacts to biological resources and to drainage features within the transmission line ROW. 6-018

Here, it is undisputed that the proposed Project cannot be constructed or operated without a transmission line connecting the Project to the electricity grid, a concrete batch plant, evaporation ponds, and redesigned drainage infrastructure. Because these Project characteristics are necessary parts of the Project, they are connected actions with potentially significant impacts that must be analyzed in a revised DEIS or a supplement to the DEIS that is circulated for public review and comment. 6-019

2. The DEIS Failed to Analyze Project Impacts Associated with the New Transmission Line Route, the Evaporation Ponds, the Concrete Batch Plant, and Redesigned Drainage Facilities.

NEPA "promotes its sweeping commitment" to environmental integrity "by focusing Government and public attention on the environmental effects of proposed agency action. [citation] By so focusing agency attention, *NEPA ensures that the*

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[59] 40 C.F.R. § 1502.9 [agencies shall "prepare supplements to either draft or final environmental impact statements if: (i) the agency makes substantial changes in the proposed action that are relevant to environmental concerns; or (ii) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts"].

[60] *S. Trenton Residents Against 29 v. Fed. Highway Admin.* (1999) 176 F.3d 658, 663; *see also* NEPA Handbook, pp. 29-30.

agency will not act on incomplete information, only to regret its decision after it is too late to correct."[61]

With respect to this DEIS, the BLM has not taken the required "hard look" at impacts associated with the transmission upgrades it has already identified as necessary. Nor has the BLM analyzed the impacts associated with other newly proposed Project features. Potentially significant impacts not identified or evaluated in the DEIS include the following: 6-020

- Air quality – Equipment used for construction of the transmission lines and associated access and spur roads would emit nitrogen oxides ("NO_x"), volatile organic compounds ("VOC"), particulate matter ("PM_{10}" and "$PM_{2.5}$"), carbon monoxide ("CO") and carbon dioxide ("CO_2"). The Project area is classified non-attainment for ozone and PM_{10}.[62] Operation of the concrete batch plant during Project construction will also produce emissions that were not considered in the DEIS. 6-021

- Water Quality – An access road and spur roads will be built along the transmission line route. These roads will impact natural drainage patterns in numerous washes flowing north from the Chuckwalla Mountains to the south. The redesigned drainage facilities will also cause unaddressed impacts to water quality. 6-022

- Cultural resources – Construction of the new transmission line has the potential to impact recorded archaeological and historical sites.[63] 6-023

- Biological resources – The area that will be impacted by the transmission line supports a variety of biological resources, including threatened and endangered species. Transmission line construction and operation would temporarily and permanently disturb habitat supporting these species. 6-024

We note that this is not a complete list of the potentially significant impacts associated with the transmission line to the planned Red Bluff substation and other 6-025

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[61] *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 371, 109 S.Ct. 1851, 104 L.Ed.2d 377 (1989), italics added.

[62] DEIS, p. C.1-10.

[63] Such impacts trigger BLM's duties under the National Historic Preservation Act, 16 U.S.C. § 470 *et seq. See The Extent to Which the National Historic Preservation Act Requires Cultural Resources to be Identified and Considered in the Grant of a Federal Right of Way*, 87 Interior Dec. 27 (1979).

newly proposed Project features. The CEC's licensing process and the BLM's permitting process are underway and issues are still being developed. The EIS should identify, evaluate and mitigate, where feasible, all of the potentially significant impacts associated with all Project features, including those identified above.

6-025 cont.

C. The DEIS Fails to Adequately Analyze the Project's Contribution to Several Acknowledged Categories of Significant Cumulative Impacts.

A proper consideration of a Project's cumulative impacts requires "'some quantified or detailed information; ... [g]eneral statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided.'"[64] The analysis "must be more than perfunctory; it must provide a useful analysis of the cumulative impacts of past, present, and future projects."[65]

The DEIS Fails to consider the Project's contribution to adverse cumulative impacts to wildlife connectivity and other cumulative impacts that will be caused by the influx of immense solar facilities in the CDCA Plan area. The Project's contribution must be considered together with nearby proposed large-scale solar projects, including but not limited to:

6-026

[64] *Ocean Advocates v. U.S. Army Corps of Eng'rs*, 361 F.3d 1108, 1128 (9th Cir. 2004), quoting *Neighbors of Cuddy Mountain*, 137 F.3d at 1379-80.

[65] *Id.*, internal quotations and citations omitted.

Table 1: Proposed Large Scale Solar Projects in the Vicinity of PSPP

Project Name/ Serial No.	Applicant	Type	BLM Acreage[66]	CEC Acreage[67]	DEIS Acreage[68]
Chuckwalla Solar 1, CACA 48808	Chuckwalla Solar, LLC	Photo-voltaic ("PV")	4,099	Not Available	ROW: 4,091 (or 4,083)
Blythe, CACA 48811	Solar Millennium	Solar Thermal ("ST")	11,056	ROW: 9,400 Disturbed: 7,030	ROW: 7,239 (or 9,400)
Genesis Ford Dry Lake, CACA 48880	NextEra Energy/ Florida Power & Light ("FPL")	ST	18,083	ROW: 4,640 Disturbed: 1,800	ROW: 1,768
Genesis McCoy, CACA 48728	FPL	ST	20,608	Not Available	Not Available*
CACA 49097	Bullfrog Green Energy, LLC	ST	6,634	Not Available	Not Available*
Desert Sunlight, CACA 48649	First Solar, Inc.	PV	14,905	Not Available	ROW: 5,119 (or 5,000-6,000)
Desert Quartzite, CACA 49397	First Solar, Inc.	PV	7,548	Not Available	ROW: 7,530 (or 7,724)

6-026 cont.

[66] *See* Attachment E, First-In-Line Solar Applications, dated December 21, 2009, available at http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/energy/solar.Par.45875.File.dat/Renew_Energy_2_09_solar.pdf (as of June 11, 2010).

[67] *See* links to CEC descriptions of pending solar projects, available at: http://www.energy.ca.gov/sitingcases/all_projects.html#review (as of June 11, 2010). Some acreage figures were taken from the environmental review documents prepared for the respective project, when available.

[68] *See* DEIS, Biological Resources Table 9; *see also id.* at Cumulative Scenario Table 2 [figures in parenthesis included where DEIS inconsistently reports the size of some pending projects].

2357-037a

Project Name/ Serial No.	Applicant	Type	BLM Acreage[66]	CEC Acreage[67]	DEIS Acreage[68]
CACA 49488	EnXco Development, Inc. ("EnXco")	ST	1,327	Not Available	Not Available*
CACA 49489	**EnXco**	**ST**	16,088	Not Available	Not Available*
CACA 49490	EnXco	ST	20,608	Not Available	Not Available*
CACA 49491	**EnXco**	**ST**	1,327	Not Available	Not Available*
Big Maria Vista, CACA 49702	Bullfrog Green Energy, LLC	ST	22,717	Not Available	ROW: 22,663 (or 2,864)
CACA 50379	Lightsource Renewables, LLC	ST	2,446	Not Available	Not Available*
		Totals:	[illegible]		

* The DEIS apparently did not consider these projects in the cumulative impacts analyses.

6-026 cont.

Together, these nearby pending projects would occupy almost **150,000 acres** (the amount of disturbed acres has been inconsistently reported by the CEC and BLM), primarily within desert valleys where groundwater and vegetation generally are more plentiful than in upland areas.[69]

D. The Baseline for Analyzing Environmental Impacts is Improper.

The BLM must analyze the Project's impacts on the affected environment.[70] This process begins by describing "the present condition of the affected resources within the identified geographic scope" and by providing "a baseline for cumulative effects analysis."[71]

Once a project begins, the "pre-project environment" becomes a thing of the past, thereby making evaluation of the project's effect on pre-project resources

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[69] *See* Attachment F, BLM Map: Renewable Energy Projects and Utility Corridors, Projects as of May 21, 2010.

[70] NEPA Handbook, p. 53.

[71] *Ibid.*

impossible.[72] Without establishing the baseline conditions which exist in the vicinity of the proposed Project before it is built, there is simply no way to determine what effect the proposed large-scale solar facility will have on the environment and, consequently, no way to comply with NEPA.[73]

An accurate description of the affected environment is an essential prerequisite for an adequate analysis of Project impacts. For example, information on the type(s) and level(s) of habitat disturbance in the Project area is necessary to make inferences about the presence, abundance, and distribution of the special-status species that may be impacted by the Project. Here, however, baseline information was collected after release of the DEIS. The Spring 2010 surveys were conducted in part to identify the environmental baseline information for the transmission line corridor for the Project, a portion of the Project that was not adequately addressed in the DEIS.[74] BLM staff apparently recognized that the transmission line for the Project and its associated access road and spur roads are parts of the Project that must be analyzed in the RSA.[75] Numerous wildlife and plant species with special-status listing were identified as present in the Project study area and the proposed transmission line alignments or have the potential to occur in these areas.[76] These include desert tortoise ("DT"), Mojave fringe-toed lizard ("MFTL"), Western burrowing owl ("WBO"), the golden eagle, and Coachella Valley milk-vetch. Therefore, information regarding the likelihood of their occurrence along the transmission line corridor is relevant to the BLM's basic assessment of the "affected environment."

6-027

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[72] *Half Moon Bay Fishermans' Marketing Ass'n v. Carlucci* 857 F.2d 505, 510 (9th Cir. 1988), citing *LaFlamme v. FERC,* 842 F.2d 1063, 1071 (9th Cir.1988)

[73] *Ibid.*

[74] *See, e.g.*, DEIS, p. C.2-13 [describing transmission line as extending 1.2 miles to the south of the Project site, rather than extending approximately 10 miles to the west of the site]; see also *id.* at C.9-35 [describing minor excavation required for transmission line, but omitting discussion of excavation required for access and spur roads]; *see also* Attachment G, Survey Approach and Methodologies for the Solar Millennium Parabolic Trough Palen Solar Power Project, April 10, 2010 ("2010 Survey Protocol") [acknowledging need for surveying along westward transmission line corridor].

[75] *See, e.g.*, DEIS, pp. C.11-1, C.11-4 [chapter regarding transmission line safety acknowledges need to analyze impacts associated with transmission line and correctly identifies transmission line route].

[76] *See* DEIS, pp. C.2-27 – C.2-60; *see also* Attachment G, 2010 Survey Protocol, pp. 1-14; *see also* Attachment H, Letter regarding Preliminary Spring 2010 Survey Results for Desert Tortoise, Rare Plants and Jurisdictional Waters, dated May 7, 2010 ("Preliminary Spring 2010 Survey Results").

The transmission line corridor will be approximately 8-12 miles long.[77] The DEIS recognized that the transmission line route had changed from the route identified in the AFC and that additional information and analysis would be required in order to properly address the impacts associated with developing the transmission line.[78] The Applicant also evidently recognized that the description of the environmental baseline and the analysis of Project impacts would have to be modified in a Revised Staff Assessment, after conducting surveys along the new transmission line corridor.[79]

According to the survey protocol provided by the Applicant, the 2010 surveys were only conducted in Project disturbance and buffer areas that were not surveyed in 2009.[80] As a result, the Spring 2010 surveys did not provide a thorough or robust sampling and may not have yielded a representative capture of the species present within the Project disturbance area, along the transmission line route and in the buffer areas.

The DEIS must be revised to accurately describe the affected environment.

6-027 cont.

E. <u>The DEIS Fails to Adequately Address the Irreversible Commitment of Resources Associated with the Project.</u>

The impacts analysis must include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented.[81] Here, the Project lifespan is projected to be 30 years. While the DEIS purports to

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[77] Documents submitted to and prepared by the CEC and BLM inconsistently describe the length of the transmission line. *See*, e.g., SA/DEIS, pp. B.1-11 [describing 10-mile distance to substation], D. 5-5 [describing 8-mile gen tie line]; *see also* Updated Plan of Development, dated July 20, 2009, p. 35 [describing 12-mile gen tie line].

[78] *See* DEIS, pp. B.1-11, C.2-13, C.11-1.

[79] *See* PSI's Initial Comments on SA/DEIS, dated May 4, 2010, p. 2 ["The required biological resources and cultural resources surveys for [the selected gen-tie] route are underway and results will be reported when they are available later this spring"].

[80] *See* Attachment G, 2010 Survey Protocol, pp. 2-6, 10.

[81] 40 C.F.R. § 1502.16.

analyze Project decommissioning, it does not adequately address the long-term ramifications of disturbing the landscape to build and operate this Project.[82] This type of problem solving must occur now, before the BLM approves a proposed Project that will disturb thousands of acres of habitat and the wildlife that currently occupy this habitat.

6-028 cont.

F. Under NEPA, the DEIS Must Integrate All Applicable Federal and State Environmental Laws.

If a Project requires State approval, the federal agency must cooperate with State and local agencies "to the fullest extent possible to reduce duplication between NEPA and State and local requirements."[83] In California, this requires that federal agencies cooperate with State and local agencies to prepare a joint EIS/EIR under CEQA.[84] BLM policy recommends that State agencies be identified as joint lead agencies at the earliest possible stage.[85]

The Project will require site certification from the CEC and will also require approval of a streambed alteration agreement from the CDFG and waste discharge requirements ("WDRs") by the Regional Water Quality Control Board ("RWQCB"). Thus, the Applicant will require approval under CEQA before it can proceed with Project construction. The BLM must work with the CEC, CDFG and RWQCB to facilitate this process. It is essential for the BLM to encourage preparation of a joint EIS/EIR at the earliest possible stage to avoid duplication of materials and resources and unnecessary delay.

6-029

The DEIS does not comply with CEQA. First, California courts have repeatedly held that "an accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient [CEQA document]."[86] Compliance with CEQA, therefore, requires that the environmental document provide an accurate, consistent and complete description of the Project. As discussed above, the DEIS fails to do so.

6-030

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[82] *See, e.g.*, DEIS, pp. C.2-99 – C.2-100 [acknowledging Applicant's Draft Conceptual Decommissioning Plan inadequate for evaluating success of site restoration].

[83] 40 C.F.R. § 1506.2(b).

[84] 14 C.C.R. §§ 15222(a)(1), 15226, 15227 (2010).

[85] NEPA Handbook p. 114.

[86] *County of Inyo v. City of Los Angeles*, 71 Cal.App.3d 185, 193 (Cal. Ct. App. 1977).

Second, CEQA imposes an affirmative obligation on agencies to avoid or reduce environmental harm by adopting feasible project alternatives or mitigation measures.[87] The DEIS does not propose sufficient mitigation measures, however, to reduce or avoid the Project's impacts. For example, the DEIS states that impacts to cultural resources will be mitigated through implementation of unspecified requirements in a yet-to-be-developed programmatic agreement ("PA").[88] Because the terms of the PA have not been developed, it is impossible to determine whether the Project's impacts to cultural resources will be sufficiently mitigated. The mitigation measures proposed to address impacts to biological resources are similarly flawed because they impermissibly defer the formulation of measures that will effectively avoid the impacts or reduce them to less-than-significant levels. 6-031

Because the CDFG and the RWQCB must issue permits ***before*** the Applicant can begin ***any*** development on the Project site, the BLM must abide by the requirements of NEPA and work with the State agencies to develop a joint EIS/EIR. This will avoid duplication of government materials and resources. 6-032

IV. SPECIFIC COMMENTS REGARDING IMPACT ANALYSES AND MITIGATION MEASURES

In an EIS, the agency must consider every significant aspect of a proposed action.[89] An EIS's discussion of environmental impacts forms the scientific and analytic basis for comparison of the alternatives.[90] The discussion of impacts must include both "direct and indirect effects (secondary impacts) of a proposed project."[91] An agency need not speculate about all conceivable impacts, but it must evaluate the reasonably foreseeable significant effects of the proposed action.[92] Reasonable foreseeability means that "the impact is sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision."[93]

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[87] Cal. Pub. Res. Code §§ 21002, 21002.1.

[88] DEIS, p. C.3-93.

[89] *Balt. Gas & Elec. Co. v. Natural Res. Def. Council*, 462 U.S. 87, 97 (1983); *Dubois v. U.S. Dep't of Agric.*, 102 F.3d 1273, 1286 (1st Cir. 1996).

[90] 40 C.F.R. § 1502.16; *Dubois*, 102 F.3d at 1286.

[91] 40 C.F.R. § 1502.16 (a), (b); *Sierra Club v. Marsh*, 976 F.2d at 767; *Dubois*, 102 F.3d at 1286.

[92] *Sierra Club v. Marsh*, 976 F.2d at 768.

[93] *Dubois*, 102 F.3d at 1286, citing *Sierra Club v. Marsh*, 976 F.2d at 767.

The DEIS does not consider all of the Project's significant and foreseeable environmental impacts to biological resources, water resources, transmission and communication systems, hazards and cultural resources and land use, among others. The BLM's failure to take a hard look at the Project's impacts violates the basic requirements of NEPA. The BLM must revise its impacts analysis and issue a substantially revised or supplemental DEIS for public review and comment. 6-033

A. Impacts to Biological Resources and Special-Status Species

Jim Cornett, a certified wildlife biologist, reviewed the portions of the DEIS addressing impacts on biological resources and special status species. His comments, summarized below, are attached, together with copies of his *curriculum vitae*.

1. *The Analysis of Impacts to Biological Resources Fails to Consider Impacts Associated With the Transmission Line, Evaporation Ponds, Concrete Batch Plant and Redesigned Drainage Facilities*

As stated above, the DEIS fails to consider impacts associated with the transmission line to the planned Red Bluff substation, the newly proposed evaporation ponds, the on-site concrete batch plant, and the redesigned drainage facilities for the Project site. 6-034

The Applicant has recently provided a more detailed and presumably accurate description of the transmission line design, including the access and spur roads that will be built along the transmission line route.[94] The same document from the Applicant briefly describes the four proposed evaporation ponds and the concrete batch plant.[95]

The preliminary results for the Spring 2010 surveys reveal the presence of DT, WBO, and desert washes along the transmission line route.[96] The evaporation 6-035

[94] *See* Attachment D, Environmental Evaluation of Project Updates, pp. 7-8. According to the Applicant, Southern California Edison ("SCE") is considering two alternative locations for the Red Bluff substation. *Ibid.* The transmission line to one alternative location would be approximately 5.25 miles long. The transmission line to the other alternative location would be 11.75 miles long. *Ibid.* The transmission line route considered in the DEIS biological resources analysis was only 1.2 miles long. DEIS, p. C.2-13.

[95] *See id.* at pp. 1-4.

[96] *See generally*, Attachment H, Preliminary Spring 2010 Survey Results.

ponds may pose a hazard to migratory birds. The redesigned drainage facilities will directly impact the desert washes on the Project site and will also impact downstream drainage features and associated habitats. The DEIS must be revised to consider these impacts. 6-035 cont.

2. Inadequate Analysis Of Impacts On The Threatened Desert Tortoise

Desert tortoises are listed as a threatened species under both the ESA and the California Endangered Species Act ("CESA"). Despite the protected status of desert tortoises, the BLM failed to take a hard look at the direct, indirect, and cumulative impacts caused by the Proposed Action and the action alternatives. 6-036

a. Inadequate baseline for measuring Project impacts

In surveys conducted by the Applicant's consultant in Spring 2009, no live DT were observed on-site, but fresh DT sign such as scat and active burrows were observed.[97] A total of 5 live DT and extensive DT sign were detected during surveys conducted in Spring 2010: 1 on the proposed Project site and 4 within the buffer area.[98] The DEIS failed to report the number of DT individuals and their sign found present on the Project site.[99] The DEIS recognizes that the Project will cause both short- and long-term, as well as direct and indirect impacts, to tortoises, but it underestimates the severity of these impacts because it is based on inadequate survey data and assumes the Project site offers low quality DT habitat.[100] The results of the Spring 2010 survey undermines this assumption. As stated by Mr. Cornett in his attached comments, the presence of active burrows on the Project site suggests the presence of multiple DT individuals.[101] Based on his observations during a recent site visit and his review of the DEIS and other materials, Mr. Cornett has found that the Project site offers "excellent tortoise habitat," not moderate or low quality habitat as stated by the Applicant and repeated in the DEIS.[102] 6-037

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[97] *See* AFC, Table 5.3-7.

[98] *See* Attachment H, Preliminary Spring 2010 Survey Results, Table 1.

[99] *See* DEIS, pp. C.2-73 – C.2-76.

[100] See *Ibid.*; see also Attachment A, Cornett Comments, pp. 3-5 [identifying flaws in survey methodology].

[101] *See* Cornett Comments, p. 3.

[102] *Compare id.* at pp. 5-8 *with* DEIS, p. C.2-77.

b. Inadequate analysis of direct and indirect impacts

Direct and indirect impacts to desert tortoises will be severe. For example, the tortoises would be susceptible to mortality from collisions with vehicles entering and leaving the site and vehicles using the transmission line access and spur roads.[103] This latter hazard was not considered in the DEIS. Clearing of the site, construction of the security fence, and Project operations would pose additional collision risks to the DT and would increase DT predators such as the common raven, the Desert kit fox, coyote, and feral dogs.[104] While the DEIS acknowledged the risk of increased predation due to the introduction of raven perching sites, it failed to consider the 8-12-mile long transmission line as an additional source of raven perching sites.[105] 6-038

The DEIS did not consider several sources of DT impacts. For example, during Project construction, vibrations of heavy equipment could cause burrows to collapse, burying the tortoises alive and destroying their habitat. In addition, relocated/translocated tortoises that are forced to construct new burrows would be exposed to death by dehydration or upper respiratory tract disease. In addition, the spread of invasive plant species on the site, especially Sahara mustard, would cause an indirect loss to foraging habitat. 6-039

c. Inadequate analysis of cumulative impacts

The DEIS concludes that there would be cumulative effects to the DT, such as loss of connectivity between the Chuckwalla and Chemehuevi DWMAs and critical habitat areas.[106] However, the methodology for analyzing the Project's contribution to cumulative DT impacts does not follow the BLM's guidance.[107] For example, the analysis does not define the geographic scope for analysis of DT cumulative impacts.[108] Nor does the analysis address short-term verses long-term cumulative impacts, as recommended in BLM's guidance.[109] Short-term impacts include the 6-040

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[103] *Id.* at p. C.2-81.

[104] *Id.* at p. C.2-80.

[105] *Ibid.*

[106] *Id.* at p. C.2-123.

[107] *See* NEPA Handbook, pp. 57-61.

[108] *See* DEIS, pp. C.2-122 – C.2-124.

[109] *See ibid.*; see also NEPA Handbook, p. 58.

2357-037a

immediate loss of at least 3,899 acres of occupied DT habitat and dislocation of the DT present on the Project site. Long-term impacts include the loss of connectivity between a large expanse of habitat in the Chuckwalla Valley and the upland designated critical habitat in the Chuckwalla DWMA. 6-040 cont.

The following six solar project ROWs are proposed within just 10 miles of the Project,[110] totaling almost 56,000 acres of land devoted to solar projects within the Chuckwalla Valley and Palen Valley: Chuckwalla Solar (CACA 48808), Genesis (CACA 48880), Desert Sunlight (CACA 48649), EnXco (#1) (CACA 49488), EnXco (#2) (CACA 49489), and EnXco (#3) (CACA 49491).[111] The discussion of cumulative impacts in the DEIS fails to accurately report the total number of ROW acres for each project.[112] The BLM must analyze what impact the loss of thousands of acres of habitat land within a 10-mile radius will have on the long-term success of the species. As Mr. Cornett states in his comments "Even though the desert tortoise is an officially threatened species, it is now facing the greatest assault on its habitat in the history of the United States."[113] 6-041

The above comment regarding cumulative impacts to DT applies not just to the analysis of cumulative impacts to DT but to the cumulative impacts to all species that are present on multiple sites in the region that are currently planned for intensive large-scale industrial development. 6-042

The BLM must also rigorously compare the Proposed Action's cumulative effects with the reduced cumulative effects of the Reconfigured Alternative, the revised Reduced Acreage Alternative and the use of alternate sites.[114] 6-043

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[110] *See* Attachment F, Regional Setting with Vicinity Projects, dated April 14, 2009; *see also* Attachment E, First-In-Line Solar Applications, dated December 21, 2009, available at http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/energy/solar.Par.45875.File.dat/Renew_Energy_2_09_solar.pdf (as of June 24, 2010).

[111] *Ibid.* Two projects proposed by Solel, Inc. (CACA 49493 and CACA 49494) were omitted from the total acreage calculation because these ROW applications have apparently been rejected.

[112] *See* DEIS, pp. C.2-118 – C.2-119 [describing, for example, the ROW for the Project as 3,001 acres instead of the accurate ROW area, 5,200 acres (not including the transmission line ROW)].

[113] Cornett Comments, p. 9.

[114] *See* NEPA Handbook, p. 59.

2357-037a

3. Inadequate Analysis Of Impacts On The Mojave Fringe-Toed Lizard

a. Inadequate baseline for measuring Project impacts

Although the resource agencies have not issued survey guidelines for the MFTL, Jones and Lovich (2009) indicate that MFTLs are most commonly detected from late spring (May) through early fall (into October).[115] Because MFTLs are generally difficult to detect, they are more easily detected by teams of at least two people.[116] In the past, CDFG and FWS has required both pitfall trapping and intensive area searches to effectively survey Colorado Desert fringe-toed lizards.[117] These surveys were to be conducted monthly between March and November.[118] 6-044

Here, nothing resembling a protocol survey was conducted for the MFTL even though some survey parameters exist for this species.[119] Observations on the project site, therefore, were incidental.[120] These observations were made during surveys conducted in the early spring of 2009 and early spring of 2010, before the most active period for MFTL. There is no evidence that the surveys were conducted by two or more people. Likewise, pitfall trapping and intensive surveys for MFTL were not conducted. Thus, the presence of MFTL on the Project site was likely underreported.

Nonetheless, during the 2009 spring surveys, 112 incidental observations were recorded within the PSPP disturbance area and dozens of additional sightings 6-045

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115 Jones LC, RE Lovich, eds. 2009. Lizards of the American Southwest: A Photographic Field Guide. Rio Nuevo Publishers, Tucson (AZ). p. 567.

116 *Ibid.*

117 CH2MHILL. 2002. Final Environmental Impact Report /Environmental Impact Statement. Imperial Irrigation District: Water Conservation and Transfer Project. Appendix F. Available at: http://iid.com/Media/Appendix-F-General.pdf.

118 *Id.*

119 See, e.g., Cablk, M.E. and J.S. Heaton. 2002 Nov. Mojave Fringe-Toed Lizard surveys at the Marine Corps Air Ground Combat Center at Twentynine Palms, California and nearby lands administered by the Bureau of Land Management. California: Marine Corps Air Ground Combat Center. Report M67399-00-C-0005, available at: http://www.dri.edu/People/mcablk/Cablk_Heaton_Final_Report.pdf (as of June 23, 2010).

120 Palen Solar Power Project Biological Technical Report, Riverside County, California, August, 2009, p. 82; see also Attachment I, Preliminary Spring 2010 Survey Results Corrected and Preliminary Impact Calculations for Biological Resources, dated May 27, 2010 ("Corrected Preliminary Spring 2010 Survey Results"), Table 3.

were recorded in the BRSA. In 2010, field surveyors made a total of 388 incidental observations of MFTL in previously unsurveyed areas, including the transmission line corridor.[121] These latter survey results are not reflected in the DEIS. Consequently, the DEIS fails to address all of the Project's impacts to MFTL. 6-045 cont.

b. Inadequate analysis of direct and indirect impacts

The DEIS appropriately recognizes some but not all of the direct and indirect impacts to MFTL habitat.[122] More MFTL individuals are likely present on the Project site and within the disturbance area that were reported in the DEIS and in the more recent Spring 2010 survey results. 6-046

Furthermore, as discussed above, the DEIS failed to address the impacts to MFTL that may occur along the transmission line route to the Red Bluff substation. In addition, the DEIS fails to address the impacts to MFTL associated with the proposed Sand Replenishment Program. 6-047

c. Inadequate analysis of cumulative impacts

As with the DT, cumulative impacts to the MFTL would surely occur as a consequence of building the eight currently proposed solar projects in the Project vicinity. The DEIS acknowledges that these cumulative impacts would be significant, but it fails to acknowledge the extent of these impacts and the Project's contribution to them.[123] For example, the analysis overestimated the total habitat in the NECO area and in the Chuckwalla Valley because it included lands, such as dry playas, that do not offer similar quality habitat for MFTL and the analysis made no attempt to rank habitat value.[124] The analysis also did not include habitat land that would be indirectly impacted by a number of factors including interruption of sand transport systems and premature stabilization of dunes due to the spread of noxious weeds.[125] 6-048

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[121] Attachment I, Corrected Preliminary Spring 2010 Survey Results, Table 3.

[122] DEIS, p. C.2-83 [acknowledging direct loss of 1,735 acres of habitat and indirect impacts to downwind habitat].

[123] *Id.* at p. C.2-84 [acknowledging cumulative impacts to MFTL]; *see also id.* at pp. C.2-125 – C.2-127.

[124] *Id.* at pp. C.2-125 – C.2-127.

[125] *Id.* at p. C.2-126.

The analysis of the Project's contribution to cumulative impacts must be revised to specifically address the cumulative impacts that will occur as a consequence of approving numerous immense solar projects within a confined geographic area. The discussion of pending projects that may disturb dune-dependant species including the MFTL appears to ignore the large projects proposed by enXco adjacent to the proposed Genesis project (CACA 49489 and CACA 49488). According to information provided by the BLM, these two projects alone will occupy approximately 17,415 acres of what appears to be predominantly dune habitat.[126] The analysis also appears to underestimate the amount of acres the First Solar Desert Sunlight project will impact: while the DEIS states that this project will occupy only 5,119 acres, other documents produced by the BLM state that this Project will occupy 14,905 acres.[127] The DEIS must be revised to address the Project's contribution to cumulative impacts to MFTL habitat. 6-049

4. Inadequate Analysis Of Impacts On The Western Burrowing Owl

The WBO is protected by the Migratory Bird Treaty Act, considered a Bird of Conservation Concern by the USFWS, and Sensitive species by the BLM.[128] The burrowing owl's special status both federally and within the State mandates that the BLM take a hard look at any potential impacts the Project may have on the species. Due to the inadequacies described below, the BLM must revise the DEIS analysis of impacts to the WBO. 6-050

a. Inadequate baseline for measuring Project impacts

The DEIS acknowledges that suitable habitat exists on the site and that the species was observed in the area in the past.[129] During the burrowing owl survey, two owl pairs with two juveniles each and four active burrows with sign were identified within the survey area.[130] The DEIS only reported one of these pairs and 6-051

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[126] *See* Attachment E, First-In-Line Solar Applications, dated December 21, 2009, available at http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/energy/solar.Par.45875.File.dat/Renew_Energy_2_09_solar.pdf (as of June 24, 2010); *see also* DEIS, Exhibit A to Soil and Water Report, Figure 4, Regional Geology Map.

[127] *Compare Ibid. with* DEIS, p. C.2-144.

[128] U.S. Fish & Wildlife Serv., Status Assessment & Conservation Plan for the Western Burrowing Owl in the United States, pp. 4-5 (2003).

[129] DEIS, pp. C.2-38, C.2-86 – C.2-87.

[130] *See* Draft Burrowing Owl Plan, dated January 2010, Introduction.

two of the four juveniles, underreporting the WBO observed onsite by at least half.[131] 6-051 cont.

According to the CDFG, a site should be assumed occupied if at least one burrowing owl has been observed occupying a burrow within the last three years.[132] Thus, the BLM should assume that the site is occupied by the WBO. 6-052

The WBO Technical Report indicates the Applicant conducted burrowing owl surveys in 2009 according to California Burrowing Owl Consortium ("CBOC") Guidelines.[133] Survey protocols require that tracks, feathers, pellets, or other items (prey remains, animal scat) at burrows should be reported. The Applicant determined several burrows to be "inactive."[134] However, the Applicant does not describe the analysis used to determine inactivity, including the estimated age and condition of sign. Thus, the Applicant may have underreported the amount of active WBO burrows on the Project site and within the buffer area. 6-053

In addition, the biologists may have missed observing additional burrowing owls because the surveys were deficient. Owl surveys are frequently conducted with binoculars and involve looking upward to identify flushed owls and listening for owl calls. The Phase II WBO surveys conducted in 2009 for the Project, however, were conducted in conjunction with DT surveys.[135] Phase II of the 2010 Surveys appear to have also been conducted in conjunction with DT surveys.[136] If the surveys were in fact conducted at the same time, it is likely that biologists may have missed observing the burrowing owl because they were looking down. Tortoise surveys do not require the biologist to look upward towards flushing owls, listen for calls or use binoculars. 6-054

The Applicant has not yet released the results of WBO surveys conducted in Spring 2010. Only these surveys examined the presence or absence of burrowing owl along the transmission line corridor and in areas that would be disturbed by 6-055

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131 *Id.* at p. C. 2-87.

132 Dep't of Fish & Game, Staff Report on Burrowing Owl Mitigation, 2 (Oct. 17, 1995).

133 Attachment J to BRTR, WBO Technical Report, p. 5.

134 Attachment J to BRTR, WBO Technical Report, pp. 7-8; *see also* Draft Burrowing Owl Plan, dated January 2010, § II (B) 2009 Burrowing Owl Survey Results.

135 Attachment J to BRTR, WBO Technical Report, p. 5.

136 *See* Attachment G, 2010 Survey Protocol, p. 4.

alternative Project configurations. The DEIS must be revised to consider the impacts to WBO (and other species) that are associated with the transmission line for the Project and with Project alternatives. It is essential that the BLM specifically determine the extent to which the WBO is present on the site in order to adequately mitigate potentially significant impacts and in order to decide between feasible Project alternatives. 6-055 cont.

b. Inadequate analysis of direct and indirect impacts

Because the surveys for WBO were inadequate and incomplete, the DEIS failed to sufficiently analyze the Project's impacts to WBO. 6-056

c. Inadequate analysis of cumulative impacts

The inadequacies of the cumulative impacts analysis concerning WBO are very similar to those described for the DT and MFTL described above. While the DEIS acknowledges some of the cumulative impacts to this species, it fails to provide the required "hard look" at the Project's contribution to these impacts.[137] 6-057

5. Inadequate Analysis Of Impacts On The Golden Eagle

The Golden eagle is protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Act. The DEIS contains a simplistic impact analysis concerning Golden eagles and their habitat.[138] 6-058

a. Inadequate baseline for measuring Project impacts

The DEIS recognizes that Golden eagles are present in the Mojave Desert and that a Golden eagle nest is located approximately 5.5 miles from the Project site.[139] No Golden eagles were identified during the avian point-count survey.

The USFWS has developed protocol for Golden eagle surveys. In February 2010, the USFWS released its "Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations."[140] According to this protocol, "[t]he 6-059

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[137] DEIS, p. C.2-131.

[138] *Id.* at pp. C.2-87 – C.2-88.

[139] DEIS, p. C.2-39.

[140] Pagel, J.E., D.M. Whittington, and G.T. Allen. 2010. Interim Golden Eagle inventory and monitoring protocols; and other recommendations. Division of Migratory Bird Management, U.S. 2357-037a

Applicant is responsible for providing up-to-date biological information about eagles that breed, feed, shelter, and/or migrate in the vicinity of the activity that may potentially be affected by the proposed activity."[141] The USFWS reports "[t]hese field efforts are the mutual responsibility of agencies authorizing activities and their permittees."[142] Despite these requirement, the DEIS relies on outdated information concerning the locations of nests in the region.[143]

The Applicant has apparently conducted helicopter surveys for Golden eagle nests in Spring 2010, following the release of the DEIS. On June 24, 2010, the Applicant submitted the results of the helicopter surveys. It is not clear whether the surveyors complied with the requirements for aerial and ground surveys described in the USFWS guidance document.[144]

Because nesting sites are within ten miles of the Project site and typical prey species occur on the Project site, the Project site likely lies within the hunting territory of the Golden eagle. The BLM must therefore consult with the USFWS and conduct a focused survey for this species.

6-059 cont.

b. Inadequate analysis of direct and indirect impacts

The DEIS assesses the impacts of the Project to golden eagle foraging habitat, based on incomplete and outdated information and no survey data, and concluded that the Project would not result in direct or indirect impacts to golden eagles.[145] The DEIS must be revised to take into consideration the results of the Spring 2010 golden eagle surveys. The DEIS must also resolve whether a permit from the USFWS would be required for the "take" of golden eagle(s).

6-060

Fish and Wildlife Service ("2010 Golden Eagle Survey Protocol"), available at: http://www.fws.gov/southwest/es/oklahoma/Documents/Wind%20Power/Documents/USFWS_Interim_GOEA_Monitoring_Protocol_10March2010.pdf (as of June 23, 2010).

141 *Id.* at p. 4.

142 *Id.* at p. 4.

143 DEIS, p. C.2-128 [reported nest locations rely on data developed in 1978, 1979, and 1984].

144 2010 Golden Eagle Survey Protocol, pp. 11-17.

145 DEIS, pp. C.2-87 – C.2-88.

2357-037a

c. Inadequate analysis of cumulative impacts

The DEIS acknowledges the Project would contribute to the cumulative loss of golden eagle foraging habitat within the NECO planning area.[146] In addition, Staff concluded the Project would reduce the availability of foraging habitat in the Project area and could degrade foraging habitat through the introduction and spread of noxious weeds and an increase in human activity in the area.[147] 6-061

6. Inadequate analysis of impacts to migratory/special-status bird species

a. Inadequate baseline for measuring Project impacts

The DEIS discussion concerning impacts to migratory/special-status bird species fails to acknowledge that surveys of the current transmission line route had not been conducted.[148] The preliminary results of the Spring 2010 surveys indicate that additional Desert Dry Wash Woodland will be impacted by the Project.[149] As reported in the DEIS, this type of riparian habitat supports 90% of birdlife within the Sonoran Desert.[150] Thus, the amount of acreage of habitat for migratory and special-status bird species reported in the DEIS is not accurate and must be revised. 6-062

b. Inadequate analysis of direct and indirect impacts

Because the surveys for jurisdictional waters along the transmission line route were inadequate and incomplete, the DEIS failed to sufficiently analyze the Project's impacts to migratory and special-status bird species that depend on the associated riparian vegetation for habitat. 6-063

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146 *Ibid.*

147 *Id.* at p. C.2-88.

148 DEIS, p. C.2-89.

149 Attachment I, Corrected Preliminary Spring 2010 Survey Results, Figure 3, Preliminary Results State Waters Spring 2010 Surveys.

150 DEIS, p. C.2-89.

c. Inadequate analysis of cumulative impacts

The section of the analysis concerning cumulative impacts to biological resources fails to mention (much less address) the cumulative impacts to migratory and special-status bird species.[151] The DEIS must be revised to address the Project's contribution to these cumulative impacts. 6-064

7. Inadequate analysis of impacts to rare plants

a. Inadequate baseline for measuring Project impacts

The DEIS acknowledges that the types and quantities of rare plants had not been determined at the time that the DEIS was published due to the inadequacy of the Applicant's botanical survey efforts.[152] The DEIS proposed that surveys be conducted for special status plants in the spring *and fall* of 2010.[153]

As the DEIS acknowledges, the Spring 2009 surveys were inadequate for several reasons, not least of which is the fact that certain rare plants are difficult if not impossible to detect outside of their blooming period.[154] Additional rare plant surveys were conducted in Spring 2010, after the release of the DEIS. The Applicant's protocol for the Spring 2010 rare plant surveys was similarly inadequate.[155] As of yet, no Fall rare plant surveys have been conducted. Several species have been identified as target species for Fall surveys, including Abram's spurge (*Chamaesyce abramsiana*), Flat-seeded spurge (*Chamaesyce platysperma*), Harwood's phlox (*Eriastrum harwoodii*) but targeted Fall surveys for these species have not been conducted.[156] 6-065

Despite incomplete information regarding the presence of rare plants both on and near the Project disturbance area, the DEIS concludes that the Project's impacts to rare plants will be reduced to less-than-significant levels through

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[151] *See id.* at pp. C.2-118 – C.2-146.

[152] DEIS, p. C.2-94.

[153] *Ibid.*

[154] *Ibid.*

[155] *See* Attachment G, Spring 2010 Protocol Doc.

[156] *See* DEIS, pp. C.2-30, C.2-44 – C.2-53.

mitigation.[157] The Applicant's botanical surveys, however, have not provided an adequate basis for analyzing potential Project impacts. The results of the Spring 2010 surveys for rare plants, for example, were not considered in the DEIS analysis.[158]

6-065 cont.

b. Inadequate analysis of direct and indirect impacts

The analysis of Project direct and indirect impacts to the two species identified during Spring 2009 surveys fails to consider the direct and indirect impacts to plant specimens that were not discovered during the surveys. Because the surveyors walked wide transects, they certainly could not have observed every rare plant present on the Project site and in the buffer area. Because some rare plants were observed, the site should be considered occupied by those species and the direct and indirect impacts to the species must be considered significant.

6-066

c. Inadequate analysis of cumulative impacts

The analysis of cumulative impacts to dune-dependant rare plants relied on inaccurate and incomplete information concerning the size of the PSPP project and other pending projects in the region. This analysis describes the Project's disturbance area as 3,001 acres, when, earlier in the chapter, the Project is described as disturbing 3,899 acres.[159] In addition, the discussion of pending projects that may disturb dune-dependant rare plant habitat also appears to ignore the large projects proposed by enXco adjacent to the proposed Genesis project (CACA 49489 and CACA 49488). According to information provided by the BLM, these two projects alone will occupy approximately 17,415 acres of what appears to be predominantly dune habitat adjacent to Ford Dry Lake.[160]

6-067

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[157] *Ibid.*

[158] *See* Attachment I, Corrected Preliminary Spring 2010 Survey Results, Table 2, Rare Plant Population Counts Spring 2010, Figure 2, Rare Plant Spring 2010 Surveys.

[159] *See* DEIS, p. C.2-144. Again, this figure fails to consider the transmission line to the planned Red Bluff substation.

[160] *See* Attachment E, First-In-Line Solar Applications, dated December 21, 2009, available at http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/energy/solar.Par.45875.File.dat/Renew_Energy_2_09_solar.pdf (as of June 24, 2010); *see also* DEIS, Exhibit A to Soil and Water Report, Figure 4, Regional Geology Map.

8. Inadequate analysis of impacts to desert washes as wildlife movement/genetic exchange corridors

a. Inadequate baseline for measuring Project impacts

In desert environments such as the Chuckwalla Valley, wildlife movement corridors allow long-term genetic exchange between animal and plant populations. The DEIS acknowledges the importance of desert washes as wildlife movement corridors and the impacts that past projects have had on the Palen watershed.[161] 6-068

As with the surveys for individual species discussed above, the 2009 surveys for the desert washes failed to consider the washes that traverse the proposed transmission line to the proposed Red Bluff substation. While the 2010 surveys attempted to identify jurisdictional waters that traverse the transmission line corridors, the survey results provided by the Applicant do not attempt to identify or measure the function and value of these washes as wildlife movement corridors.[162]

In response to Staff's requests for information about potential wildlife use of desert washes within the Project site as movement corridors, the Applicant provided information and a qualitative analysis, based on reconnaissance level surveys which were confounded by rainstorms.[163] The Applicant concluded that a movement study conducted throughout the course of an entire year would be necessary to determine the extent of wildlife movement within the washes versus the uplands.[164] 6-069
However, the Applicant did not provide any information about the methodology of such a survey, and commited only to make note of wildlife sign in washes during subsequent visits.[165] The most recent information concerning the Spring 2010 surveys does not mention wildlife sign observations.[166] The DEIS description of the

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[161] *See* DEIS, pp. C.2-120 – C.2-121, C.2-135; *see also id.* at p. C.2-120 ["Standing dead ironwood trees, stunted, drought-stressed creosote bushes and other shrubs, sparse cover and very low diversity seen north of I-10 in the Palen watershed are a testament to the downstream effects that channel diversions can have on both upland and riparian plant communities"].

[162] *See* Attachment G, Spring 2010 Survey Protocol, pp. 11-12; *see also* Attachment I, Corrected Preliminary Spring 2010 Survey Results, Figure 3, Preliminary Results State Waters Spring 2010 Surveys.

[163] *See* Applicant's Response to DR-BIO-70, DR-BIO-71, and DR-BIO-76.

[164] *See* Applicant's Response to DR-BIO-76, p. BIO-49.

[165] *Ibid.*

[166] *See* Attachment I, Corrected Preliminary Spring 2010 Survey Results, p. 1.

desert washes as wildlife movement corridors was therefore based on incomplete and inadequate information. 6-069 cont.

b. Inadequate analysis of direct and indirect impacts

The Applicant notes that the Project would impact movement by large mammals such as coyote, desert kit fox, mule deer, bobcat, American badger, mountain lion, and Nelson's bighorn sheep.[167] The DEIS incorporates some of this information regarding impacts to wildlife movement, acknowledging that the Project "could impede wildlife movement."[168] However, the DEIS fails to accurately conclude that the massive Project *would* impede movement and fails to provide any information or analysis concerning impacts to the movement of invertebrates, small mammals, amphibians and reptiles (except DT), and the impacts to species at both individual and intergenerational movement levels. 6-070

c. Inadequate analysis of cumulative impacts

Biological Resources Table 16 fails to accurately report the Project's contribution to the cumulative loss of several habitat types, including Desert Dry Wash Woodland, Sand Dunes, Chenopod Scrub, and Playas.[169] The table erroneously reports that the Project will not contribute to any cumulative loss of these habitat types. This conclusion is inconsistent with other information provided in the DEIS, which indicates the presence of Desert Dry Wash Woodland, Sand Dunes, and Playas within the Project disturbance area and one-mile buffer.[170] 6-071

The cumulative impacts to desert washes did not adequately address the cumulative direct and indirect impacts caused by projects in the Palen watershed.[171] While the DEIS acknowledged these impacts would be significant, there was no attempt to quantify these impacts or measure the Project's contribution to these cumulatively significant impacts. For example, the DEIS failed to specifically address the Project's contribution to cumulative impacts to wildlife movement, 6-072

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167 *See* Applicant's Response to DR-BIO-80, p. BIO-52.

168 *See* DEIS, pp. C.2-67, C.2-120 – C.2-121, C.2-133 – C.2-135.

169 *See id.* at pp. C.2-134 – C.2-135.

170 *See id.* at pp. C.2-2-15, Biological Resources Table 2.

171 *See* DEIS, pp. C.2-119 – C.2-120.

when combined with the nearby proposed large-scale projects such as Chuckwalla Solar I (CACA 48808) and Genesis (CACA 48880). 6-072 cont.

In addition, the transmission line and drainage facilities for the Projects have been redesigned since the DEIS was released. Depending on the desert washes traversed by the transmission line and the modifications to on-site natural drainage features, the Project's incremental contribution to cumulative impacts to desert washes may be significant. The analysis of this issue must be revised to consider the westward transmission line and associated roads and the modified drainage plan. 6-073

9. Inadequate Analysis Of Toxicity Impacts From Wildlife Exposure To HTF Soil Remediation Areas and Evaporation Ponds.

As discussed in the DEIS, the Project will use two land treatment units to bioremediate or land farm soil contaminated with heat transfer fluid ("HTF").[172] The DEIS lacks sufficient information to gauge the magnitude of the impacts to biological resources associated with the land treatment units and therefore does not comply with NEPA. The DEIS fails to identify wildlife exposure to HTF as a potential issue. There is no meaningful information, for example, on the concentration of toxic minerals that would be present in the land treatment units, no information on what measures would be taken to reduce use of the HTF land treatment units by birds, and no information on what potential adverse biological effects would result. This is a potentially significant impact that must be discussed in the DEIS. 6-074

Similarly, the DEIS does not address the potential hazards to wildlife posed by the recently proposed evaporation ponds for the Project.[173] The DEIS could not have addressed these potential impacts because the evaporation ponds were not proposed as part of the Project until after the DEIS was prepared. The DEIS must therefore be revised to consider the impacts associated with this Project component. 6-075

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[172] *See* DEIS, pp. C.13-15 – C.13-16.

[173] *See* Attachment D, Environmental Evaluation of Project Updates, pp. 3-4.

10. The DEIS Fails to Disclose BLM's Consultation and Potential Permit under the Endangered Species Act.

a. *General obligations under the ESA*

Section 7(a)(2) of the federal Endangered Species Act prohibits agency action that is "likely to jeopardize the continued existence" of any endangered or threatened species or "result in the destruction or adverse modification" of its critical habitat.[174] To "jeopardize the continued existence of" means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species."[175] An action is "jeopardizing" if it keeps recovery "far out of reach," even if the species is able to cling to survival.[176] Thus, "an agency may not take action that will tip a species from a state of precarious survival into a state of likely extinction. Likewise, even where baseline conditions already jeopardize a species, an agency may not take action that deepens the jeopardy by causing additional harm."[177] To satisfy this obligation, the federal agency undertaking the action (here, the BLM) must prepare a "biological assessment" that evaluates the action's potential impacts on species and species' habitat.[178]

If the proposed action "is likely to adversely affect" a threatened or endangered species or adversely modify its designated critical habitat, the BLM must engage in "formal consultation" with the USFWS to obtain its biological opinion as to the impacts of the proposed action on the listed species.[179] Once the consultation process has been completed, USFWS must give the BLM a written biological opinion "setting forth [USFWS's] opinion, and a summary of the

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174 16 U.S.C. § 1536(a)(2).

175 50 C.F .R. § 402.02; *see also Nat'l Wildlife Fed'n v. NMFS*, 524 F.3d 917 (9th Cir. 2008) (*NWF v. NMFS II*) [rejecting agency interpretation of 50 C.F.R. § 402.02 that in effect limited jeopardy analysis to survival and did not realistically evaluate recovery, thereby avoiding an interpretation that reads the provision "and recovery" entirely out of the text].

176 *NWF v. NMFS II, supra*, 524 F.3d at 931.

177 *Id.* at 930.

178 16 U.S.C. § 1536(c); 50 C.F.R. § 402.12(a).

179 16 U.S.C. § 1536(a)(2), (b)(3); *see also* 50 C.F.R. § 402.14(a), (g).

information on which the opinion is based, detailing how the agency action affects the species or its critical habitat."[180]

If USFWS determines that jeopardy, destruction or adverse modification of critical habitat is likely, USFWS "shall suggest those reasonable and prudent alternatives which [it] believes would not violate subsection (a)(2) of this section and can be taken by the Federal agency or applicant in implementing the agency action."[181] "Following the issuance of a 'jeopardy' opinion, the [BLM] must either terminate the action, implement the proposed alternative, or seek an exemption from the Cabinet-level Endangered Species Committee pursuant to 16 U.S.C. § 1536(e)."[182]

b. The Draft Biological Assessment fails to satisfy ESA requirements

Like NEPA, federal agency action is broadly defined under the Endangered Species Act. The ESA regulations define agency "action" as follows:

> [A]ll activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to: [¶¶]
>
> > (c) the granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; . . . .[183]

When fulfilling their duties under the ESA, federal agencies must also take a broad view of the project and its potential effects, as demonstrated by the following definitions in the ESA regulations:

> *Action area* - "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."

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[180] 16 U.S.C. § 1536(b)(3)(A); *see also* 50 C.F.R. § 402.14(h).

[181] 16 U.S.C. § 1536(b)(3)(A).

[182] *National Ass'n of Home Builders v. Defenders of Wildlife,* 551 U.S. 644, 652 (2008).

[183] 50 C.F.R. § 402.02. These regulations implement 16 U.S.C. § 1536(a)(2), which requires federal agencies to consult with the Secretary of Interior and/or Secretary of Commerce to "insure that any action authorized, funded, or carried out by such agency (hereinafter in this section referred to as an 'agency action') is not likely to jeopardize the continued existence of any endangered species or threatened species . . . ."

> *Effects of the action* - "the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action . . . . Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration."[184] "Effects of the action" include both direct and indirect effects of an action "that will be added to the environmental baseline."[185]
>
> *Environmental baseline* - includes "the past and present impacts of all Federal, State or private actions and other human activities in the action area" and "the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation."[186]

As the above discussion demonstrates, what constitutes agency action and the scope of environmental review required for agency action is virtually the same under NEPA and ESA. Both statutes require the BLM to broadly consider actions related to the proposed action. The Draft Biological Assessment submitted by the Applicant, however, fails to accurately describe the transmission line to the planned Red Bluff substation and the redesigned drainage channels for the Project site. Consequently, the Draft Biological Assessment fails to address the associated impacts to listed species such as the DT. As discussed below, the transmission lines, as well as other project features, would have the potential to significantly impact the DT and its habitat in numerous respects not considered in the DEIS. 6-076

c. *The DEIS fails to disclose Section 7 Consultation*

The DEIS fails to disclose the details of BLM's required consultation under the ESA with the USFWS for the federally and State threatened DT.[187] The DEIS also fails to analyze the USFWS's potential issuance of a biological opinion and 6-077

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184 *Ibid.*

185 *Ibid.*

186 *Ibid.*; see also *National Wildlife Federation v. National Marine Fisheries Service,* 524 F.3d 917, 924 (9th Cir. 2008)

187 See, e.g., DEIS, p. C.2-148 [describing BO requirement]

incidental take permit under Section 7 of the ESA. Therefore, the DEIS is wholly inadequate. The BLM must disclose and analyze these activities in a revised DEIS that is circulated to the public for review and comment. 6-077 cont.

The ESA prohibits "take" of threatened and endangered species.[188] "Take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct."[189] "Harm" includes "the destruction or adverse modification of habitat resulting in potential injury to a species, including injury from impairment of essential behavioral patterns, such as breeding, feeding or sheltering."[190] Under ESA Section 7, a federal agency must initiate consultation with the USFWS "at the earliest possible time" whenever the agency proposes to undertake an action that "may affect" a listed species or species' critical habitat.[191] If a "may affect" determination is made, which is certain for the proposed Project, then the USFWS must develop and issue a biological opinion containing terms and conditions to ensure that the activities are not likely to jeopardize protected species.[192] Furthermore, USFWS's issuance of a biological opinion requires environmental review under NEPA.

Here, despite protected species on the proposed Project site, there is no indication in the DEIS or its appendices that the BLM has initiated consultation under Section 7 of the ESA, or that the DEIS reviews the environmental effects of the USFWS's issuance of a biological opinion and incidental take permit.[193] A total of four desert tortoises were detected during surveys conducted in Spring 2010 within the transmission line ROW and buffer areas.[194] Incidental DT observations were also made during surveys conducted in 2009, and numerous DT burrows, bones, and other sign were identified within the site and buffer zone.[195] As explained by Mr. Cornett, the observed DT and DT sign indicate the presence of DT 6-078

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188 16 U.S.C. § 1538 (2010).

189 16 U.S.C. § 1532(19).

190 50 C.F.R. § 17.3 (2009).

191 50 C.F.R. § 402.14(a).

192 *See* 16 U.S.C. § 1536.

193 DEIS pp. A-3, C.2-148.

194 *See* Attachment I, Corrected Preliminary Spring 2010 Survey Results, Table 1.

195 DEIS p. C.2-35; *see also* Attachment I, Corrected Preliminary Spring 2010 Survey Results, Table 1 [three DT detected outside buffer area].

in greater numbers than the amount observed.[196] The DEIS recognizes that the Project will cause both short- and long-term, as well as direct and indirect impacts to federally protected tortoises.[197] 6-078 cont.

Direct and indirect impacts to desert tortoises will be severe. For example, the tortoises could be susceptible to mortality from collisions with vehicles entering and leaving the site.[198] Clearing of the site and construction of the security fence and transmission line could introduce feral dogs and the presence of ravens, raptors, and other DT predators.[199] Vibrations of heavy equipment could cause burrows to collapse, burying the tortoises alive and destroying their habitat. Relocated tortoises forced to construct new burrows would be exposed to death by dehydration or upper respiratory tract disease.[200] In addition, the spread of invasive plant species on the site would cause an indirect loss to foraging habitat.[201] 6-079

Because desert tortoises have been found on the site, and the Project will clearly impact the species, the BLM must undertake Section 7 consultation. The DEIS acknowledges that the BLM must initiate consultation with the USFWS, but it does not describe the status of such consultation and it fails to confirm that all terms and conditions associated with these consultations would be implemented.[202] In addition, the DEIS fails to disclose any of the terms and conditions the USFWS and CDFG would require the Applicant to implement. 6-080

In sum, the DEIS must disclose the status of BLM consultation with the USFWS and must incorporate the terms and conditions imposed by the USFWS. Without this information, it is impossible for the public to meaningfully assess the environmental effects and mitigation for impacts to the DT. Furthermore, without full public disclosure and opportunity for comment, USFWS will be required to conduct further environmental review under NEPA. 6-081

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196 Cornett Comments, p. 3.

197 DEIS, pp. C.2-73 – C.2-83.

198 *Id.* at p. C.2-73.

199 *Id.* at p. C.2-80.

200 *Id.* at p. C.2-76.

201 *Id.* at p. C.2-81.

202 *Id.* at p. C. 2-148.

2357-037a

11. Inadequate Analysis of the Impacts Associated with Nighttime Noise and Lighting

The DEIS recognized that nighttime noise and lighting associated with Project construction and operation may significantly impact biological resources.[203] The Applicant recently proposed changes to the construction schedule for the Project, which will result in more noise and lighting at night than the amount considered in the DEIS.[204] The DEIS does not consider the modified construction schedule, which will result in increased nighttime noise and lighting impacts to wildlife. 6-082

12. Inadequate and Incomplete Discussion of Feasible Mitigation Measures

An EIS is not complete unless it contains "a reasonably complete discussion of possible mitigation measures."[205] Mitigation expressly includes "avoiding the impact altogether by not taking a certain action or parts of an action."[206] It also includes "minimizing impacts by limiting the degree or magnitude of the action and its implementation."[207] In this case, the discussion of mitigation measures to avoid or minimize impacts to special-status and other species is inadequate. 6-083

a. Failure to incorporate feasible measures to avoid or reduce impacts to desert tortoise and its habitat

Mitigation Measure BIO-12 calls for the acquisition of 4,737 acres of DT habitat to compensate for the Project's direct and indirect impacts to DT.[208] This compensation land has not been identified. There is no evidence that this amount of privately-owned acreage of equivalent habitat function and value is available for purchase. Due to the high quality of DT habitat on the Project site, Mr. Cornett recommends substantially more mitigation acreage.[209] In addition, there is insufficient evidence that this proposed mitigation will be adequate for the *recovery* 6-084

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203 *See* DEIS, pp. C.2-91 – C.2-92, C.2-95.

204 *See* Attachment D, Environmental Evaluation of Project Updates, pp. 12-14.

205 *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989).

206 40 C.F.R. § 1508.20(a).

207 *Id.* at subd. (b).

208 DEIS, pp. C.2-165 – C.2-166.

209 Cornett Comments, p. 8.

of the species as required in the NECO plan and under the Federal ESA. For these reasons, the proposed mitigation is inadequate under both NEPA and CEQA.[210] 6-084 cont.

b. Failure to incorporate feasible measures to avoid or reduce impacts to Mojave fringe-toed lizards and their habitat

According to a report published by the BLM regarding MFTL, "[s]and dune ecosystems, including their source sand and sand corridors, are necessary for the long-term survivorship of aeolian sand specialists, such as, fringe-toed lizards."[211] The criteria for compensation lands included in measure BIO-20 reflects this fact.[212]

There are several steps that may and should be taken to avoid or minimize direct project impacts on MFTL habitat, as described in Mr. Cornett's comments. First, the Reduced Acreage Alternative (Revised) should be selected. This would entirely avoid any impact to the sand transport corridor adjacent to the Project site. 6-085

In the event the Project is configured over the existing MFTL habitat, a mitigation/habitat restoration plan should incorporate carefully crafted success criteria that are strictly abided, as well as adaptive management provisions that facilitate adjustments to the restoration effort if success criteria are not met. The DEIS should be revised to discuss these measures in greater detail. 6-086

The Applicant has proposed a "Sand Replenishment Program" as mitigation for the Project's indirect impacts to areas that are downwind from the Project's footprint.[213] This mitigation proposal, however, would result in impacts to MFTL and other species that must be addressed. For example, vehicles collecting sand along the Project's fence-line and depositing sand in areas downwind from the Project site could crush or bury MFTL and other animals. The Sand Replenishment Program proposed by the Applicant does not address these impacts.[214] 6-087

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[210] *See Sierra Club v. Marsh* 816 F.2d 1376, 1389 (9th Cir. 1987) [Under ESA, "if an agency plans to mitigate its project's adverse effects on an endangered species by acquiring habitat and creating a refuge, it must insure the creation of that refuge before it permits destruction or adverse modification of other habitat"].

[211] Bradford D. Hollingsworth and Kent R. Beaman, Mojave Fringe Toed Lizard, available at: http://www.blm.gov/ca/pdfs/cdd_pdfs/fringe1.PDF.

[212] DEIS, pp. C.2-176 – C.2-177.

[213] *See* Draft Aeolian Sand Mitigation Summary Report, dated May 14, 2010.

[214] *Ibid.*

2357-037a

To the extent mitigation is achieved through compensation habitat, it is essential that the mitigation measure include performance standards such as "no net loss" of habitat and equivalent functions and values. Potential compensation habitat should be identified to ensure that this type of mitigation is feasible. According to one BLM resource regarding MFTL:

> Protected land should contain viable, long-term habitat, encompassing ecosystem-level processes that lead to the formation of these habitats. The physical mechanisms attributed to the formation of sand dunes should be integrated into management plans. Protected land should include areas for source sand, wind and sand corridors, as well as the sand dune habitat and its associated shade plants.[215]

6-088

c. Failure to incorporate feasible measures to avoid or reduce impacts on WBO

As with mitigation to impacts to the DT and MFTL, the DEIS proposes acquisition of 78 acres of habitat as mitigation for impacts to the WBO.[216] The amount of acreage required for mitigation, however, is deficient. According to the California Burrowing Owl Consortium ("CBOC"), the amount of compensation habitat required depends on whether the habitat is occupied or unoccupied and contiguous or not contiguous with the disturbed habitat.[217] The proposed mitigation does not take into consideration these factors.

6-089

d. Failure to incorporate feasible measures to avoid or reduce impacts on golden eagles

The DEIS did not recommend mitigation to reduce impacts to golden eagle.[218] Without the inventory data from the recent golden eagle aerial surveys, one cannot conclude mitigation will reduce potentially significant Project impacts on golden eagles. Acquisition of desert tortoise and state waters within 10 miles of *potential* nesting sites for golden eagles does not necessarily mitigate Project impacts. To help stem the decline in eagle populations, acquisition lands need to be within the foraging territory of *actual* nesting sites.

6-090

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[215] Hollingsworth and Beaman, Mojave Fringe Toed Lizard, *supra*, p. 4.

[216] DEIS, p. 2-87.

[217] *Id.* at p. C. 2-86.

[218] DEIS, p. 2-90.

e. Failure to incorporate feasible measures to avoid or reduce impacts on rare plants

Without reliable information on the rare plant species that occur—and as a result, the level and types of Project impacts on those species—the DEIS cannot conclude proposed mitigation would reduce Project impacts to less than significant levels. A conclusion of this nature would rely on the presumption that all impacts can be mitigated to a less than significant level. Such a presumption is unrealistic for two reasons. First, it is difficult to predict the outcomes of surveys due to the new and unexpected discoveries that have been occurring in the desert (and thus the inability to pre-assign mitigation). Second, the flora of the Desert Floristic Province is poorly understood and therefore surveys may yield completely unexpected results that cannot be mitigated by standard conditions. 6-091

Although the DEIS attempts to analyze the impacts and formulate mitigation measures before adequate survey data are obtained, the analysis and mitigation may change after the additional survey efforts are better able to identify impacts to rare plants. The revised baseline data that makes up the affected environment must be shared with the public and the public should have the opportunity to comment. Without this information, the affected environment is inadequately defined in the DEIS. 6-092

f. Failure to incorporate feasible measures to avoid or reduce impacts on wildlife movement and connectivity

The DEIS concludes that the habitat acquisition requirements of BIO-12 and 21 would be sufficient to reduce the Project's impacts to wildlife movement and connectivity to less-than-significant levels. The analysis, however, does not provide any evidence to support this conclusion. Neither BIO-12 nor BIO-21 require the Applicant to purchase contiguous acreage for habitat, and neither measure requires the compensation habitat to provide wildlife movement function and value. Specific mitigation measures must be proposed to address the Project's substantial impacts to wildlife movement and connectivity. 6-093

The conclusion that no mitigation measures are available to address the Project's contribution to cumulative impacts to wildlife movement is incorrect and lacks any supporting evidence.[219] The Project could, for example, contribute funds 6-094

[219] *See* DEIS, p. C.2-134.

for the purchase of conservation easements on private land that would provide wildlife connectivity between WHMAs and DWMAs. 6-094 cont.

g. Failure to incorporate feasible measures to avoid or reduce impacts from wildlife exposure to HTF soil remediation areas and evaporation ponds

6-095

The DEIS does not propose any mitigation measures designed to avoid or reduce the impacts to wildlife species that may be caused by land farming of HTF contaminated soil and operation of the recently proposed evaporation ponds.

Any body of water situated in this arid region will attract birds and terrestrial species. A complete discussion of the measures that will be taken to prevent bird and wildlife exposure to HTF land treatment units and evaporation ponds, ideally in the form of a monitoring and action plan, must be presented in the DEIS. 6-096

h. Failure to evaluate the impacts of herbicide use for weed abatement

The BLM must take a hard look at impacts associated with herbicide use for weed abatement. The DEIS recognizes that the Project would directly affect native vegetation by allowing the increase of invasive weeds, such as Sahara mustard, to spread in the disturbed areas.[220] Neither the Weed Management Plan submitted by the Applicant nor the DEIS describe the specific types of herbicides that would be used to control the weeds.[221] In addition, the Weed Management Plan identifies only Saharan mustard as a potentially noxious weed that must be controlled, but omits discussion of tamarisk, Russian thistle and Mediterranean grass, weed species identified as present in the Project area.[222] 6-097

The BLM must not approve use of herbicides unless and until specific studies have been conducted indicating that they are harmless. Herbicides that may be approved can still cause a cancer outbreak in humans and/or serious mutations in wildlife.[223] The BLM must identify which herbicides will be used and disclose any 6-098

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[220] *Id.* at pp. C.2-94 – C.2-95.

[221] *See id.* at p. C.2-170 [description of measure BIO-14]; Attachment to Response DR-BIO-100, Draft Weed Management Plan (Jan. 2010), pp. 17-18, 23, 25-29.

[222] *See ibid.*

[223] Cornett Comments, p. 14.

studies that prove the herbicides are harmless, or take a hard look at the Project's impacts to human health and biological resources. 6-098 cont.

B. Impacts to Air Quality

1. *The DEIS Fails to Consider the Emissions from Changed and Newly Added Project Components and From an Expanded Daily Construction Schedule*

Since the release of the DEIS, the Applicant has proposed using a concrete batch plant on-site during Project construction, rather than trucking concrete in from an off-site producer.[224] The operation of the batch plant will produce emissions that were not considered in the DEIS. 6-099

The Applicant has also added four evaporation ponds to the Project design.[225] These ponds will be used to process the Project's industrial wastewater. Evaporation from these ponds may result in the release of toxic contaminants, a possible impact the DEIS has failed to consider. 6-100

Unlike other chapters of the DEIS, the air quality analysis considered the air quality impacts that would result from constructing an 11.5 mile-long transmission line to the planned Red Bluff substation.[226] It's not clear from the air quality analysis, however, whether the associated access and spur roads for the transmission line were considered. The DEIS must be revised to describe and address all air quality emissions associated with constructing and operating the transmission line and associated roads. 6-101

The Applicant recently submitted a revised construction schedule that would result in additional daily construction emissions not considered in the DEIS.[227] The Applicant proposes to conduct concrete pours, some electrical work, and some welding at night to avoid high daytime ambient temperatures, and to conduct solar collector assembly work 24 hours per day in order to meet the construction schedule.[228] The Applicant claims that the most polluting activities (associated 6-102

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224 *See* Attachment D, Environmental Evaluation of Project Updates, pp. 1-3.

225 *See id.* at pp. pp. 3-4.

226 DEIS, p. C.1-16.

227 *See* Attachment D, Environmental Evaluation of Project Updates, pp. 12-13.

228 *See ibid.*

with heavy earthwork) would only occur during the day, but this limitation is not included as a condition of Project approval. If heavy earthwork and other polluting activities are conducted for longer periods each day than that assumed in the DEIS, Project construction will result in emissions that exceed those analyzed in the DEIS. Due to the accelerated schedule for Project approval and construction, the Applicant may be tempted to conduct other construction activities at night. As such, the DEIS should include measures limiting the construction activities that may be conducted beyond the 8-10 hour workday. 6-102 cont. 6-103

2. The Air Quality Model Did not Provide a Worst-Case Analysis Because it Focused on a Location Upwind from the Project

In responses to data requests from CEC staff, the Applicant claimed that the air quality model used to measure Project construction and operation emissions provides a "worst-case" analysis because it focused on Unit #1, a location the Applicant claimed was downwind from the locations where Project construction emissions will occur.[229] This assertion is incorrect, however, because the prevailing wind direction is from the west and north-west, not the south and south-east as the Applicant claims.[230] By focusing on the northwest quadrant of the Project site, the model fails to reflect the full amount of Project construction emissions. 6-104

3. The Project Does Not Comply with all LORS

As explained at considerable length in the CURE's comments regarding the Preliminary Determination of Compliance ("PDOC") issued by the South Coast Air Quality Management District (the "Air District"), the Air District's analysis of air quality impacts failed to use the correct methodology for calculating the volatile organic compounds (VOCs) that will be emitted from the HTF ullage and piping systems. Our comments regarding this issue, and the comments of Dr. Pless, are incorporated herein by reference. 6-105

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229 *See* Response to DR-AIR-10.

230 *See* DEIS, Appendix A to Soil and Water Report, Figures 8 and 9 [figures prepared by Applicant's consultant depicting prevailing wind direction from west and northwest].

2357-037a

4. Underestimation of HTF Ullage Tank and Piping System VOC Emissions

It appears that, like the PDOC, the DEIS underestimated HTF ullage tank and piping system emissions. The DEIS states that the HTF ullage tank vents and the HTF piping system would emit 1.90 tons/yr of VOCs.[231] As Dr. Pless explained in her comments regarding the PDOC, these emissions were calculated using a novel and incorrect procedure that departed significantly from the approach recommended by CEC staff, and consequently substantially underestimates Project-related VOC emissions. Indeed, the Applicant's methodology (accepted by the Air District) produces an emissions rate almost 10 times lower than the result produced by the recommended procedure. Had the recommended procedures been employed, the VOC emissions from the HTF ullage tank and piping system would increase from 1.90 tons/yr to approximately ***19 tons/yr***. 6-106

5. Failure to Consider all Pending Projects in Cumulative Impacts Analysis

The DEIS states that it considered projects within a 6-mile radius that were either under construction or permitted when conducting the analysis of localized cumulative impacts.[232] The preparers should have also considered pending projects that were reasonably foreseeable at the time the analysis was prepared.[233] By failing to consider pending projects, the preparers failed to consider the Project's contribution to localized cumulative impacts caused by the Chuckwalla Valley Raceway, the Chuckwalla Solar 1 project, the Genesis project, and the two pending enXco projects: each of these projects is within 6 miles of the proposed Project site and each will contribute substantially to cumulative air quality impacts. 6-107

6. Inadequate Discussion Of Mitigation Measures For Air Quality Impacts During Project Construction And Operation

The DEIS' discussion of available measures to mitigate air quality impacts is substantially incomplete, omitting mention of a wide variety of feasible, cost-effective technical solutions that other agencies routinely require developers of powerplants and other industrial facilities throughout the west to implement. 6-108

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[231] DEIS, Air Quality Table 9, p. C.1-19.

[232] DEIS, p. C.1-40.

[233] *See* NEPA Handbook, pp. 58-59.

2357-037a

a. Inadequate mitigation for construction vehicle emissions

The DEIS lists several mitigation measures to control emissions during project construction.[234] These measures are primarily directed at mitigating fugitive dust impacts. Only measure AQ-SC6 addresses exhaust emissions from construction equipment.

As explained further below, numerous reasonable and feasible mitigation measures are available to alleviate the environmental impacts of construction equipment exhaust emissions. These are routinely employed in powerplant construction in California and elsewhere. They include: (1) low-sulfur diesel fuel to limit emissions of VOCs, NOx, PM10, PM10 precursors, and toxic emissions; (2) fuel additives to improve engine efficiency; (3) use of low-emissions construction equipment; (4) post-combustion controls such as soot filters, oxidation catalysts, and oxidizing particulate traps; and (5) SCR. There are also a number of additional fugitive dust control measures that are routinely implemented throughout the country that the DEIS fails to identify or discuss. 6-109

b. Inadequate mitigation of fugitive dust emissions

Fugitive dust has long been a major problem in the arid southwest. Several agencies in the area have conducted comprehensive studies of methods to alleviate emissions of dust during construction and other activities, published the results in agency guidance, and promulgated regulations to control these dusts. The DEIS does not recognize any of this work, including the resulting best management practices for dust control. At the same time, the mitigation program proposed in the DEIS is inadequate because the measures are not enforceable, the proposed measure would reduce very little of the emissions, and all feasible mitigation measures have not been identified. 6-110 Further, please note that the Record of Decision must include a monitoring and enforcement program for each mitigation measure that is a condition of project approval.[235] This information must be presented in the DEIS. 6-111

Further, there are a number of routinely implemented measures to mitigate fugitive dust emissions that are neither identified nor discussed in the DEIS. These include: (1) applying moisture to backfilled areas when not in use; (2) prewetting 6-112

[234] DEIS, pp. C.1-45 – C.1-46 [descriptions of AQ-SC2 – AQ-SC4].

[235] 40 C.F.R. § 1505.2(c).

surface soils during clearing and grubbing; (3) prewatering during cut and fill activities; (4) preventing access to disturbed areas using fences or other barriers; and numerous other measures. The following section provides more comprehensive list of measures that other permitting agencies, including Clark County, Nevada, have imposed on construction projects. 6-112 cont.

c. Mitigation for Construction Air Quality Impacts

i. CARB-certified construction equipment

Both the U.S. EPA and CARB have established emission limits on new off-road engines. CARB-certified off-road engines are engines that are 3 years old or less at the time of use and which comply with these new low emission limits. This equipment is widely available in the construction fleet. The use of CARB-certified equipment should be required for this Project. For example, the SMAQMD and other agencies require the use of at least 20 percent CARB-certified off-road engines in the mix of construction equipment operating on-site, or alternatively, setting a NOx, ROG, and/or PM10 emission reduction goal for the construction fleet. 6-113

ii. Post-combustion Controls

Post-combustion controls, such as oxidation catalysts and particulate filters, are devices that are installed downstream of the engine on the tailpipe to treat the exhaust. These devices are now widely used on construction equipment and are capable of removing over 90% of the PM10, CO, and ROG from engine exhaust, depending on the fuel and specific engine. The most common and widely used post-combustion control devices are particulate traps (*i.e.*, soot filters), oxidation catalysts, and combinations thereof. The many variants of these devices have been identified, evaluated, and comprehensively reviewed by CARB[236] and others.[237] 6-114

All of these post-combustion controls are feasible for construction of this Project. Therefore, the air quality mitigation measures should be revised to require

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[236] California Air Resources Board, Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles, October 2000; California Air Resources Board, Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines, October 2000.

[237] Manufacturers of Emission Controls Association, Demonstration of Advanced Emission Control Technologies Enabling Diesel-Powered Heavy-Duty Engines to Achieve Low Emission Levels, Final Report, June 1999.

the use of post-combustion controls on off-road equipment specifying target control levels. 6-114 cont.

d. Mitigation measures for Project operational impacts

A number of California air districts have identified numerous other feasible measures for commercial/industrial operations. Some of these additional measures, include:

- Use electrically or CNG-powered specialty equipment, *e.g.*, utility carts (BAAQMD);
- Use propane-powered specialty equipment, *e.g.*, forklifts, utility carts, etc. (BAAQMD);
- Use lighting controls and energy-efficient lighting (SLOAPCD, SCAQMD, SBAPCD, BCAQMD);
- Use energy-efficient low sodium parking lot and street lights (SLOAPCD, SCAQMD);
- Use light-colored roof materials (SCAQMD) and paint (SBAPCD) to reflect heat;
- Use concrete or other non-pollutant materials for parking lots instead of asphalt (SBAPCD);
- Pay an air quality mitigation fee;
- Secure emission offsets; and
- Reduce standard paving by 20%.

6-115

Further, some air districts recommend that large projects that cannot be fully mitigated with on-site measures should implement off-site mitigation measures. For example:

- Retrofit existing homes and businesses in the project area with approved energy conservation devices (SLOAPCD);
- Replace/repower school/transit bus with cleaner vehicles (SLOAPCD);
- Construct satellite work stations (SLOAPCD);
- Fund a program to buy and scrap older, high-emission vehicles (SLOAPCD);
- Contribute to an off-site TDM fund (VCAPCD);
- Repair smog-check waived vehicles (SLOAPCD);
- Introduce electric lawn and garden equipment exchange program (SLOAPCD); and

6-116

- Retrofit/purchase clean heavy-duty trucks, construction equipment, diesel locomotives, and marine vessels (SLOAPCD).

6-116 cont.

The BLM should consider incorporating the mitigation measures described above in order to address the Project's underreported construction and operation air quality impacts.

C. Impacts to Land Use, Recreation, and Wilderness

As part of the Federal Land Policy and Management Act of 1976 ("FLPMA"), Congress designated 25 million acres of southern California as the CDCA.[238] In establishing the CDCA, Congress declared that the California desert is a "total ecosystem that is extremely fragile, easily scarred, and slowly healed," and that it is a rich and unique environment with "historical, scenic, archaeological, environmental, biological, cultural, scientific, educational, recreational, and economic resources."[239] Congress also stated that "the use of all California desert resources can and should be provided for in a multiple use and sustained yield management plan to conserve these resources for future generations, and to provide present and future use and enjoyment. . . ."[240]

6-117

The DEIS fails to adequately describe or address the direct, indirect, and cumulative impacts to land use that will be caused by the Project's proposed amendment to the CDCA and multiple other amendments that will be required for the numerous energy projects in the region.[241] These solar thermal, solar voltaic, and wind energy projects will have direct impacts on wildlife species and their obligate habitat and will reduce wildlife habitat connectivity. These impacts directly conflict with goals and purposes of the CDCA, as amended in 2002 by the Northern & Eastern Colorado Coordinated Management Plan ("NECO").[242] For

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238 43 U.S.C. § 1781(c).

239 *Id.* § 1781(a)(1)-(2).

240 *Id.* § 1781(a)(4)

241 *See* DEIS, p. C.6-24.

242 As mandated by Congress, the CDCA is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. *See* CDCA, As Amended, p. 5, available at http://www.blm.gov/pgdata/etc/medialib//blm/ca/pdf/pdfs/cdd_pdfs.Par.aa6ec747.File.pdf/CA_Desert_.pdf (as of June 27, 2010). "Congress directed BLM to prepare and implement a comprehensive, long-range plan for the management, use, development and protection of the public lands within the CDCA." BLM website regarding CDCA, available at: http://www.blm.gov/ca/st/en/fo/cdd/cdca_q_a.html (as of June 27, 2010).

example, the impacts to the threatened desert tortoise conflict with multiple CDCA and NECO policies designed to not only protect the survival of this species but promote its *recovery.*[243]

While the DEIS acknowledges some of these impacts, it does not grapple with them in the manner required by NEPA. Instead, the DEIS defers meaningful analysis to a "regional and coordinated effort aimed at preserving and enhancing large, intact expanses of wildlife habitat and linkages."[244] The CDCA and the NECO were products of such regional and coordinate efforts.[245] The NECO, for example, took years of analysis and policy debate to develop, but the goals of the NECO are being compromised by multiple amendments which each contribute to habitat fragmentation.

6-117 cont.

1. Inadequate Baseline for Measuring Project Impacts

The DEIS inconsistently describes the land use designation for the Project site. In the chapter concerning alternatives to the Project, the site is described as designated Multiple Use Class ("MUC") L (Limited Use), whereas in the chapter concerning Land Use, the site is described as within the MUC M (Moderate Use) category. The DEIS must be revised to consistently and accurately describe the MUC designation(s) for the Project site. The BLM must provide adequate notice to the public regarding Project impacts, but has not due to these errors in the DEIS.

6-118

Class L lands "are managed to protect sensitive, natural, scenic, ecological, and cultural resource values. They provide for generally lower-intensity, carefully controlled multiple uses that do not significantly diminish resource values."[246] In contrast, more intense uses are allowed on Class M lands, but all damage that results from the permitted use must be mitigated.[247]

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[243] *See* NECO Coordinated Management Plan/Final Environmental Impact Statement ("NECO CMP/FEIS"), July 2002, pp. 2-17 – 2-18, available at: http://www.blm.gov/ca/st/en/fo/cdd/neco.html (as of June 29, 2010).

[244] *Id.* at p. C.6-27.

[245] *See* NECO CMP/FEIS, July 2002, pp. 1-1 – 1-3.

[246] *See* http://www.blm.gov/ca/st/en/fo/cdd/cdca_highlights.html (as of June 27, 2010); see also CDCA, As Amended, p. 13.

[247] *Ibid.*

2357-037a

The proposed Project site is within two Multiple-species Wildlife Habitat Management Areas ("WHMAs").[248] The DEIS does not indicate whether a portion of the Project site is within a 2,300 acre area designated in the NECO as the "Chuckwalla Valley Dune Thicket Area of Critical Environmental Concern" or within the 3,632-acre Palen Dry Lake ACEC.[249] The DEIS must also clearly describe the protective land use designations both on the Project site and in the surrounding area. 6-119

As with other categories of impacts, the impacts to land use, recreation and wilderness cannot be adequately identified without complete surveys of the entire area that will be disturbed by the Project, including the transmission line corridor. The recent surveys along this corridor must be considered in a revised discussion of the Project's impacts to land use, recreation, and wilderness. 6-120

2. Inadequate Analysis of Direct and Indirect Impacts

As stated above, the Project site is located within areas designated MUC L or M. Unlike MUC I (Intensive), these land use designations restrict the intensity of development. The Project site may be within or adjacent to two ACECs established by the NECO. Because the proposed Project may conflict with the land use restrictions established by the NECO, these potential land use conflicts must be addressed in a revised DEIS. 6-121

The Project site is located directly between the Palen/McCoy Wilderness Area and the Chuckwalla Mountain Wilderness Area, two areas designated MUC C (Controlled) in the CDCA, and therefore subject to the highest level of protection under the NECO plan.[250] As discussed in the section regarding biological resources above, the Project will result in unmitigated impacts to wildlife connectivity, including connectivity between the Palen and Chuckwalla mountain ranges. 6-122

3. Inadequate Analysis of Cumulative Impacts

The DEIS concludes that some of the Project's contributions to cumulative impacts can only be addressed at a regional level. This approach to acknowledging and addressing the Project's significant contribution to cumulative impacts is 6-123

[248] DEIS, p. C.2-14.

[249] *See* NECO CMP/FEIS, p. 4-21.

[250] *See* DEIS, pp. C.6-10 – C.6-11.

unacceptable. As stated repeatedly above, the Project must address its contribution to cumulatively considerable impacts caused by multiple pending large-scale renewable energy projects in the nearby vicinity and in the region. For example, the DEIS must address how the BLM's response to the current wave of renewable energy projects meets the recovery criteria for the DT, including the criteria that "[l]and management commitment is sufficient to ensure long-term protection of tortoise populations and habitat."[251] The DEIS must also address how the following objectives are satisfied by this Project and the other Projects in the region that will impact DT: 6-123 cont. 6-124

- Reduce tortoise direct mortality resulting from interspecific (e.g., raven predation) and intraspecific (e.g., disease) conflicts that likely result from human-induced changes in ecosystem processes.[252]

4. Inadequate Mitigation for Project Impacts

In lands designated Class M under the CDCA, "[a]ny damage, which permitted uses cause, *must be mitigated*."[253] Moreover, the NECO requires the BLM to "[m]itigate effects on tortoise populations and habitat outside DWMAs to provide connectivity between DWMAs."[254] While the DEIS states that BIO-12 will provide the necessary mitigation, there is no evidence that sufficient land is available to provide such connectivity. 6-125

D. Impacts to Cultural Resources

The analysis regarding the Project's impacts to cultural resources is not supported by substantial evidence. The DEIS acknowledges that additional surveys must be completed in order to reach conclusions regarding the Project's impacts and to propose effective and feasible mitigation measures to address such impacts.[255] 6-126

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[251] *See* NECO CMP/FEIS, p. 2-17.

[252] *Ibid.*

[253] *See* CDCA, As Amended, p. 13; see also http://www.blm.gov/ca/st/en/fo/cdd/cdca_highlights.html (as of June 27, 2010).

[254] *See* NECO CMP/FEIS, p. 4-21.

[255] *See, e.g.*, DEIS, pp. C.3-1, C.3-86 – C.3-87 [acknowledging need for further surveys and studies to identify extent of cultural resources impacts and to formulate appropriate mitigation measures].

The incomplete analysis in the DEIS does reveal that the Project will adversely affect hundreds of cultural resources including ancient cremation zones, trails and village sites, and will directly block at least one major prehistoric trail. As discussed in a subsequent section, the DEIS failed to provide ANY mitigation for impacts to cultural resources and instead explained that a future consultation process would work out the details of a mitigation proposal. 6-126 cont.

1. Project Impacts to Pre-historic and Historic Resources

The discussion regarding the Project's construction-related effects is incomplete on its face. It includes, for example, the placeholder "(yet to be determined)" in the description of the various ground disturbing activities.[256] 6-127

The DEIS does not reach a conclusion regarding the Project's impacts to the Halchidhoma Trail and the possible designation of a Prehistoric Trails Network/Historic District.[257] Similarly, the DEIS fails to reach a conclusion regarding the Project's impacts to the DTC/C-AMA Cultural Landscape/Historic District.[258] These incomplete analyses constitute a failure to take the required "hard look" at Project impacts. 6-128

A 3,632-acre area adjacent to Palen Dry Lake has been designated an Area of Critical Environmental Concern ("ACEC"): the ACEC was established to protect cultural resources.[259] Native American artifacts have been observed on the former shoreline of what is now a playa. The DEIS does not analyze the Project's potential to significantly impact these cultural resources or the designated ACEC. 6-129

2. Project Impacts to Native American Traditional Cultural Properties

The DEIS did not disclose the significance of the area on and around the Project site to contemporary tribal members. The DEIS focused almost solely on archeological resources and failed to analyze traditional cultural properties, which are areas on and around the Project site that have importance to tribes and Native Americans today. More specifically, a "traditional cultural property" is a property, a place, that is eligible for inclusion on the National Register of Historic Places 6-130

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256 DEIS, p. C.3-84.

257 *Id.* at p. C.3-82.

258 *Id.* at p. C.3-83.

259 *See* CDCA, As Amended, Table 15, Areas of Critical Environmental Concern, p. 104.

because of its association with cultural practices and beliefs that are (1) rooted in the history of a community, and (2) are important to maintaining the continuity of that community's traditional beliefs and practices.[260] 6-130 cont.

The purpose of an EIS is to address any major federal action significantly affecting the quality of the human environment.[261] The definition of "human environment," as defined in the NEPA regulations, "shall be interpreted comprehensively to include the natural and physical environments and the relationship of people with that environment."[262]

Section 101 of NEPA declares it is a matter of national policy to preserve important historic, cultural, and natural aspects of our national heritage. Policy direction in BLM Manual 8100, section 8110.05D, further provides that BLM should "[i]ncorporate cultural resource considerations into all aspects of planning and decision making."

The cultural resources section of the DEIS fails to acknowledge the traditional cultural properties in and around the proposed action. Tribal members and other Native Americans have described significant non-archeological cultural resources within the Project boundaries and surrounding the Project.[263] These cultural resources include biological resources on the Project site that are sacred to local tribes and the impacts of the Project on sacred areas on or near the Chuckwalla and Palen Mountains. The Project may result in visual, audible, and atmospheric impacts to these sites. 6-131

These resources were not analyzed in the DEIS; in fact, the DEIS included no information about the direct, indirect or cumulative effects on potential traditional cultural properties. The BLM should conduct an ethnographic study and interviews with local Native Americans and tribal representatives to further refine the BLM's understanding of the importance of these potential traditional cultural properties. At a minimum, the scope of analysis in the DEIS must include areas where the Project would have direct, indirect and cumulative impacts on areas which could be directly impacted by views and sounds from the property. 6-132

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[260] National Register Bulletin 38.

[261] 40 CFR § 1502.1.

[262] *Id.* at § 1508.14.

[263] *See* Attachment J, Testimony of Alfredo Acosta Figueroa on Issues Concerning U.S. BLM Cultural Resources Data.

E. Hazardous Materials Impacts

1. The DEIS Fails to Adequately Analyze Hazards Associated with HTF

a. Inadequate evaluation of potential public health and safety hazards from HTF transport

As stated, the project will involve the transportation, storage, and use of substantial quantities of HTF, a known hazardous substance. HTF would likely be imported to the site by tanker truck from a major population center, likely from Southern California. Accidents involving tankers can be catastrophic, as indicated by the accident descriptions presented in Matt Hegemann's comments. 6-133

The discussion regarding impacts associated with decommissioning the Project does not address the potential impacts of transporting the HTF off the Project site. None of the mitigation measures concerning Hazardous Materials address transporting such materials from the Project site.[264] The DEIS must be revised to specifically address the severity of this potentially significant impact and the specific measures proposed to address this impact. 6-134

b. Insufficient analysis of toxic air contaminant emissions associated with Project equipment

The DEIS states that the only toxic air contaminant ("TAC") that would be emitted from the Project would be diesel particulate from emergency diesel-fueled engines.[265] This statement is not accurate. Later in the discussion regarding TAC emissions, the DEIS acknowledges that the Project will have TAC emissions from the auxiliary boilers, emergency fire water pump and generator engines, and HTF ullage system vent. 6-135

According to the Preliminary Determination of Compliance ("PDOC") issued by the SCAQMD, the TAC emissions from the Project will be greater than those reported in the DEIS. The DEIS may be underreporting these emissions. 6-136

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[264] *Id.* at p. C.4-21 – C.4-24.

[265] DEIS, p. C.5-4.

c. *Requirements for monitoring equipment fail to address a toxic component of HTF: benzene.*

As Mr. Hagemann states in his comments, the DEIS fails to analyze potential soil and groundwater contamination that could be caused by HTF leaks and by bioremediation of HTF in improperly lined land treatment units. The DEIS must be revised to address this potentially significant impact. 6-137

d. *The geographic scope for considering other projects in the cumulative impacts analysis is too narrow*

The DEIS concludes, without substantial evidence, that the geographic scope for considering other past, present, and foreseeable future projects in the cumulative health and safety impacts analysis is "within the project boundaries or within ½ mile of the project."[266] As discussed above, numerous similar solar thermal power projects are being proposed in the region.[267] Each of the projects will emit TACs similar to those emitted by the Project. The DEIS must consider whether the Project's incremental contribution to the overall increase of TAC emissions is cumulatively considerable. 6-138

e. *Inadequate discussion of feasible mitigation measures to minimize the likelihood of an accidental release*

Because the DEIS did not discuss the hazards of HTF transport, it did not discuss any mitigation measures for potential impacts associated with it. Several mitigation measures exist that are routinely implemented at power generating facilities in California and elsewhere. These include: (a) improving driver hiring and training; (b) improving vehicle inspection and maintenance procedures; (c) restricting delivery routes and times; (d) requiring more solidly built tanker trucks; (e) and improving emergency response. The DEIS should be expanded to include a discussion of these additional measures and recirculated for public review. 6-139

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[266] DEIS, p. C.5-26.

[267] For example, as the DEIS acknowledges, the Chuckwalla Solar I project would be approximately 2 miles from the Project site. *See id.* at pp. C.5-26 – C.5-27.

f. Inadequate discussion of measures to mitigate impacts of an accidental release after it occurs

As already stated, the consequences of an accidental HTF spill are potentially catastrophic. Fortunately, these can often be readily mitigated by reducing the exposed surface area of spilled HTF; using relief, recirculation, block and check valves; or by improving the tank design. Several other mitigation measures are available,[268] none of which was identified or discussed in the DEIS. The DEIS must be revised to identify and evaluate these and any other feasible mitigation measures. 6-140

2. The DEIS Fails to Adequately Analyze Hazards Associated with Former Military Use of the Site.

Although the DEIS identified unexploded ordinance ("UXO") in the Project area, and generally described the history of the DTC-CAMA, the BLM failed to take a hard look at potential health risks associated with previous military activities on the site.[269] Mr. Hagemann, an expert in hazardous materials, reviewed the DEIS with respect to hazards associated on the site from remnants of the military's use of the site in the 1940s. In his comments, he concludes that unevaluated significant impacts to construction workers and future site workers from UXO and hazardous debris may occur.[270] Those impacts include dermal contact and ingestion of dust with soils that may contain metals and chemicals at concentrations that are hazardous to human health.[271] 6-141

Mr. Hagemann recommends that the BLM conduct a Phase I Environmental Site Assessment to specifically evaluate these potential human health risks. If the Phase I Assessment finds the UXO and hazardous debris to represent potential human health risks, a Phase II Environmental Site Assessment should be conducted to include sampling of the debris.[272] To assess the Project's impacts 6-142

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[268] Center for Chemical Process Safety, Guidelines for Safe Storage and Handing of High Toxic Hazard Materials, 1988; Center for Chemical Process Safety, Guidelines for Design Solutions for Process Equipment Failures, 1998; Center for Chemical Process Safety, Plant Guidelines for Technical Management of Chemical Process Safety, 1992.

[269] *See* DEIS, pp. 13-10.

[270] Hagemann Comments pp. 9-10.

[271] *Id.*

[272] *Id.*

adequately, the BLM must conduct a Phase I Assessment and include the results in a revised DEIS that is circulated for public review. 6-142 cont.

F. Project Impacts to Drainage

1. Inadequate Analysis Impacts Caused by Drainage Facilities.

The description of the Project's impacts to numerous dry washes traversing the site is inadequate because the drainage facilities for the Project are currently being redesigned. In addition, the DEIS does not address modifications to natural drainage patterns that will be necessary for the transmission line access and spur roads. The BLM must revise the description of the drainage facilities and provide a complete analysis of the Proposed Action's impacts to natural drainage systems. 6-143

The information regarding modifications to natural drainage patterns that will occur is fundamental and is required to provide the public an opportunity to meaningfully compare the Proposed Action with the alternatives. For example, to compare alternatives, the public must know whether the Proposed Action would modify the same drainages as the Reconfigured Alternative and the revised Reduced Acreage Alternative. 6-144 In addition, there may be other alternate site designs that would impact drainages less than the proposed Project and the alternatives considered in the DEIS.[273] Because desert washes provide valuable wildlife habitat, the BLM must consider alternatives that would reduce impacts to these washes. 6-145

The DEIS must also adequately describe what fill material the Applicant will use to modify the drainages.[274] If soil cement is used for bank stabilization and protection for transition and curve segments, the Project will significantly impact the ability of wildlife to utilize the surrounding area.[275] If the Applicant will use natural substrate (i.e. compacted earthen material along with rip rap), however, impacts to biological resources may be reduced.[276] It is not clear, however, that adequate compaction can be achieved using natural substrate. 6-146

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[273] *See* DEIS, pp. C.9-57 – C.9-62.

[274] *Id.* at p. C.9-49 [acknowledging requested information regarding drainage design and modeling information was not provided by applicant].

[275] *Id.*

[276] *Id.*

The BLM must provide the public with a complete and final Hydrology Report and Storm Water Pollution Prevention Plan ("SWPPP") before approving the Project. Information normally contained in these reports helps the public understand and assess the water table, the natural flow pattern onsite and offsite and the Applicant's measures to address flooding. Without the basic information contained in these reports, the public cannot meaningfully assess the Project's impacts. 6-147

The BLM's failure to provide accurate information on impacts to drainages precludes meaningful public input on the Proposed Action's effect on drainages and on alternatives to the Proposed Action. The BLM must provide this information so that it can take a hard look at impacts to the drainages and provide mitigation where feasible. Feasible mitigation measures include compensation to restore and enhance bioswales and downstream drainages. 6-148 6-149

2. Failure to Consider Compliance with Section 1602 of the California Fish & Game Code

The Project requires a streambed alteration agreement from the CDFG under Section 1602 of the Fish & Game Code. Under NEPA, the BLM's effects analysis must identify possible conflicts between the Project and State laws and regulations.[277]

The California Fish & Game Code requires project Applicants to obtain a streambed alteration agreement from the CDFG before substantially diverting, obstructing, or changing a river, stream, or lake.[278] A "stream" is defined as a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life.[279] This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation.[280] 6-150

[277] 40 C.F.R. §§ 1506.2(d), 1502.16(c); NEPA Handbook p. 55.

[278] Cal. Fish & Game Code § 1602.

[279] Dep't of Fish & Game, A Field Guide to Lake and Streambed Alteration Agreements Sections 1600-1607 (1994).

[280] *Id.*

The CDFG must issue a streambed alteration agreement before this Project can proceed. The proposed Project site contains several washes under the jurisdiction of the CDFG. Construction of the Project and the transmission line road will alter the natural flow patterns of these washes where concrete pads and structures are installed, and within the solar array field. Thus, development of the proposed Project will temporarily and permanently impact these washes. The Applicant submitted a Streambed Alteration Notification to the CDFG, but this document failed to identify the washes along the transmission line that will be impacted by the Project.[281] The CDFG must issue a streambed alteration agreement covering the entire Proposed Action before the Project Applicant impacts these drainage systems.

6-150 cont.

Because a streambed alteration agreement is required from the CDFG before modifications to the drainages can occur, the BLM must ensure that the Applicant complies with Section 1602 of the Fish & Game Code before approving the Project.[282] Failure to receive the necessary permits could jeopardize downstream drainages and wildlife, as well as violate California law. The BLM must revise the EIS to reflect and disclose compliance with the Fish & Game Code.

G. Impacts to Surface and Groundwater Resources

After the release of the DEIS, the Applicant submitted information regarding a proposed concrete batch plant that will be used on site during Project construction. This new Project component will increase the Project's construction water demands from approximately 1,440 af during the 3 year construction period to approximately 5,750 af.[283] The impacts to water resources caused by the increased Project construction water demand was, of course, not analyzed in the DEIS.

6-151

The Project will consume up to 300 acre-feet per year (ac-ft/yr), of fresh local groundwater during its projected 30-year life. The Applicant intends to further develop the groundwater resources of the aquifer underlying the Project vicinity. All this fresh, potable water will be permanently lost to evaporation.

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281 *See* Attachment C, Notification of Lake or Streambed Alteration, § 10, Project Description [describing preliminary site grading plan].

282 DEIS p. 2-19.

283 *See* Attachment D, Environmental Evaluation of Project Updates, pp. 1-2; *see also* DEIS, p. C.9-38.

Unfortunately, the DEIS' analysis of project impacts to surface and groundwater resources is as flawed as its analysis of other Project impacts. 6-151 cont.

1. Inaccurate Analysis Of Potential Impacts From Groundwater Pumping

a. Failure to address impacts to Colorado River flows and surface water rights

The DEIS acknowledges the project's potential to induce additional recharge to the Chuckwalla Valley Groundwater Basin ("CVGB") from Colorado River percolation, which in turn could reduce instream flows and affect existing surface water rights.[284] Rather than allow the Applicant to conduct a revised impact analysis using a refined model following Project approval, the BLM must now take a hard look at the Project's water supply.[285] 6-152

In March 2010, The Colorado River Board of California wrote to the CEC to inform the agency that the Applicant would likely need to acquire a contractual entitlement for the necessary construction and operation water requirements from the Metropolitan Water District of Southern California ("MWD") in order to avoid conflicts with senior water rights holders.[286]

It is thus manifestly foreseeable that project-related groundwater pumping from the aquifer will induce leakage from shallow zones that will necessarily be replenished by percolation from the Colorado River. Much of the Colorado's streamflow infiltrates into the alluvium, and much of this water is either transpired by plants or evaporated. By lowering water levels, groundwater pumpage results in diminished baseflows, increased floodflow infiltration, and potentially die-off of riparian habitat. 6-153

In 2008, the USGS prepared a report that clearly demonstrated that the "river aquifer" as stated in the 2006 Supreme Court Consolidated decree extends 6-154

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284 *See* DEIS, p. C.9-39.

285 *See ibid.*; *see also id.* at pp. C.9-106 – C.9-108 [mitigation measure Soil & Water 18, which would allow the Applicant to conduct a future analysis of Project impacts to water supply and potentially revise the requirements for mitigation].

286 *See* Attachment K, letter from Executive Director of CRBC to CEC Project Manager, dated March 22, 2010, pp. 2-3.

into the tributary valleys of the Colorado River aquifer including the Chuckwalla Valley.[287] The USGS states:

> Ground water in the river aquifer beneath the flood plain is considered to be Colorado River water regardless of water levels. Water pumped from wells on the flood plain is presumed to be river water and is accounted for as Colorado River water.[288]

The concept of distance from the Colorado River had no bearing on whether the underlying groundwater was indicated as part of the "river aquifer." The USGS characterized the "river aquifer" as:

> The river aquifer consists of permeable, partly saturated sediments and sedimentary rocks that are hydraulically connected to the Colorado River so that water can move between the river and the aquifer in response to withdrawal of water from the aquifer or differences in water-level elevations between the river and the aquifer. The subsurface limit of the river aquifer is the nearly impermeable bedrock of the bottom and sides of the basins that underlie the Colorado River valley and adjacent tributary valleys, which is a barrier to ground-water flow.[289]

Consequently, any well in the CVGB is considered to be taking Colorado River water regardless of water level and are extracting water from the "river aquifer." As such, the Applicant is required to obtain a contractual entitlement to pump groundwater to meet its construction and operation water needs.

The foregoing analytic deficiencies must be corrected, and potential impacts to surface flows in the Colorado, which are foreseeable, must be thoroughly evaluated in the DEIS in order to comply with NEPA.

6-154 cont.

6-155

6-156

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[287] Wiele et al., Update of the Accounting Surface Along the Lower Colorado River, 2008, available at: http://pubs.usgs.gov/sir/2008/5113/sir2008-5113_text.pdf (as of July 1, 2010); *see also* http://pubs.usgs.gov/sir/2008/5113/ (as of July 1, 2010).

[288] *Id.* at p. 5.

[289] *Id.* at p. 6.

b. Failure to address impacts from groundwater overdraft

The DEIS fails to include an adequate discussion of potential indirect impacts from groundwater overdraft. These impacts, which include land subsidence, earth fissuring and potential interference with other wells, would worsen if development in the basin continues or increases beyond the project period.

In sum, the Project will result in long-term groundwater overdraft. This will interfere with and/or preempt other current and future beneficial uses of groundwater, and may induce land subsidence and earth fissuring. These impacts are not sufficiently discussed in the DEIS. The DEIS must therefore be substantially revised to include sufficient evaluation of the foreseeable impacts.

6-157

V. THE DEIS FAILS TO CONSIDER A REASONABLE RANGE OF ALTERNATIVES.

A. The Purpose and Need Statement is Arbitrarily Narrow and Promotes Private Interests

An EIS must briefly describe the underlying purpose and need to which the agency is responding in proposing the alternatives, including the Proposed Action.[290] The BLM's *NEPA Handbook* mandates that the purpose and need statement for an externally generated action must describe the BLM's purpose and need, not an applicant's or external proponent's purpose and need.[291] The "need" for the action is the underlying problem or opportunity to which the BLM is responding with the action.[292] The "purpose" is the goal or objective that the BLM is trying to reach.[293] Clearly distinguishing the purpose and the need clarifies for the public and decision makers why the agency is proposing to spend large amounts of taxpayers' money, while at the same time causing significant environmental

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290 40 C.F.R. § 1502.13.

291 NEPA Handbook p. 35 (citing 40 C.F.R. § 1502.13).

292 *Id.*

293 *Id.*

impacts.[294] As recently repeated by the Ninth Circuit, "an agency cannot define its objectives in unreasonably narrow terms."[295]

The DEIS contains an arbitrarily narrow purpose and need statement that impermissibly promotes private objectives. The purpose and need statement states that the BLM's purpose and need for the PSPP is to respond to the application for the ROW.[296] This narrowly defined statement implies that BLM stands to gain nothing more than a rubber-stamped document at the end of this process. It is nonsensical to think that the BLM would spend taxpayer money and impact the environment for such an inconsequential result. While the introduction to the purpose and need statement recites statutes, regulations and orders that encourage the development of renewable energy on public lands, these sources of authority do not encourage the development of some parcels over others.[297] 6-158

B. Reasonable Alternatives Omitted from Analysis

Under NEPA, federal agencies must consider alternatives to their proposed actions as well as their environmental impacts.[298] The alternatives analysis has been called the "linchpin" of the Environmental Impact Statement.[299]

An EIS must "[r]igorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."[300] It is "absolutely essential to the NEPA process that the decisionmaker be provided with a detailed and careful analysis of the relative environmental merits and demerits of the proposed action and possible alternatives, a requirement that courts have characterized as 'the

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294 Ronald E. Bass et al., The NEPA Book 89 (2d. ed. 2001).

295 *National Parks & Conservation Ass'n v. Bureau of Land Management* (2010) 2010 WL 1980717, 8 (9th Cir. 2010), quoting *City of Carmel-By-The-Sea v. United States Dep't. of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997).

296 DEIS p. B.2-11; *see also id.*, Executive Summary, p. 6 ("The BLM's purpose and need for the PSPP is to respond to [PSI's] application . . . for a right-of-way (ROW) grant. . . .").

297 *Ibid.*

298 40 CFR § 1502.14.

299 *Monroe County Conservation Council, Inc. v. Volpe* (2d Cir. 1972) 472 F.2d 693.

300 40 C.F.R. § 1502.14(a).

linchpin of the entire impact statement.'"[301] This is particularly true in cases where there may be "unresolved conflicts concerning alternative uses of available resources."[302]

The alternative discussion must include not only primary alternatives, *i.e.*, substitutes for the agency's proposed action that accomplish the action in another manner, but also secondary alternatives, which are means of carrying out the action in a different manner.[303] The range of alternatives to be discussed is governed by a "rule of reason." Agencies have a duty "to study all alternatives that appear reasonable and appropriate for study . . ., as well as significant alternatives suggested by other agencies or the public during the comment period."[304] Reasonable alternatives are those that may be feasibly carried out based on technical, economic, environmental, and other factors. **It is well established that an alternative is not infeasible merely because the project proponent does not like it or is not capable of implementing it.**[305] "The 'existence of a viable but unexamined alternative renders an environmental impact statement inadequate.'"[306]

Thus, if an EIS is prepared in connection with an application for a permit or other federal approval, the EIS must rigorously analyze and discuss alternatives that are "reasonable," *regardless of whether the proponent or applicant likes or is*

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301 *NRDC v. Callaway*, 524 F.2d 79, 92 (2d Cir. 1975) (citation omitted); *see Silva v. Lynn*, 482 F.2d at 1285; *All Indian Pueblo Council v. United States*, 975 F.2d 1437, 1444 (10th Cir. 1992) [a thorough discussion of the alternatives is "imperative"].

302 *See* 42 U.S.C. § 4332(2)(E); *California v. Block*, 690 F.2d 753, 766-767 (9th Cir. 1982).

303 *See Methow Valley Citizens Council v. Regional Forester*, 833 F.2d 810 (9th Cir. 1987), *rev'd on other grounds*, 490 U.S. 332 (1989); *see also* Mandelker, *NEPA Law and Litigation* (2d ed., rel. 8, 2000).

304 *Roosevelt Campobello Int'l Park Comm'n v. United States EPA*, 684 F.2d 1041, 1047 (1st Cir. 1982) (quotations omitted); *City of Carmel-By-The-Sea v. U.S. Dept. of Transp.*, 95 F.3d 892, 903 (9th Cir. 1996).

305 *See* CEQ, *Forty Most Asked Questions Concerning CEQ's NEPA Regulations* (1981), question No. 2(a), 46 Fed.Reg. 18026, 18027 (March 23, 1981).

306 *Resources Ltd. v. Robertson*, 35 F.3d 1300, 1307 (9th Cir. 1993), *quoting Idaho Conservation League v. Mumma*, 956 F.2d 1508, 1519 (9th Cir. 1992); *see Grazing Fields Farm v. Goldschmidt*, 626 F.2d 1068, 1072 (1st Cir. 1980) [Even the existence of supportive studies and memoranda contained in the administrative record but not incorporated in the EIS cannot "bring into compliance with NEPA an EIS that by itself is inadequate"].

itself capable of carrying out a particular alternative. "Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant."[307] Courts have shown little reluctance in striking down EIS's that fail to include a thorough discussion of reasonable, less environmentally damaging alternatives.[308] Finally, please note that an EIS must include a discussion of "natural or depletable resource requirements *and conservation potential of various alternatives and mitigation measures.*"[309]

1. *Alternative Analysis Relies on Inaccurate Description of the Proposed Project*

As with other analyses in the DEIS, the comparison between alternatives relies on inaccurate information concerning the amount of acreage that would be disturbed by the Proposed project. The discussion regarding the Reduced Acreage Alternative, for example, states that the proposed Project would occupy approximately 2,740 acres, whereas other sections of the DEIS state that this area would be 2,970 acres or 3,899 acres.[310] 6-159

2. *Feasibility of Revised Reduced Acreage Alternative*

During the CEC workshops following the release of the DEIS, the applicant expressed concern regarding the feasibility of the Revised Reduced Acreage Alternative. Specifically, the Applicant's legal counsel stated that the Project may not be viable at the 375 MW generating capacity that could be achieved under the Revised Reduced Acreage Alternative. The DEIS does not address the economic feasibility of this preferred alternative. The applicant has not provided any other information and analysis demonstrating this alternative is infeasible. Thus, there is no substantial evidence in the record substantiating the claim that this alternative is infeasible. 6-160

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[307] Forty Most Asked Questions Concerning CEQ's [NEPA] Regulations at Question 2a.

[308] *See, e.g., Marble Mountain Audubon Society v. Rice*, 914 F.2d 179 (9th Cir. 1990); *Dubois v. U.S. Dept. of Agriculture*, 102 F.3d 1273 (1st Cir. 1996).

[309] 40 C.F.R. § 1502.16(f), emphasis added.

[310] *See*, e.g., SA/DEIS, Proposed Project, pp. B.1-1 [2,970 acres disturbed], B.2-16 [2,740 occupied by Units 1 and 2], Biological Resources, C.2-1 [3,899 acres disturbed], Health and Safety, C.5-21 [2,740 acres disturbed], C.9-3 [2,970 acres disturbed], C.12-14 [4.5 square miles].

3. The BLM Must Consider an Alternative Design that Reduces Impacts to Drainage Systems

The BLM must consider an alternative design that reduces impacts to drainage systems. As discussed above, the Project will impact the natural drainage systems that run through the Project site, which will in turn impact water quality and biological resources, as well as increase the potential for flooding on the Project site. The BLM should consider a site design that avoids, or significantly minimizes, these impacts. 6-161

4. The DEIS Failed to Seriously Consider Alternative Sites

The DEIS states "all site alternatives proposed to be located on lands not under the jurisdiction of the BLM are considered unreasonable by the BLM because none would accomplish the purpose and need for the proposed action, which is to respond to [PSI's ROW application]."[311] The BLM's decision not to consider alternate sites on private land is impermissible because it is based on an arbitrarily narrow purpose and need statement. The BLM may not adopt private interests to draft a narrow purpose and need statement that excludes alternatives that fail to meet specific private objectives.[312]

6-162

Yet, that was the result of the process here. The BLM must consider reasonable alternatives, even if the Applicant does not like the alternative or is incapable of implementing the Project on an alternative site.[313] Here, the only alternative location for the Project evaluated in the DEIS was the North of Desert Center location, but this alternative was rejected primarily because the parcels are owned by numerous landowners and would be more difficult to acquire.[314] (Ironically, while the DEIS admits that it is difficult to purchase private parcels for the purpose of acquiring sufficient acreage for the Project itself, it fails to admit that it would be difficult to acquire private parcels for the purpose of mitigating the Project's impacts to biological resources.)

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311 DEIS, p. B.2-51.

312 NEPA Handbook p. 50.

313 *See* CEQ, Forty Most Asked Questions Concerning CEQ's NEPA Regulations No. 2(a) (1981).

314 DEIS, p. B.2-49. Four other alternative sites were considered but not evaluated in detail. *Id.* at p. B.2-50.

Thus, as drafted, the DEIS violates NEPA's basic requirement to consider alternatives to the proposed Project. Numerous environmental organizations have recommended criteria to consider when selecting land for siting renewable energy projects.[315] The proposed site for the Project does not satisfy any of these criteria. The proposed Project site is not ideal for long-term energy generation. This particular site lies within undisturbed desert habitat that contains untouched and intact environmental resources. As discussed at length in the preceding sections, the site is characterized by desert scrub vegetation, desert washes, sand dunes, and sand fields. Special-status species, such as the desert tortoise, were observed on the site. In addition, many prehistoric and historic sites have been recorded on and around the Proposed Action site. 6-163

The BLM should consider an alternate site on disturbed land. In the desert to the northwest of the Project site, for example, there is an extensive amount of abandoned farmland that would facilitate long-term energy generation while reducing the Project's impacts on environmental resources.[316] These areas have existing infrastructure and are near roads and existing power lines. The BLM must evaluate siting the Proposed Action on these alternate sites, or risk failing to evaluate a viable alternative.

5. The DEIS Improperly Eliminated Alternative Solar Energy Technologies From Consideration

The DEIS includes a basic discussion regarding Fresnel solar technology.[317] Despite the smaller footprint required for this technology, and the corresponding reduced environmental impacts, this technological alternative to the proposed solar thermal project was improperly rejected without adequate review. 6-164

The DEIS does not adequately consider distributed solar technologies as viable alternatives to the proposed Project. Because such technologies could be installed in urban and other developed areas that have already been disturbed, they would have substantially fewer environmental impacts. 6-165

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315 *See* Attachment L, Renewable Siting Criteria for California Desert Conservation Area.

316 *See* Attachment M, Map: Abandoned Farmland – Eastern Riverside County, Coachella Valley Assoc. of Governments.

317 DEIS, pp. B.2-58 – B.2-59.

6. The DEIS Must Consider The Above Alternatives Regardless of The Applicant's "Preference"

Lest there be any lingering belief that the applicant's desires dictate the range of alternatives that NEPA requires be discussed in an EIS, we wish to state emphatically that this is **not** the case under applicable law. The fact that the CEC and BLM are acting in permitting roles, rather than initiating the project themselves, in no way limits the extent of their obligations under NEPA. CEQ and the courts have repeatedly declared that the duty to discuss alternatives in an EIS is no different when the action is initiated by a Federal agency or by private parties.[318] The agencies here must therefore consider all alternatives that are reasonably related to the project and evaluate them in the EIS.

In this case, the project's purpose and need could be fully satisfied by an off-site alternative or by a technological alternative that requires less acreage and resources. Each of these approaches is feasible, economic, and will minimize or avoid potentially significant impacts. Under NEPA, it is imperative that they be evaluated in detail irrespective of the applicant's preference.

6-166

VI. CONCLUSION

The DEIS fails as an informational document because it fails to establish the Project setting, it does not fully and fairly describe the Proposed Action, it provides incomplete analysis of some Project impacts and wholly omits discussion of a number of other potentially significant environmental impacts, and it fails to provide a reasonable range of alternatives to avoid or mitigate the Project's adverse impacts. The DEIS must be revised to fully describe the project setting, the Project, the impacts from the Project, mitigation and alternatives; and the revised DEIS should be circulated for public review and comment, as required by NEPA. We respectfully urge the BLM to do so prior to taking any action of any kind on the Applicant's pending federal permit applications.

6-167

318 CEQ, *Guidance Regarding NEPA Regulations*, 58 Fed.Reg. 34263 (1983), available at: http://ceq.hss.doe.gov/nepa/regs/1983/1983guid.htm (as of July 1, 2010).

Please do not hesitate to call if you have any questions or require any further information in support of these comments.

Sincerely,

Jason W. Holder

JWH:bh

Attachments

2357-037a

ATTACHMENT A

James W. Cornett — Ecological Consultants

June 30, 2010

Jason W. Holder
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080-7037

Subject: Palen Solar Power Project -- Draft Environmental Impact Statement

Dear Mr. Holder:

Per your request, I have reviewed the Draft Environmental Impact Statement (hereinafter the SA/DEIS) for the Palen Solar Power Project (hereinafter the "PSPP") which would be located on public lands managed by the Bureau of Land Management (hereinafter the "BLM"). My review focuses on the Biological Resources analysis of the SA/DEIS. My qualifications to perform this review include thirty years experience as a professional California desert ecologist, hundreds of protocol desert tortoise surveys, and published papers on fringe-toed lizards. I have both prepared and reviewed the biological resources sections of environmental documents. My professional resume is attached hereto. 6-168

My comments on the SA/DEIS follow.

INTRODUCTORY COMMENTS

The Palen Solar Power Project (PSPP) offers Southern California a much needed clean and renewable source of energy. The creation of the facility, however, can be expected to result in significant adverse impact to biological resources in the region. Though there are some adverse impacts that can be mitigated to a level of insignificance, there are several impacts that cannot be mitigated. The Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) for the PSPP acknowledges some but not all of the significant unmitigable impacts that the PSPP would cause.[1] 6-169

Direct adverse impacts to the officially Threatened desert tortoise (DT), sensitive Mojave fringe-toed lizard (MFTL) and sensitive desert wash environments (DDWW) will be adverse, significant, and not adequately mitigated both on the project site itself as well as in the general region. With regard to the DT, this is primarily because it is highly unlikely that thousands of acres of appropriate compensatory habitat in the Chuckwalla 6-170

[1] Staff Assessment and Draft Environmental Impact Statement, Palen Solar Power Project, Application for Certification, March, 2010 (09-AFC-7) CEC-700-2010-007 (SA/DEIS), Executive Summary, pp. 16-17.

Valley can be acquired. The inability to identify compensatory habitat also applies to mitigation for the MFTL but is compounded by the inability of the SA/DEIS or the Project Proponent to assess indirect impacts to the lizard's habitat. In short, the SA/DEIS does not include any evidence demonstrating there is adequate, private compensatory land in the region available for mitigation of impacts to not only the DT, but the MFTL, western burrowing owl (WBO), and other special-status species. 6-170 cont.

In several instances the ability to assess potential impacts on listed and sensitive species and habitats has been compromised by inadequate or inappropriate data-gathering methods and faulty data analysis. Based upon my examination of field conditions and data from the project site, survey transects for DT were too widely spaced, searches for rare plants were not sufficiently comprehensive, and focused surveys for the sensitive MFTL were lacking. The analysis of field data regarding the DT, western burrowing owl (WBO) and rare plants failed to adequately analyze variations in precipitation from year to year and, with regard to the DT, the significance of a long-term decline in numbers. As a result, impacts to certain listed and sensitive species could not be determined or were minimized. 6-171

Indirect effects resulting from the PSPP are significant in the number of sensitive species affected, expanse of offsite acreage potentially altered, and impacts at the ecosystem level. Of particular note is the absence in the SA/DEIS of a regional analysis of the significance of the Desert Dry Wash Woodland habitat within the project boundaries. In addition, there is no analysis of potential impacts to species, habitats and ecosystems as a result of the application of toxic compounds that are intended to be used to suppress dust and control weeds. 6-172

LISTED AND SENSITIVE SPECIES – Desert Tortoise

As stated in the SA/DEIS for the PSPP, desert tortoise populations within California are listed as Threatened by both the state and federal governments.[2] Nonetheless, the applicant has applied for a "take" of Threatened tortoises within the project boundaries.[3] The applicant also urges changes to proposed mitigation measures that would substantially diminish and compromise the level of protection afforded this species. 6-173

The applicant's arguments in favor of granting a take permit and adopting diluted mitigation measures essentially embrace the position that (1) there are few, if any, tortoises on the project site and that (2) poor habitat is to blame for the inability to find live tortoises. These arguments are not supported by evidence. 6-174

[2] Staff Assessment and Draft Environmental Impact Statement, Palen Solar Power Project, Application for Certification, March, 2010 (09-AFC-7) CEC-700-2010-007 (SA/DEIS), Executive Summary, p C.2-1.

[3] Application for the California Endangered Species Act Section 2081 (B) Incidental Take Permit and Revised Desert Tortoise Technical Report (including fall 2009), January, 2010.

(1) Though only two active burrows were found within the initial project boundaries in 2009, the spring 2010 surveys found three live tortoises within the power line corridor which is now part of the disturbance area.[4] Four additional tortoises were observed in the buffer area.[5] Since no tortoise surveys were conducted within the original project boundaries during the spring of 2010, no one knows how many tortoises might be present one year later in 2010. 6-175

(2) No zone of influence surveys were conducted in either 2009[6] or 2010.[7] No one knows how dense the tortoise population may be from the original disturbance area boundary to ¾ of a mile beyond the boundary, the distance of the closest offsite transect. 6-176

(3) The take application states that "two active DT burrows were found" during the 2009 tortoise surveys.[8] Active means the burrow is in use and that it should be assumed that tortoises are within the project boundaries. Studies by Woodbury and Hardy demonstrate that up to 23 tortoises may occupy a single burrow.[9] An active burrow can be used by more than one tortoise. 6-177

(4) There was no measureable precipitation in January of 2009, usually the wettest month of the year in the California deserts. Based upon long-term data, there was also markedly below average precipitation for the entire year.[10] Tortoises are known to reduce or cease activity when food resources are in short supply as a result of below average precipitation.[11] Tortoises on and near the site may have been less active in the spring of 2009 and, therefore, would be less likely to be observed as compared with a year of above average precipitation. 6-178

(5) I conducted a site visit on June 18, 2010, and found that in and near washes visibility was obstructed by dense vegetation. Visibility was also obstructed across open flatlands because of dense skeletons of Sahara mustard (*Brassica tournefortii*) that were present. The biologists who conducted the tortoise surveys walked transects at intervals slightly in 6-179

[4] Preliminary Results, Desert Tortoise Spring 2010 Surveys, Figure 1.

[5] Ibid. Figure 1.

[6] Palen Solar Power Project Biological Technical Report, Riverside Co., California, August, 2009, page 34.

[7] Survey Approach and Methodologies for the Solar Millennium Parabolic Trough Palen Solar Power Project 2010, p. 2.

[8] Application for the California Endangered Species Act Section 2081 (B) Incidental Take Permit and Revised Desert Tortoise Technical Report (including fall 2009), January, 2010, page 12.

[9] Woodbury, A.M. and R. Hardy. 1948. Studies of the desert tortoise, *Goperhus agassizii*. Ecological Monographs 18:145-200.

[10] Precipitation records for five localities at the Boyd Deep Canyon Research Center, Colorado Desert, California. Available at http://deepcanyon.ucnrs.org/weather_data.htm.

[11] Ernst, C.H. and J. E. Lovich. 2009. *Turtles of the United States and Canada.* The John Hopkins University Press, Baltimore, Maryland, p. 551.

excess of 32 feet in 2009[12] and at 30 feet in 2010.[13] The Report indicates that the 1992 Survey Protocol was followed.[14] The Protocol, however, says that in addition to walking transects at 30-foot intervals, "In some locations belt transects less than 30 feet wide may be appropriate."[15] The protocol description further states that "If the project area contains locations with vegetation or topography that obscures or reduces that surveyor's ability to see tortoise sign at distances of up to 15 feet on the ground, the width of the survey should be reduced to 10 feet." My site visit indicated that across half the site vegetation obscured the ground to such a degree that evidence of tortoise presence could easily go undetected by even the most observant biologist at 15 feet. Therefore, surveys should have been conducted at 20-foot, rather than 30-foot intervals through washes and areas of heavy concentration of Sahara mustard plants. In short, due to inadequate survey techniques it is probable that much evidence of tortoise presence went undetected.

6-179 cont.

(6) Related to the above deficiency, is the fact that approximately half of all tortoise survey field time was conducted in the early morning when tortoises would have been in burrows or beneath dense vegetation and around midday when tortoises would have been hidden beneath dense vegetation.[16] Hidden tortoises are very difficult to detect and can be easily missed.

6-180

(7) The report minimized the significance of evidence of tortoise presence found within the project boundaries. For example, is spite of the presence of much ground-obscuring vegetation, 18 desert tortoise shell remains were found within the project's original disturbance area in 2009 (even more tortoise shell remains were found in previously unsurveyed areas during subsequent 2010 surveys). Because live tortoises had been observed in the area along with numerous tortoise burrows, the most logical assumption was that origin of the fragments was from the project site. Yet the report authors sought a less logical explanation: "The DT bone fragments observed on site are probably from carcasses that washed down to the BRSA over time from adjacent higher elevations where DT populations are larger."[17] This assumption requires that the shell fragments be carried several miles to the project site during a flash flood, the fragments remain intact during such a violent event and most importantly, the fragments would not be buried under alluvium but be completely exposed on the surface. Furthermore, it should be mentioned that no statistically valid evidence has been provided indicating desert tortoises are actually more abundant south of the project site.

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[12] Palen Solar Power Project Biological Technical Report, Riverside Co., CA, August, 2009, page 34.

[13] Survey Approach and Methodologies for the Solar Millennium Parabolic Trough Palen Solar Power Project 2010, p. 2.

[14] Field Survey Protocol for Any Non-Federal Action That May Occur within the Range of the Desert Tortoise, U.S. Fish & Wildlife Service, 1992, page 6.

[15] Ibid.

[16] Palen Solar Power Project Biological Technical Report, Riverside Co., California, August, 2009, Attachment 3, Field Data Sheets.

[17] Palen Solar Power Project Desert Tortoise Technical Report, page 13.

(8) In the desert regions of California desert tortoise habitat is primarily defined by the presence of friable soils suitable for the construction of burrows.[18] Using this criterion, the entire project site is suitable habitat.[19] I agreed with the report finding on this issue as a result of my site visit of June 18, 2010. Although some portions of the site are more richly vegetated than others, I consider large portions of the project site to be excellent habitat with both appropriate soil characteristics and vegetation. The observation that "ephemeral plant production is higher and longer lasting" elsewhere in the region reveals an ignorance of the shift in ephemeral plant production at varying elevations.[20] Ephemeral blooms are not longer lasting at higher regions but simply later in the season. Had the biologists been on the site in January they would have observed the initial flowering of spring ephemerals. Additionally, the observation in the report that "the BRSA does not currently provide the groundwater necessary to support a long-lived annual plant population that could support a large onsite population of DT"[21] is supported by no data and, again, fails to recognize a seasonal shift in ephemeral plant production rather than a decrease in plant production. 6-182

(9) No attempt is made to explain the report findings in light of recurring droughts in recent years.[22] Recurring droughts in close succession can result in significant tortoise mortality yet this was not considered in explaining why there were few tortoise sightings during the surveys. 6-183

In summary, the inability of survey personnel using inadequate field methods to locate tortoise evidence is not justification for indicating the project site is low quality or even moderate quality tortoise habitat as stated in the SA/DEIS.[23] The only thing known is that an unknown number of desert tortoises occupy the project disturbance area and that most of the project site appears to be excellent tortoise habitat. It would appear that a conclusion was reached prior to the analysis. 6-184

Mitigation for Impacts to Desert Tortoise Habitat

From the outset let me state that I am in complete disagreement with implication made in the SA/DEIS[24] and the statement made in the Incidental Take Permit Application[25] that 6-185

[18] Ernst, C.H. and J. E. Lovich. 2009. *Turtles of the United States and Canada.* The John Hopkins University Press, Baltimore, Maryland p.542-543.

[19] Desert Tortoise Technical Report, Solar Millennium Palen Solar Power Project, Riverside County, California, January 2010, p. 16.

[20] Ibid., p. 17.

[21] Ibid., p. 18.

[22] Precipitation records for five localities at the Boyd Deep Canyon Research Center, Colorado Desert, California. Available at http://deepcanyon.ucnrs.org/weather_data.htm.

[23] SA/DEIS, p C.2-63.

[24] SA/DEIS, p C.2-1.

[25] Application for the California Endangered Species Act Section 2081 (B) Incidental Take Permit and Revised Desert Tortoise Technical Report (including fall 2009), Jan., 2010, p. 10.

the project site is low-quality desert tortoise habitat and, therefore, not deserving of a maximum replacement mitigation ratio of 5 acres acquired for each acre lost. The rational for determining the low-quality-habitat determination is presented in the SA/DEIS[26] and elucidated in the ADTTP.[27] According to the U.S. Fish & Wildlife Service,[28] desert tortoise critical habitat consists of six primary constituent elements with regard to habitat quality:

1. Sufficient space to support viable populations for movement, dispersal, and gene flow.
2. Sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species.
3. Suitable substrates for burrowing, nesting, and overwintering.
4. Burrows, caliche caves, and other shelter sites.
5. Sufficient vegetation for shelter from temperature extremes and predators,
6. Habitat protected from disturbance and human-caused mortality.

The Application concedes that items 3, 4, and 5, are present. As a result, I will only discuss the qualities claimed to not be present on the site: items 1, 2, and 5.

6-185 cont.

#1 The ADTTP asserts there is insufficient space to support viable tortoise populations for movement, dispersal and gene flow. This conclusion is reached in spite of the fact that the SA/DEIS and BRTR indicate there are significant, unavoidable impacts to this site characteristic.[29] The BRTR asserts Interstate 10 isolates the bulk of the project site from critical tortoise habitat to the south. However, the *Wildlife Movement and Desert Tortoise Habitat Connectivity study* commissioned by the Applicant indicates there are numerous freeway underpasses suitable for wildlife crossing including three adjacent to the project site.[30] The idea of freeway underpasses functioning as movement corridors was first advanced in the SA/DEIS.[31] Furthermore, on my site visit of June 18, 2010, I found no impediments to dispersal to the north or east of the project site. Suitable tortoise habitat extends continuously from the project site to potential habitat against the Palen Mountains to the north and Chuckwalla Valley to the east. Only to the west are there dispersal barriers in the form of agricultural plots. However, even these do not form a complete barrier to tortoise movements from east to west and vice versa. In

6-186

[26] SA/DEIS, C.2-74.

[27] Application for the California Endangered Species Act Section 2081 (B) Incidental Take Permit and Revised Desert Tortoise Technical Report (including fall 2009), Jan., 2010, p. 13.

[28] Draft revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, California and Nevada Region, Sacramento, 2008, California, p. 11-12.

[29] SA/DEIS, p C.2-63, and Palen Solar Power Project Biological Technical Report, Riverside County, California, August, 2009, page x.

[30] Wildlife Movement and Desert Tortoise Habitat Connectivity report dated May 14, 2010, page 2.

[31] SA/DEIS, p. C.2-82.

summary, the project sites offer important connectivity to tortoise habitat in all compass directions.[32]

6-186 cont.

#2 There is an implication in the SA/DEIS[33] and statement in the ADTTP[34] that there is insufficient quantity and quality of food resources on the PSPP site for foraging tortoises. However, there was no attempt to measure quality and quantity of forage variables. Instead vague reference is made to a lack of water (presumably precipitation, runoff, and/or groundwater) though there were no measurements of these variables made on the project site. Although most ephemeral plant species had dried up in June, 2010 when I visited the site, it was clear over most of the project site that there had been abundant ephemeral growth as I counted up to a dozen plant skeletons per square yard. Apparently there was also considerable ephemeral growth in 2009, sufficient to conduct a rare plant survey in the spring of that year.[35]

6-187

#6 The Incidental Take Application asserts the project site is not protected from disturbance and human-caused mortality. However, I found very little human impacts to the project site during my site visit. What impacts I did find were extremely minor. Although the project site lies near Interstate 10 only a miniscule portion of the site actually comes in contact with it. The "vehicles commonly parked in this area"[36] appear to be trucks confined wholly an extremely small area adjacent to the freeway off ramp. I found two examples of trash dumping, both decades old. With regard to domestic dogs on the site I saw none and find it difficult to believe that dogs from the agricultural areas would, or even could, move onto the project site with sufficient regularity to have even the smallest impact on fauna.

6-188

The Applicant argues that because only a few live tortoises were found on the project site and because it lacks three of the six criteria said to be essential that for tortoise presence, replacement habitat should be at the level of one-half acre for each of the 3,945.8 acres lost as a result of the installation of the Palen Solar Power Project.[37] (The SA/DEIS requests one acre of mitigation habitat for each acre lost, a 1:1 ratio.)[38] However, as I have argued above, desert tortoises are currently living on the site and most likely in numbers greater than indicated in the Desert Tortoise Technical Report. Numbers may be temporarily depressed because of (1) mortality resulting from recent, recurring

6-189

[32] See Figure 2, Application for the California Endangered Species Act Section 2081 (B) Incidental Take Permit and Revised Desert Tortoise Technical Report (including fall 2009), January, 2010.

[33] SA/DEIS, pp. C.2-74 - C.2-77.

[34] Application for the California Endangered Species Act Section 2081 (B) Incidental Take Permit and Revised Desert Tortoise Technical Report (including fall 2009), Jan., 2010, p. 14.

[35] Palen Solar Power Project Biological Technical Report, Riverside Co., CA, August, 2009, p. 32.

[36] Application for the California Endangered Species Act Section 2081 (B) Incidental Take Permit and Revised Desert Tortoise Technical Report (including fall 2009), Jan., 2010, p. 15.

[37] Ibid., p. 37.

[38] SA/DEIS, pp. C.2-2.

drought and (2) as stated in the Application "due to various factors, including the spread of a fatal respiratory disease; increases in raven populations that prey on juvenile tortoises; mortality associated with roads and off-highway-vehicle use; and fragmentation."[39]

6-189 cont.

Because the Project Site is (1) clearly tortoise habitat, (2) that the tortoise carrying capacity of the site may be either high or low but cannot be determined due to the unreliability of survey data as well as recent temporary adverse impacts to tortoise populations, and (3) because the desert tortoise has been officially listed as a Threatened species by both state and federal governments (and thereby deserving of maximum protection) the mitigation ratio should be the maximum: 5 acres acquired for each of the 3,945.8 acres of tortoise habitat lost as a result of the Palen Solar Power Project.[40] Both the SA/DEIS and the ADTTP accept this ratio for that portion of the project site that lies within Chuckwalla Desert Critical Habitat Unit because the CDCRU contains six Primary Constituent Elements (PCEs).[41] Based upon my analysis, however, the PSPP site clearly contains all six of these elements as well.

6-190

Acquisition of Tortoise Mitigation Habitat in the Region

Under my recommendation, the Applicant would be required to purchase 19,729 acres of habitat in the region currently occupied by the desert tortoise. Under the Applicant's recommendation, 1,972.9 acres of tortoise habitat would be purchased from private landowners. Either scenario, in order to offer effective mitigation, must first identify privately owned potential replacement habitat. The location of potential replacement habitat is necessary here in order to demonstrate that the proposed mitigation is feasible and that it will actually work as advertised. Replacement habitat must also be currently occupied by desert tortoises, which is the only way to demonstrate that it is suitable replacement habitat. Not only must the replacement habitat be privately held and demonstrated to be currently occupied by desert tortoises, the site must be owned by a willing seller. To insure that the habitat can and will actually be acquired, the sale of the property must be in escrow pending project approval.

The Applicant has, thus far, has been unable and unwilling to demonstrate that suitable (tortoise occupied) replacement habitat in the region is available for his figure of 1,972.9 acres, let alone the recommended figure of 19,729 acres.[42] An inability to locate and acquire suitable mitigation habitat will result in a significant unmitigated adverse impact.

6-191

[39] Application for the California Endangered Species Act Section 2081 (B) Incidental Take Permit and Revised Desert Tortoise Technical Report (including fall 2009), Jan., 2010, p. 9.

[40] Ibid., p. 36.

[41] SA/DEIS, p. C.2-74.

[42] Palen Solar I, Objections and Notice of Inability to Respond to CURE's Data Requests, May 25, 2010.

Cumulative Impacts to Desert Tortoise Habitat

There are dozens of alternative energy projects presently being constructed or in the planning process in the California deserts and in known tortoise habitat. Considered together, the total loss of tortoise habitat may easily exceed 100,000 acres in the California deserts alone.[43] Even though the desert tortoise is an officially Threatened species, it is now facing the greatest assault on its habitat in the history of the United States. This threat alone requires a maximum amount of replacement habitat for each and every project proposed within its range and on tortoise-occupied lands. 6-192

SENSITIVE SPECIES – Mojave Fringe-toed Lizard

The Mojave fringe-toed lizard (MFTL), *Uma scoparia*, is considered a Species of Special Concern by the California Department of Fish & Game and a Sensitive Species by the Bureau of Land Management.[44] As a result of these classifications, CEQA requires that the Applicant mitigate impacts to the lizard to a level of insignificance.[45] 6-193

Nothing resembling a protocol survey was conducted for the MFTL even though some protocol survey parameters exist for this species.[46] Observations on the project site, therefore, were incidental.[47] Nonetheless, during the 2009 spring surveys, 112 incidental observations were recorded within the PSPP disturbance area and dozens of additional sightings were recorded in the BRSA. In 2010, field surveyors recorded a total of 388 incidental observations.[48] Additionally, almost half the site (approximately 1,735 acres) is considered habitat for the MFTL.[49] 6-194

As stated in the biological report, "disruption of the dune ecosystem, including source sand, wind transport, or sand transport corridors, poses a threat to the habitat needed for MFTL. Preservation of sand dune ecosystems, including their source sand and sand corridors, is necessary for the long-term survivorship of Aeolian sand specialists such as

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[43] Palen Solar Power Project Biological Technical Report, Riverside Co., California, August, 2009, p. 128; see also Preliminary Spring 2010 Survey Results Corrected and Preliminary Impact Calculations for Biological Resources, dated May 27, 2010 (Corrected Preliminary Spring 2010 Survey Results), Table 3.

[44] Palen Solar Power Project Biological Technical Report, Riverside Co., CA, Aug., 2009, p. vi.

[45] California Environmental Quality Act, 1970, Appendix G. CEQA Guidelines.

[46] Cablk, M.E. and J.S. Heaton. 2002 Nov. Mojave Fringe-Toed Lizard surveys at the Marine Corps Air Ground Combat Center at Twentynine Palms, California and nearby lands administered by the Bureau of Land Management. California: Marine Corps Air Ground Combat Center. Report M67399-00-C-0005. 115 p.

[47] Palen Solar Power Project Biological Technical Report, Riverside County, California, August, 2009, page 82.

[48] Corrected Preliminary Spring 2010 Survey Results, Table 3.

[49] Palen Solar Power Project Biological Technical Report, Riverside County, California, August, 2009, Figure 11.

fringe-toed lizards."[50] The authors of the biological report further state that "loss of occupied breeding and foraging habitat is considered to be a significant impact if left unmitigated since this habitat is declining in availability in the region."[51]

Resolving this issue might be relatively straightforward if purchasing compensatory replacement habitat was all that was necessary. However, the issue is compounded because there will be significant indirect impacts to fringe-toed lizard habitat beyond the area of disturbance. As stated in the biological report:

> *"The installation of wind fencing is likely to disrupt source sand, wind transport, or sand transport corridors that are important to MFTL habitat in the dune ecosystem, resulting in an indirect impact to the species. In addition, the potential degradation or loss of habitat resulting from indirect impacts to this species would be significant if left unmitigated because similar or higher quality habitat is not common in the vicinity of the Project site. These indirect impacts would potentially impact offsite MFTL breeding habitat or burrows and adjacent foraging habitat."*[52]

The SA/DEIS goes even further by concluding that these indirect impacts caused by the PSPP cannot be mitigated.[53]

The level of impacts to the habitat of the MFTL is not known. No formal study of sand transport in the region around the BRSA has been conducted and, apparently, none are planned. (The *Aeolian Sand Mitigation Summary Report* prepared by Miles Kenney is completely inadequate. It is a crude estimate of what might happen and how the issue might possibly be resolved and is based on observations from completely different environments.[54]) That there will be adverse impacts is not in dispute. When I visited the site on June 18, 2010, I found suitable MFTL habitat along most of the northern boundary of the disturbance area as well as the entire eastern boundary. This assessment supports the continuity of habitat suitability shown in Figure 11 of Dr. Kenney's report.[55] It would appear that indirect impacts to MFTL habitat offsite could be substantial. Mitigation, therefore, would need to offset not just the loss of MFTL within the disturbance area but also large tracts of land along the northern and eastern boundaries of the project site.

6-195

[50] Ibid., p. 83.

[51] Ibid., p. 119.

[52] Ibid.

[53] SA/DEIS, pp. 2-69.

[54] Aeolian Sand Mitigation Summary Report, Palen Solar Power Project prepared by Miles D. Kenney and dated May 14, 2010.

[55] Palen Solar Power Project Biological Technical Report, Riverside Co., CA, August, 2009, Figure 11.

Mitigation for Impacts to MFTL Habitat

In an attempt to mimic the natural movement of blowsand after construction of the PSPP, the Applicant proposes to mechanically transport wind-deposited sand along the 30-foot-tall fence at the northern and western edges of the PSPP site downwind to the eastern edge of the site.[56] The wind would then blow the mechanically deposited sand deeper into the Chuckwalla Valley. The assumption is that a constant supply of sand to the east of the Project site will maintain suitable habitat for populations the MFTL offsite. The mechanical movement of sand and grading of offsite habitat would be done on a "frequent" basis and for the life of the project.[57]

The frequent use of heavy equipment to accomplish this task notwithstanding, the plan is, at best, an experiment. As stated in the sand mitigation report, previous studies involved "agricultural regions" and "shoreline beaches."[58] No mention is made of projects in desert environments. This fact along with the lack of any comprehensive study of wind patterns in the Chuckwalla Valley, make any sand replenishment program very risky for the continued, offsite existence of the MFTL. The Applicant apparently desires that the PSPP be allowed to proceed in the hope that the sand program will work and that dune and hummock habitat to the east will not stabilize.

6-196

Realistically, there seem two viable alternatives that can resolve the issue of offsite damage to MFTL habitat: (1) Scale back the project footprint so the project does not intrude upon MFTL habitat. This would also reduce if not eliminate the project acting as an impediment to wind-carried sand, or (2) Acquire approximately 4,000 acres of privately held active dune and hummock habitat offsite. This acreage reflects the direct loss of aeolian habitat within the site boundaries as well as a comparable area of offsite habitat. As with the desert tortoise, suitable habitat (occupied by MFTL and connected or nearly connected to other habitat areas known to be occupied), would need to be located and willing sellers identified.

6-197

The Project Applicant is already faced with the acquisition of up to 19,729 acres as mitigation for impacts to the desert tortoise. The acquisition of another 4,000 acres of habitat as mitigation to impacts to MFTL cannot be piggy-backed onto tortoise mitigation. The lizard lives on a loose, unconsolidated sand substrate. The tortoise resides on compact soils that will not collapse as a tortoise digs its burrow. In both cases suitable habitat available for sale has not been identified. (A letter prepared by William Graham stating that there are thousands of acres of suitable MFTL habitat for acquisition is of no value since it is not known if the habitat is occupied by MFTL, possesses similar

6-198

[56] Draft Aeolian Sand Mitigation Summary Report, Palen Solar Power Project, Riverside County, CA

[57] Ibid., p. 4.

[58] Ibid., p. 2.

functions and values offered by the habitat present onsite, or even if the land is available for sale.[59])

6-198 cont.

A reduced footprint alternative to the Applicant's proposal is described in the *Staff Assessment and Draft Environmental Impact Statement*.[60] Referred to as the "Reduced Acreage Alternative," this alternative plan would dramatically reduce impacts to the MFTL and its habitat. It pulls most site development to the south and west, avoiding the primary aeolian deposits shown to support a population of the MFTL. It would, of course, substantially reduce or even eliminate the need to acquire compensatory mitigation habitat elsewhere.

6-199

SENSITIVE SPECIES – Plant Species

Ribbed Cryptantha and Harwood's Milkvetch

Based upon the data presented in the BRTR[61] and 2010 Plant Survey Results[62] there will be significant impacts to the ribbed cryptantha and Harwood's milkvetch. Both of these species are closely associated with the areas of loose sand that dominate the northeastern half of the project site. Both of these are considered sensitive species and require mitigation under CEQA. The arguments against relying upon the experimental sand replenishment program as mitigation in favor of the Reduced Acreage Alternative apply both to these two sensitive plant species as well as to the MFTL.

6-200

Coachella Valley Milk Vetch

After examining three freckled milkvetch subspecies from the project region, Mr. Andy Sanders decided that they were not the Coachella Valley milkvetch subspecies that has been listed as endangered by the USFWS. Participating agencies, therefore, elected to not conduct focused surveys for the Coachella Valley milkvetch in 2010. This decision was in error. The specimens examined by Mr. Sanders did not come from the PSPP site and Mr. Sanders acknowledged that additional examination might result in him changing his finding.[63] Furthermore, although Mr. Sanders is an excellent field taxonomist, he has never published a peer-reviewed taxonomy paper on the Coachella Valley milkvetch. His opinion is helpful but not definitive. Electing to not do a focused survey for an endangered plant species based upon such limited information is a serious oversight that must be corrected.

6-201

[59] Letter dated May 14, 2010, written by William Graham and sent to Ms. Alan Solomon in response to questions raised at the CEC Workshop held on April 16, 2010.

[60] SA/DEIS, p. B.2-1 – B.2-2, C.2-105 – C.2-107.

[61] Palen Solar Power Project Biological Technical Report, Riverside Co., CA, August, 2009.

[62] Preliminary Spring 2010 Survey Results Corrected and Preliminary Impact Calculations for Biological Resources, dated May 27, 2010.

[63] Ibid., p. 8.

Sensitive Plant Surveys in Fall

There are several sensitive ephemeral plant species surveys that appear only in late summer and fall and that may occur on the PSPP site. To date there have been no fall plant surveys. Since impacts to sensitive plant species are considered significant under CEQA, at attempt should be made to conduct such surveys. Until such an attempt has been made, the SA/DEIS is incomplete. 6-202

IMPACTS TO DESERT DRY WASH WOODLAND

The Project Applicant proposes to eliminate 256.7 acres of sensitive Dry Wash habitat including 133.1 acres of a sensitive plant community referred to as Desert Dry Wash Woodland.[64]

My site visit on June 18, 2010, indicated that a number of ancient ironwood trees (*Olneya tesota*) are located within Desert Dry Wash Woodland habitat within the project boundaries. Some of these trees are likely to be hundreds of years old, and a few might have an age exceeding 1,000 years. A survey should be conducted to determine whether or not such ancient trees are present. If they are, they should be preserved in place. 6-203

The Desert Dry Wash Woodland present on the PSPP site is certainly among the densest stand of ironwood trees in California. In size and density it may also be the finest example of Desert Dry Wash Woodland dominated by ironwood anywhere in the California Deserts. The possible uniqueness of this stand may be a result of an unusually large watershed as a result of (1) the concentrating of flows from the Chuckwalla Mountains to the south via a few freeway culverts, (2) the expanse of the Chuckwalla Mountains themselves (probably the largest isolated drainage in the Colorado Desert), and (3) rapidly leveling topography north of Interstate 10 that allows runoff to spread over a large area near the center of the PSPP site, and (4) a near absence of competitors in the form of blue palo verde (*Cercidium floridum*) and smoke trees (*Psorothamnus spinosus*). Some effort should be made to determine the significance of the site ironwood forest with respect to other areas of ironwood concentration. If it is found to be truly unique, then it should be preserved on site since there could be no comparable compensatory mitigation lands. 6-204

If it is determined that impacts to the Dry Wash and Desert Dry Wash Woodland communities must be mitigated to a level of insignificance through the acquisition of replacement habitat, the ratio should be the maximum allowed under existing rules and regulations. The mitigation measure must also include specific performance standards, such as no net loss of habitat function and value, to ensure the replacement habitat actually mitigates the loss of the Desert Dry Wash Woodland onsite. 6-205

[64] Palen Solar Power Project Biological Technical Report, Riverside Co., California, August, 2009, p. 110.

USE OF CONTAMINENTS

The SA/DEIS states that both chemical dust control agents and weed eradication compounds will be used.[65] The use of chemical dust control agents or weed eradication compounds should be prohibited unless independent field studies have been done indicating the chemicals are harmless to wildlife.[66] Since it is highly unlikely that such studies have been done, the use of such chemicals should be strictly prohibited. 6-206

The Weed Management Plan (WMP)[67] contains over 50 pages describing the kind of weeds that may be present on the Project site, the importance of qualified staff in the use of toxic chemicals, and the importance of proper handling and application of herbicides. However, it says nothing of the actual qualifications needed by personnel, how the chemicals should be handled or how they should be applied. Less than a single page is allocated to what should be done in case of a toxic chemical spill. On that page it lists the equipment needed in case of a spill and includes such things as "bucket, dust pan, and a shovel." [68] The WMP says absolutely nothing with regard to what is to be done if chemicals are misapplied or misused. The comprehensiveness of the WMP is probably best summarized in the statement below: 6-207

"The following general precautions will be implemented for pesticide application: It is the responsibility of the pesticide user to observe all directions, restrictions, and precautions on pesticide labels. It is dangerous, wasteful, and illegal to do otherwise."[69]

In other words, so long as everyone reads the directions on the label and knows that he or she will be blamed if they don't, there will be no problem with herbicides or other toxic chemicals. This is naïve at best and intentionally misleading at worst.

If the weed problem cannot be controlled manually through the use of weed wrenches, hoes, shovels and hand pulling,[70] then a finding should be made that the introduction and spread of weed species as a result of the Project is a significant, adverse, and unavoidable impact. 6-208

[65] SA/DEIS, pp. C.2-95 – C.9-36; see also Draft Weed Management Plan.

[66] Ibid., pages B.1-9, C.2-170.

[67] Draft Weed Management Plan, Palen Solar Power Project, prepared by AECOM, January, 2010.

[68] Ibid., p. 33.

[69] Ibid., p. 28.

[70] Ibid., p. 23-25

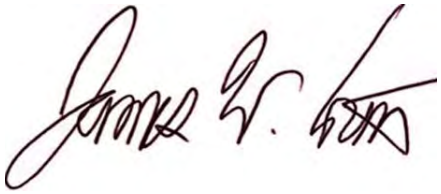
CONCLUSIONS

I find it difficult to conceive that the Project Applicant can locate adequate compensatory mitigation habitat in the immediate region of the PSPP site. If this is the case, consideration may need to be given to the acquisition of habitat beyond the immediate region. 6-209

Based upon impacts to the MFTL and Desert Wash Woodland, serious consideration should be given to the Reduced Acreage Alternative discussed in detail in the SA/DEIS.[71] This alternative would generate nearly as much energy as the proposed project (375 MW or 75%), avoids most of the MFTL habitat and also avoids the primary Desert Dry Wash Woodland occurring within the project boundaries. There is also some avoidance of desert tortoise habitat as well. The Reduced Acreage Alternative could be improved even further if all project acreage were pushed as far south as the initially proposed boundaries would allow.[72] 6-210

This concludes my current comments regarding the findings and recommendations in the SA/DEIS, BRTR, and subsequent biological studies and findings completed in 2010.

Sincerely,



James W. Cornett

[71] SA/DEIS, p. B.2-16.

[72] Ibid., Alternatives Figure 1.

JAMES W. CORNETT - CURRICULUM VITAE - 2010

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6-211

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6-211 cont.

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California Native Plant Society
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July 1, 2010

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Subject: Comments on the Palen Solar Power Project -- Draft Environmental Impact Statement

Dear Mr. Holder:

Per your request, I have reviewed the Staff Assessment/Draft Environmental Impact Statement (hereinafter the SA/DEIS) for the Palen Solar Power Project (hereinafter the "PSPP") which would be located on public lands managed by the Bureau of Land Management (hereinafter the "BLM"). My review focuses on the Hazardous Materials, Waste Management and Worker Safety analyses of the SA/DEIS.

My qualifications to perform this review include over 25 years of experience in the assessment, cleanup, and regulation of hazardous waste. A summary of my education and experience is attached to this testimony as Attachment 1. My comments on the SA/DEIS, as follow, are based on my review of the SA/DEIS and my own investigations and analysis.

6-213

I. Introduction

I have been working for the California Unions for Reliable Energy ("CURE") as a consultant on the Application for Certification ("AFC") for the Palen Solar Power Project ("Project" or "PSPP") since the data adequacy phase. I have reviewed numerous documents and have conducted my own investigations and analyses regarding the Project's potential environmental and health and safety impacts. I have found that the SA/DEIS fails to adequately predict the severity of spills of hazardous materials and fails to provide for adequate response and monitoring of the spilled material and the chemical degradation products. The SA/DEIS also fails to plan for an adequate evaluation of potential unexploded ordnance at the project site.

6-214

II. Failure to Estimate Annual and Reasonably Foreseeable Spill Volumes

The Project proposes to use parabolic mirror solar trough technology. The SA/DEIS states that PSPP would circulate 1,300,000 gallons of Therminol VP-1 heat transfer fluid (HTF) through a piping system to generate high pressure steam.[1] This is the same technology and the same HTF used at the Luz Solar Energy Generating Stations (SEGS) III through IX facilities Kramer Junction, California.[2]

Past HTF spills at the SEGS facilities have generated significant quantities of contaminated soil and the generation of liquid waste. For example, a July 27, 2007 HTF spill of 30,000 gallons (more than the capacity of a backyard swimming pool) resulted in the offsite transport of 6,408 cubic yards of impacted soil for disposal (Attachment 2). Numerous other large spills have occurred at the SEGS facilities.

6-215

The SA/DEIS does require, in Condition of Certification HAZ-4, the use of isolation valves to limit the volume of a spill of HTF to 600 gallons.[3] However, no drawings or design specifications are included in the SA/DEIS to evaluate if this requirement is attainable.

6-216

The SA/DEIS states that PSPP will include a land treatment unit (LTU) to bioremediate or land farm soil contaminated from releases of HTF.[4] The SA/DEIS estimates that 1,500 cubic yards of HTF-contaminated soil would be sent each year to the LTU.[5] The SA/DEIS does not state the capacity of the LTU nor is the capacity of the LTU stated in supporting documents, including the Application for Certification.

6-217

The SA/DEIS provides no analysis to support the estimate that no more than 1,500 cubic yards of HTF-contaminated soil would need to be treated per year in the LTU. Additionally, no attempt is made in the SA/DEIS or supporting documentation to quantify a reasonably foreseeable maximum spill volume and to identify measures that would be taken to respond to such a spill, including testing, transport, and disposal of the contaminated soil and of the spilled HTF in excess of the capacity of the LTU.

Failure to substantiate the annual estimate of HTF-contaminated soil and to identify a worst-case scenario is a significant shortcoming of the SA/DEIS. Large spills, on the order of tens of thousands of gallons as documented at SEGS may also occur at PSPP and could overwhelm the capacity of the LTU that is proposed to treat contaminated soil. For example, two past spills at SEGS generated large volumes of contaminated soil: a May 1999 spill of 21,000 gallons which generated 2,000 cubic yards of HTF-contaminated soil and the July 2007 spill of 30,000 gallons which generated more than 6,500 cubic yards of HTF-contaminated soil (Attachment 2).

6-218

Spills of HTF are likely to generate significant amounts of hazardous waste at PSPP, potentially in excess of the capacity of the LTU, as evidenced by records of spills at the analogous SEGS

[1] SA/DEIS, p. B.2-34
[2] http://en.wikipedia.org/wiki/Solar_Energy_Generating_Systems
[3] SA/DEIS, p. C.4-22
[4] *Id.* at p. B.1-7
[5] *Id.* at p. C.13-16

facilities. The SA/DEIS makes no provisions for treatment or offsite disposal of contaminated soils that would exceed the LTU capacity. The SA/DEIS states only that 10 cubic yards of contaminated soil per year would require offsite disposal as hazardous waste.[6] 6-218 cont.

A revised SA/DEIS must be prepared to state the capacity of the LTU and to substantiate the annual estimates of HTF-contaminated soil that could be effectively treated in the LTU. A revised SA/DEIS must be prepared to identify reasonably foreseeable scenarios that would estimate maximum spill volumes of HTF and the amount of contaminated soil that would be generated by such spills. 6-219

III. Conditions of Certification are Inadequate to Mitigate Spills of Heat Transfer Fluid

The SA/DEIS defers the establishment of a concentration for HTF-contaminated soils that would define whether the waste is hazardous or non-hazardous. Condition of Certification WASTE-9 states:

> The project owner shall submit to the Compliance Project Manager (CPM), BLM Authorized Office (AO) and Department of Toxic Substances Control (DTSC) for approval the applicant's assessment of whether the HTF contaminated soil is considered hazardous or non-hazardous under state regulations. HTF-contaminated soil that exceeds the hazardous waste levels must be disposed of in accordance with California Health and Safety Code (HSC) Section 25203. HTF-contaminated soil that does not exceed the hazardous waste levels may be discharged into the land treatment unit (LTU).[7] 6-220

Because the concentration that would define whether HTF-contaminated soil is hazardous has yet to be established, the impact of such spills on the environment and the necessary response to such spills cannot be predicted at this time. The SA/DEIS must be revised to specifically define the concentration of HTF contamination that would result in hazardous waste. Condition of Certification WASTE-10, as proposed in the SA/DEIS, states:

> The project owner shall ensure that all accidental spills or unauthorized releases of hazardous substances, hazardous materials, and hazardous waste are documented and remediated, and that wastes generated from accidental spills and unauthorized releases are properly managed and disposed of in accordance with all applicable federal, state, and local requirements.[8] 6-221

WASTE-10 is inadequate because the concentration that would establish whether a spill is hazardous has not been established. Because the concentration of hazardous waste has not been established, appropriate spill response cannot be specified in the SA/DEIS. A condition of certification should be included in a revised SA/DEIS to establish the concentration at which point soils contaminated with HTF would be considered hazardous. Without a hazardous waste criterion for HTF in soils, impacts cannot be adequately predicted, and response plans cannot be

[6] *Id.* at p. C.13-17
[7] *Id.* at p. C.13-32
[8] *Id.* at p. C.13-33

formulated to address spills. Without this information, it is impossible to find that the potential impacts caused by HTF spills will be mitigated to less-than-significant levels. 6-221 cont.

IV. Plans for Field Response to HTF Spills are Inadequate

A condition of certification must be prepared to identify specific measures to respond to spills of HTF, including field testing, staging of contaminated soils, and measures to address liquid HTF wastes that can be reasonably anticipated on the basis of experience at the SEGS facilities. The SA/DEIS states only that cleanup and temporary staging of HTF contaminated soils shall be conducted in accordance with a plan, an Operation Waste Management Plan, prepared as a requirement of Condition of Certification of WASTE-8.[9] The Plan is to include:

> a detailed description of all operation and maintenance waste streams, including projections of amounts to be generated, frequency of generation, and waste hazard classifications; management methods to be used for each waste stream, including temporary on-site storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to ensure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans; information and summary records of conversations with the local Certified Unified Program Agency and the Department of Toxic Substances Control regarding any waste management requirements necessary for project activities. Copies of all required waste management permits, notices, and/or authorizations shall be included in the plan and updated as necessary; a detailed description of how facility wastes will be managed and any contingency plans to be employed, in the event of an unplanned closure or planned temporary facility closure; and a detailed description of how facility wastes will be managed and disposed upon closure of the facility.

6-222

WASTE-8, by simply requiring a plan, in insufficient in anticipating adequate response to HTF spills which include free liquids. At ambient temperatures, the HTF is of a liquid consistency at temperatures above 54 degrees Fahrenheit.[10] As at the SEGS facilities, when spilled, the HTF will form wax-like piles of free standing liquids on the ground surface.[11] The piles are scooped up or are vacuumed in cleanup efforts documented at the SEGS facilities. The SA/DEIS makes no provisions for the management of the free standing liquids following a spill.

Additionally, the SA/DEIS makes no provisions for sampling HTF-contaminated soil at the point of the spill origin. The SA/DEIS states only that cleanup and temporary staging of HTF-contaminated soils shall be conducted in accordance with the approved Operation Waste Management Plan required in Condition of Certification of WASTE-8.[12] The SA/DEIS does not specifically provide for the handling of contaminated soil or contaminated HTF product which may be considered a hazardous waste at the point of the spill's origin. Further, movement of contaminated soil without testing prior to placement in the LTU may result in transport and

6-223

[9] *Id.* at C.13-32
[10] *Id.* at p. C.4-7
[11] *See* Attachment 2
[12] SA/DEIS, p. C.13-33

placement of hazardous waste which is prohibited by state law, as discussed further in section VIII below. 6-223 cont.

As noted above, the Operation Waste Management Plan is to be prepared in the future and is thus not included in the SA/DEIS or other supporting materials; therefore, the adequacy of the response plans for HTF spills cannot be evaluated. The Operation Waste Management Plan, to include a corrective action plan for cleanup of spills of HTF-contaminated soils, should be prepared for evaluation in a revised SA/DEIS. The Operation Waste Management Plan should identify a numeric cleanup standard for HTF-contaminated soils to ensure the adequacy of cleanup in protecting human health and the environment at the point of spill origin. The plan should also include sampling procedures, cleanup goals, and methods for long term monitoring. 6-224

V. The Presence of Benzene as an HTF Degradation Product in Vapor and Soil May Put Workers and the Environment at Risk

Benzene is identified as a degradation product of Therminol VP-1.[13] However, benzene is not identified in the SA/DEIS as a potential soil and groundwater contaminant and, because of this oversight and lack of mitigation, workers and the environment may be at risk from releases of HTF to soil.

The SA/DEIS states that because of the viscous and insoluble nature of HTF, it is not likely to mobilize from the soil downwards to the water table.[14] While major components of HTF may be relatively immobile, benzene is mobile in the subsurface and may therefore contaminate underlying soil and groundwater. The SA/DEIS fails to consider benzene as a degradation product of the HTF in the subsurface and therefore fails to consider benzene as a potential soil and groundwater contaminant. 6-225

The SA/DEIS also fails to consider potential health impact from benzene exposure to workers who respond to HTF spills. Personnel who respond may be exposed to benzene vapors from the spilled HTF and from vapors that originate from HTF-contaminated soil, both at the spill origin and in the LTU. Additionally, workers may be exposed to benzene through dermal contact with the HTF.

Benzene is a known human carcinogen.[15] Without proper precautions and protective equipment, including respirators and appropriate gloves and clothing, workers who respond to the spills may be exposed to benzene while breathing the vapor or when touching contaminated soil. Additionally, workers who tend to the HTF-impacted soil in the LTU may be at risk from inhalation of vapors and from dermal contact without precautions. 6-226

Condition of Certification WORKER SAFETY-2 only requires plans to be prepared and submitted to the CPM, to include an Operation Injury and an Illness Prevention Plan Hazardous Materials Management Program.[16] This condition improperly defers the formulation of effective 6-227

[13] Response to Data request DR-PH-176, p. PH-4
[14] SA/DEIS, p. B.2-41
[15] http://www.atsdr.cdc.gov/tfacts3.html
[16] SA/DEIS, p. C.14-30

mitigation that would protect worker safety from the hazards posed by HTF constituent elements, including benzene. 6-227 cont.

Measures to ensure that HTF components and byproducts, including benzene, do not pose a risk to worker safety and the subsurface environment must be prepared and incorporated into the appropriate plans. These plans must be included in a revised SA/DEIS to ensure an opportunity to review the adequacy of the protective measures. 6-228

VI. Analytical Methodology for Testing HTF-Contaminated Soil is Inappropriate

The SA/DEIS identifies EPA Method 8015 to be used in testing HTF-contaminated soil or another method to be reviewed and approved by regulatory agencies and the CPM.[17] EPA Method 8015 is not an appropriate analytical testing methodology for the detection of benzene.[18] Given that benzene is a known HTF degradation product, a method to detect benzene should be specified in the SA/DEIS for the analysis of benzene in HTF-contaminated soil.

At the proposed Abengoa solar thermal facility, the Lahontan RWQCB staff determined that EPA Method 8015 was not appropriate as the sole analytical method for Therminol VP-1.[19] For soil testing at the LTU at Abengoa, the Lahonton RWQCB required analysis using EPA Method 1625B for HTF and Method 8260 for volatile degradation products of HTF such as benzene and toluene. 6-229

The main ingredients of Therminol VP-1, biphenyl and diphenyl oxide, are not considered to move readily through soil whereas benzene is known to move rapidly through soil. Therefore, monitoring for the presence of benzene with EPA Method 8260 is critical to determine if a release has occurred from the LTU. Appropriate analytical methodology must be incorporated into the SA/DEIS as a condition of certification.

VII. A Groundwater Monitoring Program has not been Prepared to Detect Releases from the LTU

The SA/DEIS or supporting materials provide no information about a groundwater monitoring well network that will be needed to ensure that releases of HTF and related contaminants, including benzene are detected and addressed. At other large solar projects undergoing licensing review by the CEC, groundwater monitoring well networks are detailed in a Report of Waste Discharge (ROWD), to be submitted to the Regional Water Quality Control Board.[20] No ROWD has been submitted for the PSPP. 6-230

Instead, the SA/DEIS states that a ROWD may be required by the Colorado River RWQCB and that PSPP will file the ROWD if required.[21] Given that other projects included a ROWD, and 6-231

[17] *Id.* at p. C.13-33
[18] See for example http://www.caslab.com/EPA-Method-8015B/
[19] http://www.energy.ca.gov/sitingcases/abengoa/documents/others/2010-02-25_HTF_Conditions_From_James_Brathovde_TN-55665.pdf
[20] See CEC web site (http://www.energy.ca.gov/siting/solar/index.html) for ROWDs for the Beacon Energy Solar Project and the Genesis Solar Energy Project
[21] SA/DEIS, p. C.9-74

given the potential for groundwater contamination from HTF-contaminated soils in the LTU, a ROWD must be prepared and included in a revised SA/DEIS. The ROWD must be submitted for concurrent review by the RWQCB to ensure that monitoring provisions are adequate for the protection of the underlying groundwater.

6-231 cont.

VIII. Plans for Staging HTF Spills may Violate the California Health and Safety Code

The LTU will be used for the staging of soil that is contaminated by HTF spills. The SA/DEIS states:

> The LTU will be constructed with a 2-foot-thick clay layer on the floor (underlain by 3-feet of native soil that has been compacted to 95% compaction) that will serve as a protective barrier to the downward movement of contaminants from the LTU. Moreover, should any contaminants escape the LTU, the water table is approximately 195 feet beneath the LTU. In summary, because of the viscosity of HTF at ambient temperatures, the insolubility of HTF, the depth of the water table, and the placement of protective berms around the LTU, it is expected that surface water and groundwater quality beneath the site will not be impacted by LTU operation.[22]

Section 25203 of the California Health and Safety Code prohibits the disposal of hazardous waste except at a hazardous waste facility. "Disposal" means either of the following:

> (1) The discharge, deposit, injection, dumping, spilling, leaking, or placing of any waste so that the waste or any constituent of the waste is or may be emitted into the air or discharged into or on any land or waters, including groundwaters, or may otherwise enter the environment.
> (2) The abandonment of any waste. (Health and Safety Code §25113(a).)

If a leak occurs, section 25123.3 of the California Health and Safety Code sets forth the requirements for temporarily staging waste. Temporary waste staging is appropriate for hazardous waste only if, among other criteria:

- the hazardous waste being accumulated does not contain free liquids;
- the hazardous waste is accumulated on an impermeable surface, such as high density polyethylene (HDPE) of at least 20 mills that is supported by a foundation, or high density polyethylene of at least 60 mills that is not supported by a foundation, among other requirements.

6-232

If any of the requirements are not met, then the Project must be regulated as a hazardous waste storage facility under Health and Safety Code Section 25200 et seq.

The staging area of the Project's LTU as described in the SA/DEIS does not meet the requirements for a temporary staging area under Section 25123.3(a)(2) of the Health and Safety Code for two reasons. First, the hazardous waste being accumulated would likely contain free liquids. Spills of HTF will generate free liquids at temperatures above approximately 54 degrees

[22] *Id.* at p. C.9-45

Fahrenheit. The SA/DEIS makes no mention of liquid wastes that will be generated when HTF is spilled. Second, contaminated soil would not be "accumulated on an impermeable surface, such as high density polyethylene (HDPE) of at least 20 mills that is supported by a foundation, or high density polyethylene of at least 60 mills that is not supported by a foundation." The SA/DEIS states only that the LTU will be underlain by a clay layer that will serve as a protective barrier to the downward movement of contaminants from the LTU.

The SA/DEIS must incorporate as conditions of certification all measures necessary for compliance with all cited sections of the California Health and Safety Code, including preventing waste from containing free liquids and the use of an impermeable surface in the LTU.

6-232 cont.

IX. A UXO Survey Should be Conducted Under Regulatory Oversight

The SA/DEIS states that PSPP is near Palen Pass which was the site of some of the largest mock battles in the California-Arizona Maneuver Area during WW II.[23] Live-fire training occurred in camps and facilities in the area and land mines and other unexploded ordnance have been found in the former camps. Because of the proximity of the PSPP site to Palen Pass and the camps, the applicant plans to conduct pre-construction UXO surveys with qualified technicians (that meet Department of Defense requirements) and employ UXO experts during ground disturbances in areas that may contain UXO. The applicant also provided an outline for a UXO recognition training program in its response to staff data request WM-280. Accordingly, staff proposes Condition of Certification WASTE-1, which would formalize UXO training, investigation, removal, and disposal.[24]

In addition to the proximity of the PSPP site to Palen Pass, the site is in close proximity to an area identified as a "gunnery range" on a map of the Desert Training Center/California Maneuver Area (Figure included as Attachment 3 is excerpted below – PSPP is depicted in orange).

6-233

Figure 1: Map of "Gunnery Range, CDC AAB" and the approximate location of PSPP

Additionally, a WWII-era map of the CAMA shows a feature, labeled No. 29, to be located in the vicinity or beneath the Project right of way (Figure included as Attachment 4 is excerpted below). The feature is identified as the Headquarters of the Army Ground Forces, 1943.[25]

[23] *Id.* at p. C.13-10
[24] *Id.* at p, C.13-10
[25] The Desert Training Center/California Maneuver Area, 1942 – 1944, Volume 2, Historical and Archeological Contexts for the Arizona Desert. p.38, Prepared for the Bureau of Land Management

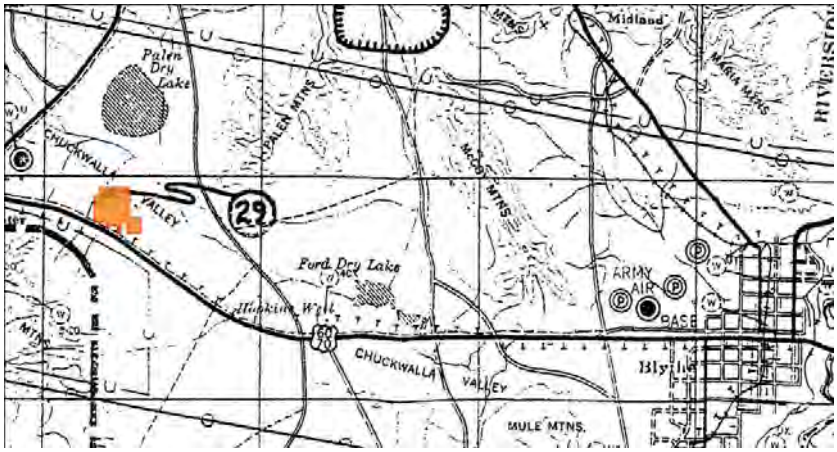


Figure 2: Headquarters, Army Ground Forces and the approximate location of PSPP

Given the intensity of the military maneuvers in the general vicinity of PSPP, the SA/DEIS must include a condition of certification that would require a UXO survey to be conducted for the project right of way and transmission line right of way under the oversight of the Department of Toxics Substances Control, the agency responsible for military site cleanup in the State of California. Without such regulatory oversight, the UXO survey may not be adequate to ensure construction worker safety. 6-234

Sincerely,

Matt Hagemann, P.G.

PROFESSIONAL GEOLOGIST
MATTHEW HAGEMANN
No.8571
STATE OF CALIFORNIA

under contract with the U.S. Army Corps of Engineers, Statistical Research Inc., September 2008 (available at http://www.sricrm.com/publications/tech.html)

Attachment 1

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

2503 Eastbluff Dr.
Suite 206
Newport Beach, California92660
Tel: (949) 887-9013
Fax: (949) 717-0069
Email: mhagemann@swape.com

Matthew F. Hagemann, P.G.

Geologic and Hydrogeologic Characterization
Investigation and Remediation Strategies
Regulatory Compliance
CEQA Review
Expert Witness

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certification:

California Professional Geologist, License Number 8571.

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Senior Environmental Analyst, Komex H2O Science, Inc (2000 -- 2003);
- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);

- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a project to provide technical assistance to a comunity adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Lead analyst in the review of numerous environmental impact reports under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, greenhouse gas emissions and geologic hazards.
- Lead analyst in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Stormwater analysis, sampling and best management practice evaluation at industrial facilities.
- Technical assistance and litigation support for vapor intrusion concerns.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.
- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.
- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the dischrge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.
- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.

- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F**. 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

Other Experience:

Selected as subject matter expert for the California Geologist licensing examination, 2009-2010.

Attachment 2

kjc OPERATING COMPANY

41100 highway 395
boron, california 93516-2109

phone 760-762-5562
facsimile 760-762-5546
www.kjcsolar.com

June 4, 1999

Ms. Diane Ventura
Lahontan Regional Water Quality Control Board
15428 Civic Drive, Suite 100
Victorville, CA 92392

Re: Spill Report for 5/22/99 Incident

Dear Ms. Ventura:

Attached is a report of the spill, which occurred at SEGS III on May 22. If you have any questions, please contact me at your convenience.

Sincerely,

(FOR D.RIB)

David M. Rib
Manager of Regulatory Affairs

DR/pd
DR99-006

Attachment

cc: Joe Koutsky / LRWQCB
Steve Munro / CEC

SPILL REPORT

OWNER:	Kramer Junction Company
OPERATOR:	KJC Operating Company
PERMITS:	Board Order #6-97-58, WDID #6B364550002 (site and evaporation ponds) Board Order #6-95-102, WDID #6B368909005 (bioremediation)
DATE:	May 22, 1999
TIME:	11:30 a.m.
SITE ADDRESS:	41100 Highway 395
LOCATION:	SEGS III solar field, northwest quadrant
MATERIAL SPILLED:	Heat Transfer Fluid (HTF), Biphenyl-Diphenyl Oxide
APPROXIMATE VOLUME SPILLED:	Approximately 21,000 gallons where released, at least 10,000 spilled to soil
APPROXIMATE VOLUME OF CONTAMINATED SOIL:	Approximately 2000 cubic yards
CONTAMINATED SOIL DISPOSITION:	Soil was removed and staged in the on-site bioremediation facility. The volume of the contaminated soil is beyond the current permit capacity of the bioremediation facility, so the soil will be sent to the TPS Technologies thermal treatment facility in Adelanto.
LRWQCB CONTACT:	Diane Ventura at 12:55 on 5/24/99. Follow-up message left for Ms. Ventura on 6/1/99 at 12:50.

CIRCUMSTANCE OF SPILL:

The spill was caused by the failure of a "flexhose," which is the flexible connection between segments of the "Solar Collection Assemblies" (SCA) that allows each SCA to individually track the sun angle. This particular flexhose was at the end of a row where the local isolation valve is located, so it took longer to stop the leak by isolating a larger section of the solar field. There was a strong flow of HTF spilling onto the ground for about 15 minutes. There was a loss of approximately 21,000 gallons of HTF from the system, approximately 1,500 gallons of which was recovered from standing puddles. The HTF-contaminated soil in the area to a depth ranging from a few inches to several feet deep.

There is an ongoing program to replace the flexhoses with "balljoint" connections. This conversion is approximately 40% complete throughout the SEGS III-VII site. The flexhoses are periodically inspected, and most failures can be detected as they usually leak for several days before failing completely. Some failures can occur much more rapidly, as is thought to have happened in this case.

amec

SECOND SEMESTER AND ANNUAL 2007 BIOREMEDIATION MONITORING REPORT LUZ SOLAR PARTNERS III – VII LTD. SEGS III THROUGH VII FACILITIES BORON, CALIFORNIA

Submitted by:

FPL Energy Operating Services, Inc. for
Luz Solar Partners III – VII Ltd.
SEGS III – VII Facilities
41100 Highway 395
Boron, CA 93516

Gregg Sellers
Agent For
Luz Solar Partners III – VII Ltd.

SECOND SEMESTER AND ANNUAL 2007 BIOREMEDIATION MONITORING REPORT LUZ SOLAR PARTNERS III – VII LTD. SEGS III THROUGH VII FACILITIES BORON, CALIFORNIA

10 January 2008

Prepared for:

Luz Solar Partners III – VII Ltd.
c/o FPL Energy Operating Services, Inc.
41100 Highway 395
Boron, CA 93516

Prepared by:

AMEC Earth & Environmental
221 – 18th Street SE
Calgary, Alberta
T2E 6J5

Project No. CE03501

Ian E. Hattie, M.Sc.
Associate

TABLE OF CONTENTS

PAGE

1.0 INTRODUCTION 1

2.0 HTF RELEASES AND TREATMENT MONITORING 1

3.0 OPERATION AND MAINTENANCE REPORTING 2

4.0 SAMPLING SUMMARY AND LABORATORY ANALYTICAL RESULTS 2

LIST OF TABLES

Table 1: Summary of 2007 HTF Releases 2
Table 2: Laboratory Analytical Results 3

LIST OF FIGURES

Figure 1: Site Layout
Figure 2: Bioremediation Unit Layout SEGS III – VII

LIST OF APPENDICES

Appendix A: Second Semester 2007 Routine Soil Sampling – Laboratory Data Sheets and Chain-of-Custody Records

1.0 INTRODUCTION

Luz Solar Partners III through VII Ltd. Solar Electric Generating Systems (SEGS) III through VII sites are located at 41100 Highway 395 in Boron, California (Kramer Junction). The SEGS III through VII sites are authorized to operate soil bioremediation cells and a landfarm the location of which are shown on Figure 1. The treatment facilities were designed and constructed in accordance with the requirements of Title 23, subchapter 15, of the California Code of Regulations. Under the terms of Revised Waste Discharge Requirements (WDRs) Board Order No. 6-95-102 issued by the California Regional Water Quality Control Board - Lahontan Region (RWQCB), the bioremediation treatment facility is referred to as the "Bioremediation Unit" and the landfarm is referred to as the "Landfarm". The combined facilities are simply referred to as the "Facility". The bioremediation facility receives soils impacted with heat transfer fluid (HTF) for treatment whereas the landfarm contains a combination of partially and fully-remediated soils or soils staged for treatment in the bioremediation cells as shown on Figure 2.

Soil treatment within the bioremediation facility involves manipulation of environmental controls such as moisture content, soil nutrients (nitrate fertilizer), and aeration of the soils through weekly to bi-weekly tilling to achieve the desired conditions for enhancing biodegradation of the constituents of concern. Soils treated to below 1,000 parts per million (ppm) HTF may be transferred to the Landfarm where passive treatment (natural attenuation) is allowed to occur.

Periodic testing of the soils undergoing treatment is conducted and analyzed by an independent laboratory to confirm the concentration of HTF. Once treatment has been completed and soil HTF concentrations are below 100-ppm (the permitted limit), remediated soils are available for reuse within the sites.

2.0 HTF RELEASES AND TREATMENT MONITORING

During the First Semester of 2007 approximately 125-130 cubic yards of HTF-impacted soils were generated. These HTF-affected soils were the result of remedial actions related to unanticipated releases that occurred on-site on 27 March and 27 February 2007. In both instances recovery of free-standing HTF product was implemented as soon as the release area was secured. The largest release occurred on 27 February 2007 which involved approximately 1,000 gallons of HTF in the SEGS VI solar field. Removal of HTF-impacted soil is typically initiated once free product is removed, however in the case of the 27 February 2007 event soil removal was temporarily suspended on 28 February due to high winds.

During the Second Semester of 2007 a release of approximately 30,000 gallons occurred on 16 July 2007 in the SEGS VII Power Block resulting in the generation of approximately 6,558 cubic yards of HTF-impacted soils. Recovery of free-standing HTF product was implemented as soon as the release area was secured.

Notification of releases was made to the California Regional Water Quality Control Board – Lahontan Region (RWQCB), National Response Center, California Office of Emergency Services, San Bernardino County Fire Department Hazardous Materials Division, and California Energy Commission on 01 March 2007, 30 March 2007, and 17 July 2007.

Soils affected with HTF as a result of the releases were promptly excavated and transported to the Landfarm facility for temporary storage. In the case of the 16 July 2007 release at the SEGS VII Power Block, approximately 6,408 cubic yards of HTF-affected soils were removed and transported offsite to an approved disposal facility and another 150 cubic yards was taken to the Bioremediation facility on site. Soil samples were subsequently collected from the excavations to determine if further soil removal was required. Soil sampling reports were prepared for each of the releases that summarized the methods employed for sample collection and laboratory analytical results. These reports have previously been submitted to the RWQCB.

Releases that occurred during 2007 are summarized in Table 1 below.

Table 1: Summary of 2007 HTF Releases

Release Date	Location	Volume of HTF Released
27 February 2007	SEGS VI SCA 39P	1,000 gallons
27 March 2007	SEGS V SCA 23P	35 gallons
16 July 2007	SEGS VII Power Block	30,000 gallons

3.0 Operation and Maintenance Reporting

FPL Energy Operating Services, Inc. has not experienced any technical issues since assuming operational control of the Facility. Visual observations indicate that the structure of the bioremediation Unit is in good working order and that no obvious defects or structural damage is evident.

The Bioremediation Unit is constructed with two rectangular cells and a row of concrete blocks dividing the facility into two portions, a north and south half: One half of the structure is typically used to store HTF-impacted material prior to treatment and the other half for active soil remediation.

Visual inspection of the primary concrete containment structure was last conducted in 2007 on 31 December. No structural damage or signs of weakening or failure were visible at the time of inspection.

The drainage sumps for the Bioremediation Unit are checked approximately once a week. No significant accumulation of water has been noted in the sumps, suggesting that no leakage is occurring.

4.0 Sampling Summary and Laboratory Analytical Results

On 08 March 2007 Northstar Environmental Remediation (Northstar) conducted a random sampling of soil from the Landfarm. Northstar also collected compliance soil samples from the Bioremediation Unit on 11 June 2007. The sampling was performed to determine the concentration of HTF in impacted soils undergoing treatment. The 08 March soil samples were collected from materials which were generated from the February HTF release at SEGS VI and which were subsequently stored on plastic sheeting in the Landfarm Remaining soil in the Landfarm represents materials generated from an accidental HTF release at SEGS III in October 2005 which was subsequently tested and found to be below the 1,000 mg/kg limit.

On 19 December 2007 Northstar collected the annual "unsaturated zone monitoring system" soil sample at a depth equal to approximately one foot below the native ground surface grade (approximately 5.5 feet below the top of the landfarm for HTF. Both HTF analytes were found to be non-detectable as shown on Table 2.

The results of the laboratory analytical analyses for the First Semester 2007 reporting period are summarized in Table 2. Laboratory reports for the First Semester sampling events were previously included in the First Semester 2007 report. Laboratory data sheets and chain-of-custody record for the annual landfarm "unsaturated zone monitoring" soil sampling event are included in Appendix A.

Soil samples were collected using a stainless-steel hand-auger, and stainless-steel drive sampler equipped with clean 2-inch diameter by six-inch long stainless-steel sample sleeves. Samples were first collected in the stainless steel sleeves and then immediately transferred into laboratory-supplied, certified clean glass jars and properly labeled. The samples were then placed into a cooler, chilled with ice in sealed Ziploc™ bags and transported under chain-of-custody to Del Mar Analytical Laboratories in Irvine, California for analysis of HTF component concentrations using EPA Method 8015 Modified for HTF. Soil was collected from four randomly selected locations in the Bioremediation Unit, composited in the field and submitted to the laboratory to be analyzed as one representative sample. The same procedure was followed for the Landfarm soil sample.

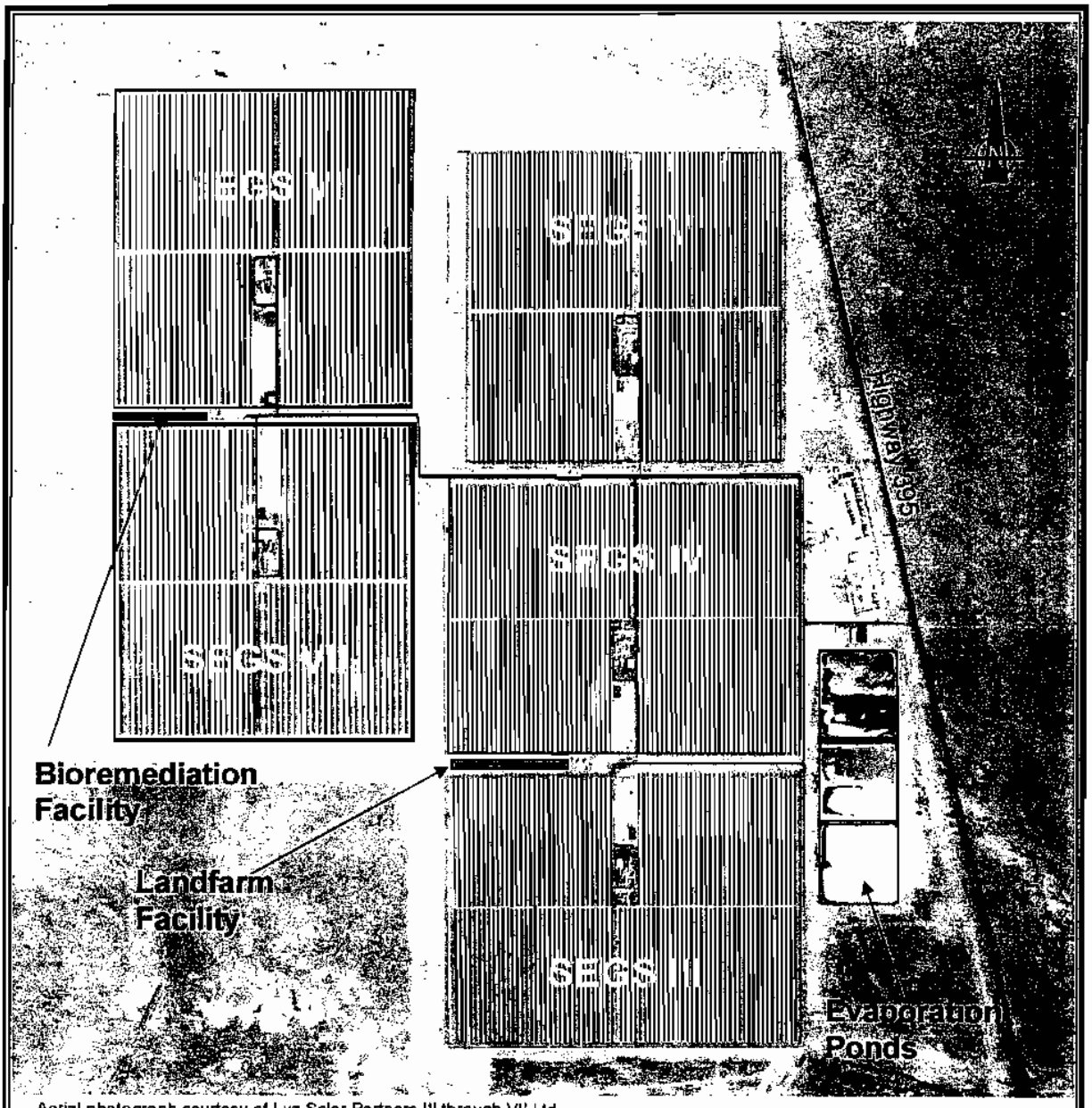
All equipment was cleaned using non-phosphate detergent and triple-rinsed with deionized water between sampling locations in order to prevent cross-contamination.

Table 2: Laboratory Analytical Results

Sample Identification	Date	1,1'-Biphenyl (mg/kg)	1,1'-Oxybisbenzene (mg/kg)
LF-1[1]	08 March 2007	7,900	8,200
LF-2[1]	08 March 2007	6,200	6,200
LF-3[1]	08 March 2007	1,700	1,800
BRN (EAST) 6-11-07[2]	11 June 2007	ND	2.1
BRN (WEST)6-11-07[2]	11 June 2007	ND	33
KJ-LF-5.5'-12-19-07	19 December 2007	ND	ND

Notes:

[1] sample collected from the Landfarm facility between SEGS III & IV
[2] sample collected from the Bioremediation facility between SEGS VI & VII
Samples analyzed by EPA Method 8015B Modified for HTF. The analytes 1, 1'-Biphenyl and 1, 1'-Oxybisbenzene ere components of the HTF used at the site. ND = Not Detectable



Aerial photograph courtesy of Luz Solar Partners III through VII Ltd.

No scale

amec

Client: Luz Solar Partners III through VII Ltd.

Job No. CE03501 | Date: 26 June 2007

Figure 1 – Site Plan
SEGS III - VII
Boron, California

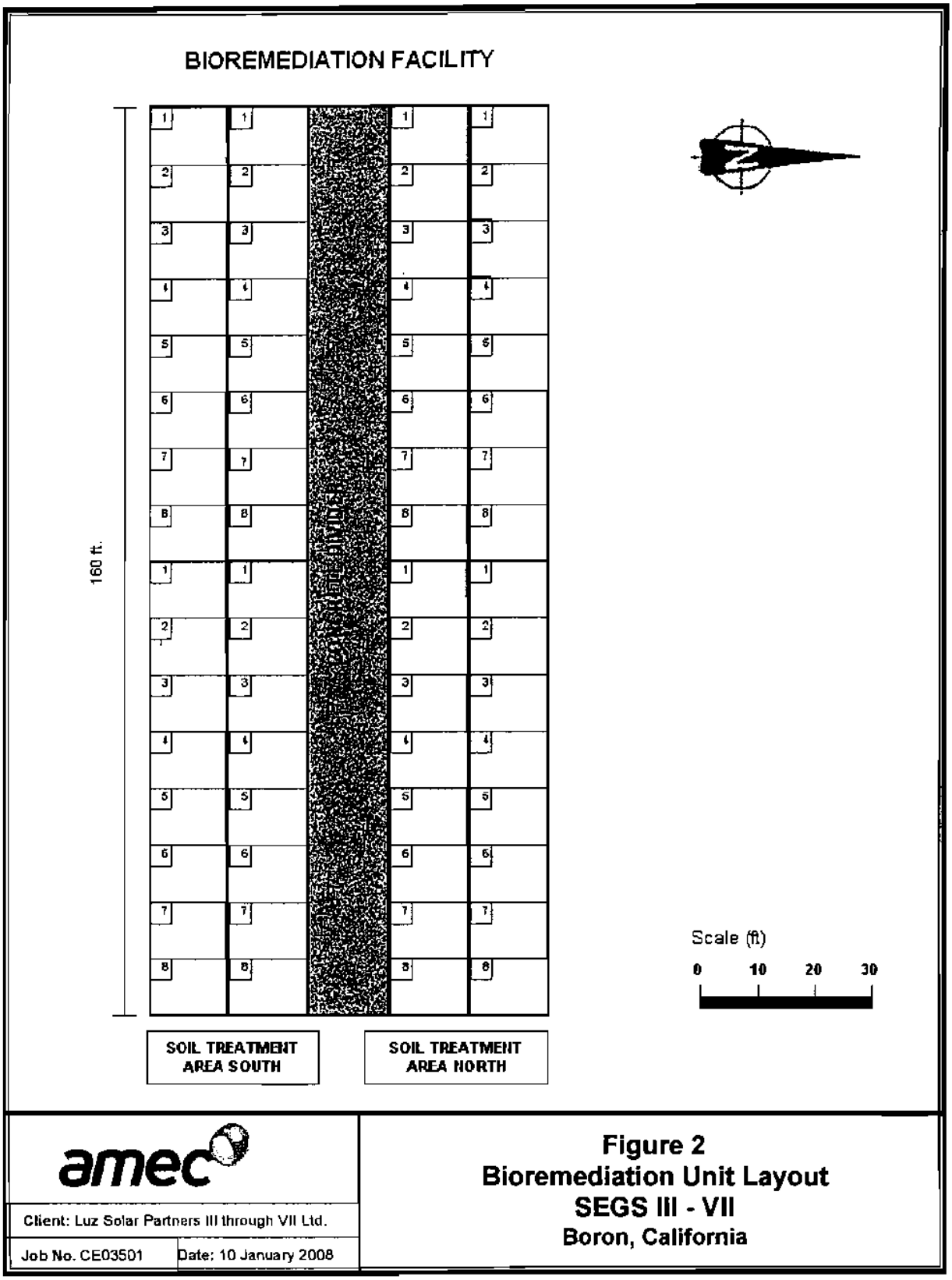


Figure 2
Bioremediation Unit Layout
SEGS III - VII
Boron, California

Appendix A

Laboratory Data Sheets and Chain-of-Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue, Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

LABORATORY REPORT

Prepared For: FPL Energy Operating Systems
43880 Harper Lake Rd
Hinkley, CA 92347
Attention: Glen King

Project: FPL Kramer Junction

Sampled: 12/19/07
Received: 12/21/07
Issued: 01/03/08 11:40

NELAP #01108CA California ELAP#1197 CSDLAC #10256

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica The Chain of Custody, 1 page, is included and is an integral part of this report.
This entire report was reviewed and approved for release.

CASE NARRATIVE

SAMPLE RECEIPT:	Samples were received intact, at 4°C, on ice and with chain of custody documentation.
HOLDING TIMES:	All samples were analyzed within prescribed holding times and/or in accordance with the TestAmerica Sample Acceptance Policy unless otherwise noted in the report.
PRESERVATION:	Samples requiring preservation were verified prior to sample analysis.
QA/QC CRITERIA:	All analyses met method criteria, except as noted in the report with data qualifiers.
COMMENTS:	No significant observations were made.
SUBCONTRACTED:	No analyses were subcontracted to an outside laboratory.

LABORATORY ID	CLIENT ID	MATRIX
IQL2412-01	KJ-LF@5.5'-12-19-07	Soil

Reviewed By:

TestAmerica Irvine

Patty Mata
Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue, Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

FPL Energy Operating Systems	Project ID: FPL Kramer Junction	
43880 Harper Lake Rd		Sampled: 12/19/07
Hinkley, CA 92347	Report Number: IQL2412	Received: 12/21/07
Attention: Glen King		

THERMINOL (CADHS LUFT/8015B MOD)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IQL2412-01 (KJ-LF@5.5'-12-19-07 - Soil)								
Reporting Units: mg/kg								
1,1'-Biphenyl	EPA 8015 MOD.	7L21094	2.0	ND	1	12/26/2007	12/27/2007	
1,1'-Oxybisbenzene	EPA 8015 MOD.	7L21094	2.0	ND	1	12/26/2007	12/27/2007	C
Surrogate: n-Octacosone (40-125%)				*79 %*				

TestAmerica Irvine

Patty Mata
Project Manager

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue, Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

FPL Energy Operating Systems	Project ID: FPL Kramer Junction	
43880 Harper Lake Rd		Sampled: 12/19/07
Hinkley, CA 92347	Report Number: IQL2412	Received: 12/21/07
Attention: Glen King		

METHOD BLANK/QC DATA

THERMINOL (CADHS LUFT/8015B MOD)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 7L21094 Extracted: 12/26/07										
Blank Analyzed: 12/26/2007 (7L21094-BLK1)										
1,1'-Biphenyl	ND	2.0	mg/kg							
1,1'-Oxybisbenzene	ND	2.0	mg/kg							
Surrogate: n-Octacosane	*6.00*		*mg/kg*	*6.67*		*90*	*40-125*			
LCS Analyzed: 12/26/2007 (7L21094-BS1)										
1,1'-Biphenyl	2.64	2.0	mg/kg	3.33		79	50-115			
1,1'-Oxybisbenzene	2.71	2.0	mg/kg	3.33		81	50-115			
Surrogate: n-Octacosane	*5.50*		*mg/kg*	*6.67*		*82*	*40-125*			
Matrix Spike Analyzed: 12/26/2007 (7L21094-MS1)					**Source: IQL2265-03**					
1,1'-Biphenyl	3.10	2.0	mg/kg	3.33	ND	93	35-120			
1,1'-Oxybisbenzene	3.17	2.0	mg/kg	3.33	ND	95	35-120			
Surrogate: n-Octacosane	*6.15*		*mg/kg*	*6.67*		*92*	*40-125*			
Matrix Spike Dup Analyzed: 12/26/2007 (7L21094-MSD1)					**Source: IQL2265-03**					
1,1'-Biphenyl	2.87	2.0	mg/kg	3.33	ND	86	35-120	8	30	
1,1'-Oxybisbenzene	2.95	2.0	mg/kg	3.33	ND	88	35-120	7	30	
Surrogate: n-Octacosane	*5.97*		*mg/kg*	*6.67*		*90*	*40-125*			

TestAmerica Irvine

Patty Mata
Project Manager

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THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue, Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

FPL Energy Operating Systems	Project ID: FPL Kramer Junction	
43880 Harper Lake Rd		Sampled: 12/19/07
Hinkley, CA 92347	Report Number: IQL2412	Received: 12/21/07
Attention: Glen King		

DATA QUALIFIERS AND DEFINITIONS

C	Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
ND	Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
RPD	Relative Percent Difference

TestAmerica Irvine

Patty Mata
Project Manager

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue, Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

FPL Energy Operating Systems
43880 Harper Lake Rd
Hinkley, CA 92347
Attention: Glen King

Project ID: FPL Kramer Junction

Report Number: IQL2412

Sampled: 12/19/07
Received: 12/21/07

Certification Summary

TestAmerica Irvine

Method	Matrix	Nelac	California
EPA 8015 MOD.	Soil	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for TestAmerica may be obtained by contacting the laboratory or visiting our website at www.testamericainc.com

TestAmerica Irvine

Patty Mata
Project Manager

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from TestAmerica.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

IQL2412

CHAIN OF CUSTODY FORM

1461 Design Ave., #100 Irvine CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
4830 South 51st St Suite B-120 Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E Sunset Rd. #3, Las Vegas NV 89120 (702) 798-3620 FAX (702) 798-3621

IQL2412 Page 1 of 1

TAL 0013(1007)

Client Name/Address:	Project/PO Number:
FPL-Kramer Junction 41100 Highway 395 Boron, CA 93516	FPL-Kramer Junction
Project Manager:	**Phone Number:** (760) 762-5562
Sampler: Glen Isbell, Rob DeLaRosa	**Fax Number:**

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	Analysis Required: 8015 Modified DRO	Special Instructions
KJ-LF@5.5'-12-19-07	Soil	4oz Jar	1	12-19-07	1235	on Ice	X	

AD 12/21/07 18:20

Relinquished By:	Date/Time: 12-20-07 @1850	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received In Lab By:	Date/Time: 12/21/07 18:50

Turnaround Time: (Check)
same day ____ 72 hours ____
24 hours ____ 5 days ____
48 hours ____ normal X

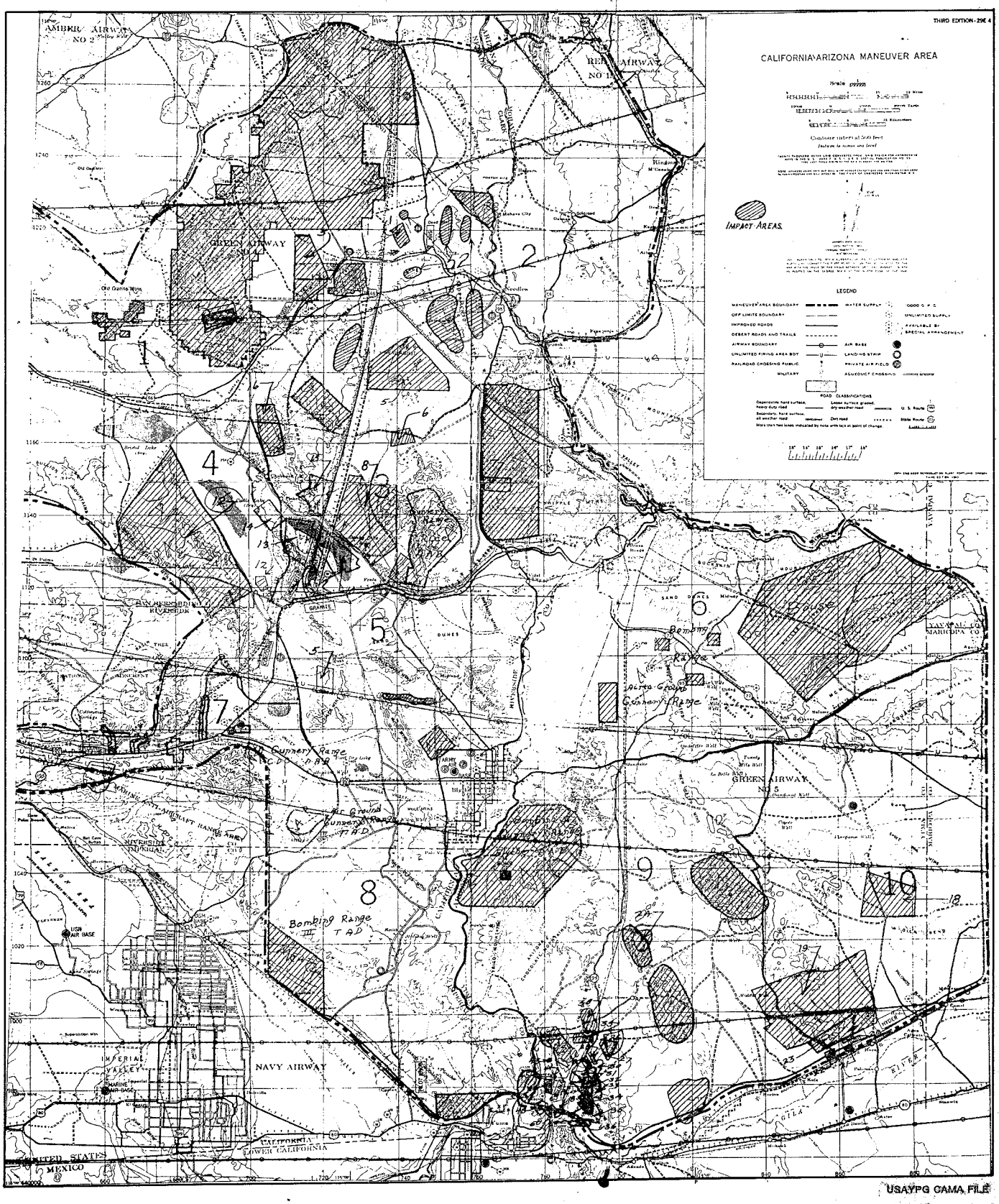
Sample Integrity: (Check)
intact X on ice 5.5/4.4

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

K-209

Comment Letter 6

Attachment 3


THIRD EDITION - 25E 4
CALIFORNIA-ARIZONA MANEUVER AREA
Scale 1:
Contour interval 500 feet
Datum is mean sea level
IMPACT AREAS
LEGEND
MANEUVER AREA BOUNDARY
OFF LIMITS BOUNDARY
IMPROVED ROADS
DESERT ROADS AND TRAILS
AIRWAY BOUNDARY
UNLIMITED FIRING AREA BOY
RAILROAD CROSSING PUBLIC
MILITARY
WATER SUPPLY
UNLIMITED SUPPLY
AIR BASE
LANDING STRIP
PRIVATE AIR FIELD
AQUEDUCT CROSSING
ROAD CLASSIFICATIONS
U. S. Route
State Route
AMBER AIRWAY NO 2
RED AIRWAY NO 1
GREEN AIRWAY NO 4
GREEN AIRWAY NO 5
NAVY AIRWAY
Bombing Range III T A D
Gunnery Range
Air Ground Gunnery Range
USN AIR BASE
MARINE AIR BASE
IMPERIAL VALLEY
SAN BERNARDINO RIVERSIDE
MARICOPA CO
YUMA CO
CALIFORNIA
LOWER CALIFORNIA
MEXICO
UNITED STATES
USAYPG CAMA FILE

Attachment 4

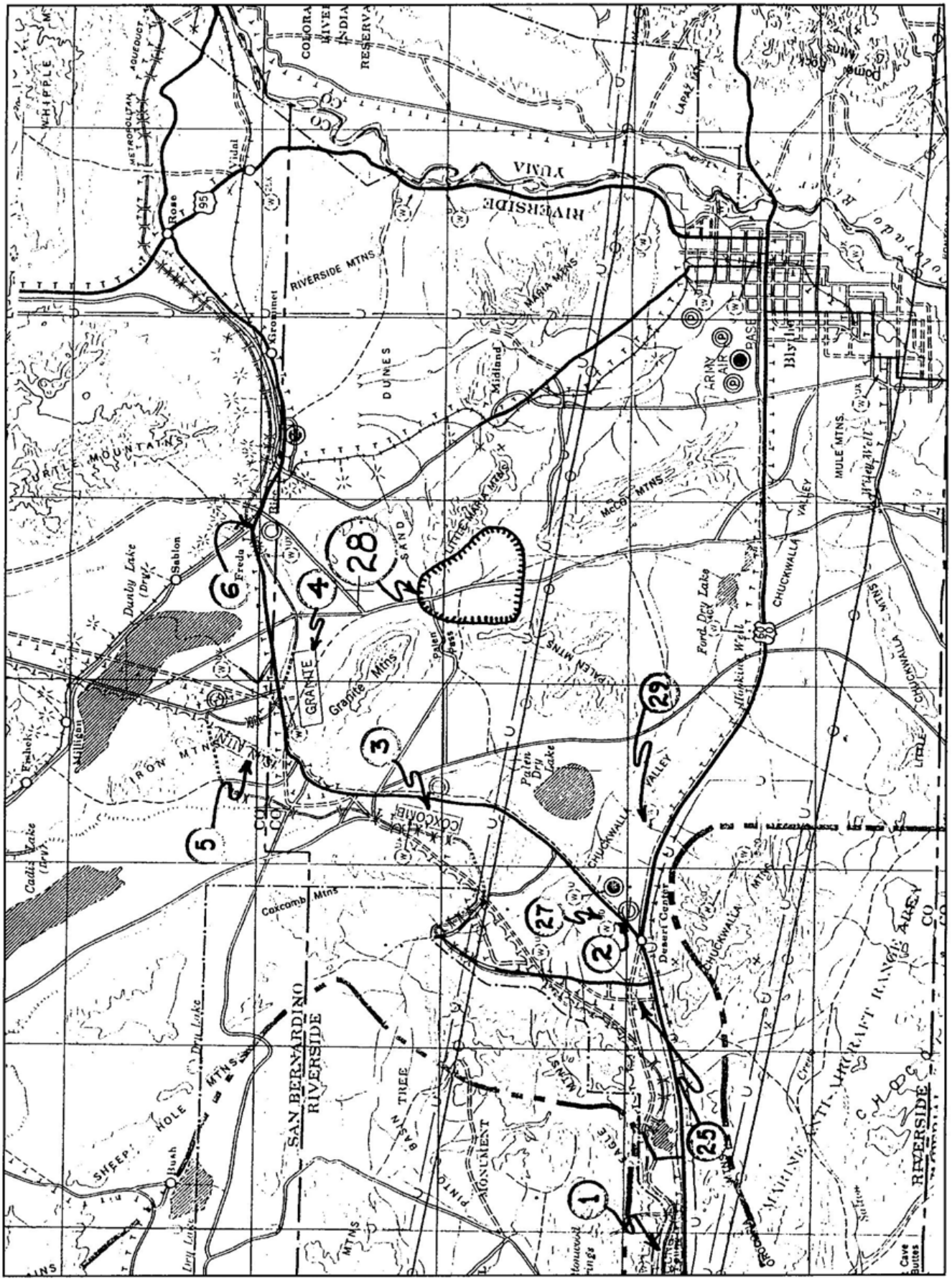


Figure 27. Map of a portion of the DTC/C-AMA, showing installations. The Palen Pass Defensive Area (a maneuver area) is marked 28. Other installations include the following: Camp Young, 1; Desert Center Observers Camp, 2; Camp Coxcomb, 3; Camp Granite, 4; Camp Iron Mountain, 5; Freda Railroad Siding, 6; Eagle Mountain Road Medical Installations, 25; Desert Center A.A.D., 27; and 18th Ordnance Battalion Camp near Desert Center, 1 and 29 (Headquarters Army Ground Forces 1943).

Attachment C

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

FOR DEPARTMENT USE ONLY				
Date Received	*Amount Received*	*Amount Due*	*Date Complete*	*Notification No.*
	$	$		

STATE OF CALIFORNIA

DEPARTMENT OF FISH AND GAME

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

Complete EACH field, unless otherwise indicated, following the enclosed instructions and submit ALL required enclosures. Attach additional pages, if necessary.

1. APPLICANT PROPOSING PROJECT

Name	Josef Eichhammer		
Business/Agency	Solar Millennium, LLC		
Street Address	1625 Shattuck Ave., Suite 270c		
City, State, Zip	Berkeley, California 94709-1611		
Telephone	(510) 524-4517	Fax	(510) 524-5516
Email	eichhammer@solarmillennium.com		

Name	Mr. Robert Redlinger		
Business/Agency	Chevron Energy Solutions, A Division of Chevron U.S.A. Inc.		
Street Address	345 California St., 18th Floor		
City, State, Zip	San Francisco, California 94104		
Telephone	(415)733-4614	Fax	(415)733-4952
Email	Rredlinger@chevron.com		

2. CONTACT PERSON *(Complete only if different from applicant)*

Name	Gavin Berg		
Street Address	1625 Shattuck Ave. Suite 270c		
City, State, Zip	Berkeley, CA 94709-1611		
Telephone	(510) 524-4517	Fax	(510) 524-5516
Email	berg@solarmillennium.com		

3. PROPERTY OWNER *(Complete only if different from applicant)*

Name	Bureau of Land Management Palm Springs/South Coast Field Office		
Street Address	1201 Bird Center Drive		
City, State, Zip	Palm Springs, CA 92262		
Telephone	(760) 833-7100	Fax	
Email			

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

4. PROJECT NAME AND AGREEMENT TERM

A. Project Name		Palen Solar Power Project (PSPP)		
B. Agreement Term Requested		☒ Regular *(5 years or less)*		
		☐ Long-term *(greater than 5 years)*		
C. Project Term		D. Seasonal Work Period		E. Number of Work Days
Beginning *(year)*	Ending *(year)*	Start Date *(month/day)*	End Date *(month/day)*	
Late 2010	2013	Year round	Year round	Project construction is anticipated to last 39 months. The planned operational life of the Project is 30 years, but the facility conceivably could operate for a longer or shorter period depending on economic or other circumstances.

5. AGREEMENT TYPE

Check the applicable box. If box B, C, D, or E is checked, complete the specified attachment.		
A.	☒ Standard *(Most construction projects, excluding the categories listed below)*	
B.	☐ Gravel/Sand/Rock Extraction *(Attachment A)*	*Mine I.D. Number:* _____
C.	☐ Timber Harvesting *(Attachment B)*	*THP Number:* _____
D.	☐ Water Diversion/Extraction/Impoundment *(Attachment C)*	*SWRCB Number:* _____
E.	☐ Routine Maintenance *(Attachment D)*	
F.	☐ DFG Fisheries Restoration Grant Program (FRGP)	*FRGP Contact Number:* _____
G.	☐ Master	
H.	☐ Master Timber Harvesting	

6. FEES

Please see the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. *Note: The Department may not process this notification until the correct fee has been received.*

		B. Project Cost	C. Project Fee
1	Grading and compacting soil for construction of solar array fields, power generating facilities, and support facilities.	> $500,000.00	$4,000.00
2			
3			
4			
		D. Base Fee *(if applicable)*	
		E. TOTAL FEE ENCLOSED	$4,000.00

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

7. PRIOR NOTIFICATION OF ORDER

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, the Department for the project described in this notification?

☐ Yes *(Provide the information below)* ☒ No

Applicant: _____ Notification Number: _____ Date: _____

B. Is this notification being submitted in response to an order, notice or other directive ("order") by a court or administrative agency (including the Department)?

☒ No ☐ Yes *(Enclose a copy of the order, notice, or other directive. If the directive is not in writing, identify the person who directed the applicant to submit this notification and the agency he or she represents, and describe the circumstances relating to the order)*

☐ *Continued on additional pages(s)*

8. PROJECT LOCATION

A. Address or description of project location.

(Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway)

The proposed Palen Solar Power Plant (PSPP or Project) is located approximately 10 miles east of Desert Center, and 0.5 mile north of the Interstate 10 (I-10) corridor in eastern Riverside County, California (Attachment 1, Figure 1). The disturbance area (area inside and outside the fenceline that will be disturbed by the Project) is composed of a large, contiguous area of approximately 5,212 acres of undeveloped land administered by the Bureau of Land Management (BLM), with the exception of one 40-acre private parcel that is being purchased by the Applicants (Attachment 1, Figure 2). The Project site is undeveloped and vacant. To get to the proposed PSPP disturbance area from I-10, take the Corn Springs Road Exit going north and continue onto a dirt service road.

☐ *Continued on additional pages(s)*

B. River, stream, or lake affected by the project.	Corn Springs Wash and other unnamed desert washes. Hydrologic Areas in proximity to the PSPP are shown in Attachment 1, Figure 3.
C. What water body is the river, stream or lake tributary to?	Not applicable
D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts?	☐ Yes ☒ No ☐ Unknown
E. County	Riverside County

F. USGS 7.5 Minute Quad Map Name	G. Township	H. Range	I. Section	J. ¼ Section
Sidewinder Well 1983	05S-06S	17E	3–6, 8–10, 20-21, 27–34	--
				--
				--

☐ *Continued on additional pages(s)*

K. Meridian *(check one)* ☐ Humboldt ☐ Mt. Diablo ☒ San Bernardino

L. Assessor's Parcel Number(s)

Refer to Attachment 1, Figure 2.

☐ *Continued on additional pages(s)*

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

M. Coordinates *(If available, provide at least latitude/longitude or UTM coordinates and check appropriate boxes)*			
Latitude/Longitude	*Latitude:* 33°50'56"N	*Longitude:* 115°14'22"W	
	☒ Degrees/Minutes/Seconds ☐ Decimal Degrees ☐ Decimal Minutes		
UTM	*Easting:* 11 N 664692.73 mE	*Northing:* 3729829.19 mN	☐ Zone 10 ☐ Zone 11
Datum used for Latitude/Longitude or UTM	☒ NAD 27 ☐ NAD 83 or WGS 84		

9. PROJECT CATEGORY AND WORK TYPE *(Check each box that applies)*

PROJECT CATEGORY	NEW CONSTRUCTION	REPLACE EXISTING STRUCTURE	REPAIR/MAINTAIN EXISTING STRUCTURE
Bank stabilization – bioengineering/recontouring	☐	☐	☐
Bank stabilization – rip-rap/retaining wall/gabion	☐	☐	☐
Boat dock/pier	☐	☐	☐
Boat ramp	☐	☐	☐
Bridge	☐	☐	☐
Channel clearing/vegetation management	☐	☐	☐
Culvert	☐	☐	☐
Debris basin	☐	☐	☐
Dam	☐	☐	☐
Diversion structure – weir or pump intake	☐	☐	☐
Filling of wetland, river, stream, or lake	☒	☐	☐
Geotechnical survey	☐	☐	☐
Habitat enhancement – revegetation/mitigation	☐	☐	☐
Levee	☐	☐	☐
Low water crossing	☐	☐	☐
Road/trail	☐	☐	☐
Sediment removal – pond, stream, or marina	☐	☐	☐
Storm drain outfall structure	☐	☐	☐
Temporary stream crossing	☐	☐	☐
Utility crossing: Horizontal Directional Drilling	☐	☐	☐
Jack/bore	☐	☐	☐

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

Open trench	☐	☐	☐
Other *(specify):*	☐	☐	☐

10. PROJECT DESCRIPTION

A. Describe the project in detail. Photographs of the project location and immediate surrounding area should be included.

- Include any structures (e.g., rip-rap culverts, or channel clearing) that will be placed, built, or completed in or near the stream, river, or lake.
- Specify the type and volume of materials that will be used.
- If water will be diverted or drafted

Enclose diagrams, drawings, plans and/or maps that provide all the following: site specific construction details; the dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; and overview of the entire project area (I.e., "birds-eye view") showing the location of each structure and/or activity, significant area features, and where the equipment/machinery will enter and exit the project area.

Solar Millennium LLC and Chevron Energy Solutions (the Applicants) are proposing to construct two commercial solar thermal electric power-generating stations, collectively referred to as the Palen Solar Power Project (PSPP or Project). The Project would be located on an approximately 5,212-acre parcel managed by the Bureau of Land Management, pursuant to a right-of-way (ROW) grant from BLM. The total disturbance area would be approximately 3,899 acres. The facility footprint would occupy approximately 2,974 acres of the ROW. In addition to solar fields and a main power-generating facility, the site would include a main office building and parking lot, a main warehouse with laydown area, onsite access roads, a tie-in switchyard, a bioremediation area, and a transmission line and substation. Attachment 1, Figure 4 illustrates the location of the proposed solar facilities.

The Project would use solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola. A heat transfer fluid (HTF) is heated to high temperature (750 degrees Fahrenheit [°F]) as it circulates through the receiver tubes. The heated HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high-pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced.

The Project would have a nominal output of 500 MW, produced by two adjacent, identical, and independent 250-MW units, referred to as Units 1 and 2. The two power units would share a main office building, main warehouse/maintenance building, parking lot, onsite access roads, bioremediation area for HTF-contaminated soil, and central internal switchyard. Units 1 and 2 would have their own solar field composed of piping loops arranged in parallel groups, and its own power block centrally located within the solar field. Each solar field would cover approximately 1,380 acres. Each power block would have its own HTF pumping and freeze protection system, solar steam generator, steam turbine generator, an air-cooled condenser (ACC) for cooling, transmission lines and related electrical system, and auxiliary equipment (e.g., water treatment system, emergency generators).

The Project would require a new transmission line to interconnect to the regional transmission grid. The transmission line is proposed to be constructed in a 40.4-acre area and to extend south approximately 1.2 miles from the boundary of the Project Disturbance Area across I-10 and turning west for a short distance to just past Chuckwalla Road. The substation would be constructed in a 34.7-acre area immediately west of the southern end of the transmission line.

Access to the PSPP would be via a new 1,350-foot-long, 24-foot-wide paved access road from Corn Springs Road. Only a small portion of the overall facility footprint would be paved, primarily the site access road, the service roads to the power blocks, and portions of the power blocks themselves. The remaining portions of the power blocks would be gravel surfaced. In total, each power block would be approximately 18.4 acres with approximately 6 acres of paved area. The solar field would remain unpaved and without a gravel surface to prevent rock damage from mirror wash vehicle traffic; a dust suppression coating would be used on the dirt roadways within and around the solar field. The Project solar field and support facilities perimeter would be secured with 8-foot-tall chain-link metal-fabric security fencing, with 1 foot barbed wire or razor wire on top. Controlled access gates would be located at the site entrance.

The existing topographic conditions of the facility footprint show an average slope of approximately 1 foot every 330 feet (0.30 percent) toward the northeast, with a series of desert washes traversing the site (e.g., a primary wash and a few secondary washes). Drainage across the undeveloped property is concentrated in these washes, until the drainage features disappear and flows fan out across the landscape as sheet flow. Development of the site would include intercepting the storm flows in three washes at the Project boundaries, channelizing and rerouting the flows around and through the site, and then returning the flows to their sheet flow regime on the north side of the site. The channel segments would be designed to meet Riverside County requirements, as well as biological considerations such as wildlife movement. Jurisdictional waters of the State are illustrated in Figure 5 of Attachment 1.

As part of the PSPP, the series of desert washes that crosses the disturbance area from southwest to northeast would be rerouted into three channels on the west side, center, and east side of the disturbance area, corresponding to the three bridges that direct flow passing under I-10 (Attachment 1, Figure 4). These channels would intercept flows prior to their entry to the site and convey them in realigned channels to approximately the same locations where they exit the site under existing conditions. Outlets for each channel would end in diffusers.

The west and east channels would be located entirely outside of the proposed perimeter fencing. The center channel inlets and outlets would be located outside of perimeter fencing. The remainder of the center channel would be located within the perimeter fence. Additional fencing will be located along the top of the channel just beyond the maintenance road. The channels would be constructed with native material, and scour protection (i.e., rip-rap) would be added to the channel sides and bottoms in stress areas such as curves and slope transitions. No scour protection is proposed for the channel bottom in the straight sections of the channels. This is to allow the low flows to meander across the bottom, replicating as nearly as possible the flow regimes under current conditions.

The power plant units would be graded generally following the existing contours of the site to minimize the amount of disturbance and allow a balanced distribution of material. Runoff from the units would be collected in a series of swales and small channels that would direct the flow to the appropriate perimeter channel. The power block areas that are centrally located within the two power plant units would have their own detention/water quality basins within the block, from which flows would be directed to the nearest downstream channel. The PSPP would employ a comprehensive system of management controls, including site-specific best management practices (BMPs), to minimize storm water contact with contaminants.

The preliminary site grading plan is designed to be balanced; no import or export of soil is expected for general earthwork. The grading plan does not currently allow for any soil shrinkage or other losses. The grading plan will be adjusted to account for any loss in elevation that could occur. Engineered fill would be provided as required for equipment and structure foundations as/if recommended by the geotechnical report. Additionally, granular material may need to be imported for road base and possible use below foundations. Mass grading of the site would occur at the beginning of the construction period and last approximately 24 months. The total earth movement required is estimated to be 4.5 million cubic yards.

To facilitate dust and contaminant removal, treated water would be used to spray-clean the solar mirrors on a periodic basis, determined by a reflectivity monitoring program. This operation is generally done at night and involves a water truck spraying treated water on the mirrors in a drive-by fashion. Rinsate from the washing operation is expected to evaporate on the mirror surface with no appreciable runoff.

Sanitary wastewater would be collected for treatment in septic tanks and disposed of via leach fields. Based on an estimate of 5,500 gallons of sanitary wastewater production per day, a total leach field area of approximately 11,000 square feet would be required, spread out among three or more locations. The leach fields would consist of buried perforated pipes. The power-generation cycle would not produce cooling-tower blow-down because the plant would be dry cooled.

Site photographs are included in Attachment 1, Figures 5a through 5i.

Supplemental Engineering Data for the Project is included as Attachment 2. For a more detailed Project Description, refer to the PSPP Biological Resources Technical Report (Attachment 3) and Supplemental Biological Resources Technical Report (Attachment 4).

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

B. Specify the equipment and machinery that will be used to complete the project.	
Heavy equipment, such as bulldozers, cranes, scrapers, rollers, backhoes, concrete trucks, and dump trucks, would be employed during site preparation and construction of the proposed Project. Project construction would require an average of 566 employees over the entire 39-month construction period, with staff requirements peaking at approximately 1,140 workers in Month 17 of construction. This would include equipment and machinery operators, construction management personnel, surveyors, and qualified construction monitors.	
C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B)	☒ Yes ☐ No *(Skip to box 11)* The Project plans to conduct initial site preparation and construction of the rerouted washes when the channels are dry; however, the Project would prefer to have the option to conduct work any time of year.
D. Will the proposed project require work in the wetted portion of the channel?	☒ Yes *(Enclose a plan to divert water around work site)* ☐ No The Project would require work within the washes as part of rerouting the existing channel. The washes are only wet when a storm event results in surface flow; therefore, work in the wetted portion of the channel would only occur if work is being performed during a storm event that results in surface flow. Attachment 1, Figure 4 illustrates the plan to permanently divert water around the site by rerouting the wash.

11. PROJECT IMPACTS

A. Describe impacts to the bed, channel, and bank of the river, stream or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise distributed, if applicable.
Attachment 1, Figure 5 illustrates State waters within the PSPP disturbance area. The proposed PSPP would result in permanent impacts to 347.9 acres of State waters, including 154.0 acres of desert dry wash woodland (141.0 acres direct and 13.0 acres indirect) and 193.9 acres of unvegetated ephemeral dry wash (161.8 acres direct and 32.1 indirect). For a complete description of the jurisdictional features within the Project disturbance area, see Attachment 5, Delineation of Jurisdictional Waters of the State. Project impacts are detailed in the Biological Resources Technical Report (Attachment 3) and Supplemental Biological Resources Technical Report (Attachment 4).

B. Will the project affect any vegetation?	☒ Yes *(Complete the tables below)* ☐ No

Vegetation Type	Temporary Impact	Permanent Impact
Desert dry wash woodland	Linear feet: none	Linear feet: 10,488
	Total area: none	Total area: 141.0 acres direct; 13.0 acres indirect
Unvegetated ephemeral dry wash	Linear feet: none	Linear feet: 22,285
	Total area: none	Total area: 161.8 acres direct; 32.1 indirect

[a] Downstream waters containing wash dependent vegetation would likely be indirectly impacted by the rerouting of the on-site washes. The data presented here represent the full complement of washes downstream that may be indirectly impacted; however, a full determination of this impact will rely on hydrologic studies that are still in progress. It is anticipated that the indirect permanent impact estimate will be refined and potentially decrease due to rerouted drainages delivering water back into the secondary wash on the northern boundary of the project.

☐ *Continued on additional pages(s)*

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?

☒ Yes *(List each species and/or describe the habitat below)* ☐ No ☐ Unknown

Special-status species that occur or have the potential to occur in proximity to the PSPP are summarized below. The Biological Resources Study Area (BRSA) includes the Project disturbance area and the survey buffer. Refer to the PSPP Biological Resources Technical Report (Attachment 3) and Supplemental Biological Resources Technical Report (Attachment 4) for more detail on the survey buffer and an analysis of impacts related to the species discussed below.

Special-Status Plant Species

Based on regional databases; site-specific habitat evaluations by Project biologists; and literature review, including a California Natural Diversity Database (CNDDB) records search, it was determined that no State-listed plant species have been recorded near the BRSA or have potential to occur in the BRSA. No State-listed plant species were detected within the BRSA.

Special-Status Wildlife Species

Desert tortoise (DT; *Gopherus agassizii*), listed as threatened under the California Endangered Species Act (CESA), were detected within the BRSA during surveys. No live DT were observed within the disturbance area, but active burrows were noted within the BRSA. The Project disturbance area is considered suitable habitat for DT, but is generally of low quality, with the exception of the transmission line corridor, where vegetation observed is of higher quantity and quality, and a larger amount of DT sign was observed. Moderate population density is expected in the Project disturbance area based on the habitat quality and survey results.

Although one individual Swainson's hawk (State-listed as threatened) was observed on site, there is no suitable nesting habitat within the disturbance area and, based on the time of year of the observation, the individual was assumed to be migrating through the area. The disturbance area has limited resources required for Swainson's hawk migration and, therefore, the area would not be considered a major migration corridor.

Eight other California Department of Fish and Game (CDFG) non-listed special-status wildlife species were observed within the BRSA:

- American badger (*Taxidea taxus)*
- Desert kit fox (*Vulpes macrotis arsipus*)
- Loggerheaded shrike (*Lanius ludovicianus*)
- Mojave fringe-toed lizard (*Uma scoparia*)
- Northern harrier (*Circus cyaneus*)
- Purple martin (*Progne subis*)
- Western burrowing owl (*Athene cunicularia hypugaea*)
- Vaux's swift (*Chaetura vauxi*)

Desert kit fox burrows, complexes, and scat, and American badger dens and animal burrows showing evidence of predation by badgers were detected within the BRSA during surveys. Mojave fringe-toed lizard was detected throughout the BRSA. Two western burrowing owl pairs, a CDFG State Species of Special Concern, and eight active burrows were observed within the disturbance area.

An additional two CDFG special-status species (Nelson's bighorn sheep [*Ovis canadensis nelsonii*] and pallid bat [*Antrozous pallidus*]) have a moderate potential to occur, and three special-status species (Gila woodpecker [*Melanerpes uropygialis*], gilded flicker [*Colaptes chrysoides*], and crissal thrasher [*Toxostoma crissale*]) have a low potential to occur.

☐ *Continued on additional pages(s)*

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

D. Identify the source(s) of information that supports a "yes" or "no" answer above in Box 11.C.

Please see :

- Attachment 3, PSPP Biological Resources Technical Report (August 2009)
- Attachment 4, PSPP Supplemental Biological Resources Technical Report (November 2008)

☐ *Continued on additional pages(s)*

E. Has a biological study been completed for the project site?

☒ Yes *(Enclose the biological study)* ☐ No

Please see Attachment 3, PSPP Biological Resources Technical Report (August 2009), and Attachment 4, PSPP Supplemental Biological Resources Technical Report (November 2008)

Note: A biological assessment or study may be required to evaluate potential impacts on biological resources.

F. Has a hydrological study been completed for the project or project site?

☒ Yes *(Enclose the hydrological study)* ☐ No

Please see Attachment 2, Supplemental Engineering Narrative, and Attachment 6, Conceptual Drainage Plan

Note: A hydrological study or other information on the site hydraulics (e.g., flows, channel characteristics, and/or flood recurrence intervals) may be required to evaluate potential project impacts on hydrology.

12. MEASURES TO PROTECT FISH, WILDLIFE, AND PLANT RESOURCES

A. Describe the techniques that will be used to prevent sediment entering watercourses during and after construction.

A preliminary Drainage, Sediment, and Erosion Control Plan (DSECP), the California Energy Commission's equivalent of a Storm Water Pollution Prevention Plan, has been prepared and is included as Attachment 7. The DSECP identifies project design features and BMPs that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) during construction grading and for long-term operations. These BMPs include the following:

- Employee Training Program
- Erosion and Sediment Control
- Good Housekeeping Programs
- Preventive Maintenance Programs
- Structural BMPs
- Equipment and Vehicle Management Practices
- Spill Prevention and Response Programs
- Inspection Programs

B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources.

Chapter 5 of Attachment 3, Biological Resources Technical Report, and Attachment 4, Supplemental Biological Resources Technical Report, describes in detail the avoidance and minimization measures to protect special-status plant and animal species. Project design features that avoid and minimize impacts to these species include the following:

- Employee Training Program
- Preconstruction Clearance Surveys for Sensitive Species
- Tortoise-Proof Fencing Around Perimeter of Project
- Biological Monitoring During Construction by Qualified Biologists
- Trash Abatement Program

- Established Parking and Staging Areas
- Spill Prevention and Response Programs
- Seasonally Dependent Avoidance Measures for Occupied Burrowing Owl Burrows
- Testing and Reporting Program for Evaporation Ponds

Note that this SAA does not address potential impacts to special-status species. This will be addressed through the Section 2081 process with CDFG.

C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

The Project has developed compensation measures to address impacts to waters of the State. A Conceptual Mitigation Plan for the proposed approach to compensate for impacts to waters of the State is included as Attachment 8. This plan discusses potential options for mitigation on site and off site.

In addition, compensation for potential impacts to special-status species is described in detail in Chapter 5 of the Biological Resources Technical Report (Attachment 3), the Supplemental Biological Resources Technical Report (Attachment 4), and in the Section 2081 draft application anticipated to be submitted to CDFG in December 2009.

☒ *Continued on additional pages(s)*

13. PERMITS

List any local, state, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

A. CFG Code Section 2081– California Endangered Species Act (CESA) requires issuance of a take authorization for species listed by the State as endangered or threatened; a 2081 incidental take permit is being prepared (anticipated submittal December 2009) and conditions will be provided in the California Energy Commission (CEC) decision document.	☐ Applied	☐ Issued
B. ESA Section 7 permit allows for the incidental take of listed species during the course of construction and project operations. The permit is being prepared and submittal to BLM is anticipated December 2009.	☐ Applied	☐ Issued
C. CEC License to Construct and Operate	☒ Applied	☐ Issued

D. Unknown whether ☐ local, ☐ state, or ☐ federal permit is needed for the project. *(Check each box that applies)*

☐ *Continued on additional pages(s)*

14. ENVIRONMENTAL REVIEW

A. Has a draft or final document been prepared for the project pursuant to the California Environmental Quality Act (CEQA), National Environmental Protection Act (NEPA), California Endangered Species Act (CESA) and/or federal Endangered Species ACT (ESA)?

☒ Yes *(Check the box for each CEQA, NEPA, CESA, and ESA document that has been prepared and enclose a copy of each)*

The Application for Certification (the CEQA-equivalent document for CEC) for the PSPP has been prepared and was submitted August 24, 2009 (CEC Docket No. 09-AFC-7). A copy was provided to CDFG.

☐ No *(Check the box for each CEQA, NEPA, CESA, and ESA document that will be or is being prepared)*

☐ Notice of Exemption	☐ Mitigated Negative Declaration	☐ NEPA document *(type)*: *An Environmental Impact Statement is being prepared (BLM expected to issue draft EIS in March 2010, and final EIS in August 2010)*
☐ Initial Study	☐ Environmental Impact Report	☒ CESA document *(type)*: *Section 2081 application anticipated to be submitted December 2009.*

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

☐ Negative Declaration	☐ Notice of Determination *(Enclose)*	☒ ESA document *(type)*: ☒ ESA document *(type)*: *ESA Section 7 permit (anticipated submittal December 2009).*
☐ THP / NTMP	☐ Mitigation, Monitoring, Reporting Plan	☒ Other *(type)*: *California Energy Commission (CEC) Application for Certification submitted August 24, 2009* (CEC Docket No. 09-AFC-7). *The CEC power plant licensing process is a CEQA-equivalent process under California law (Warren-Alquist Act).*

B. State Clearinghouse Number *(if applicable)*			
C. Has a CEQA lead agency been determined?	☒ Yes *(Complete boxes D, E, and F)*	☐ No *(Skip to box 14.G)*	
D. CEQA Lead Agency	California Energy Commission		
E. Contact Person	Rick York	F. Telephone Number	(916) 654-3945

G. If the project described in this notification is part of a larger project or plan, briefly describe that larger project or plan.

Not applicable.

☐ *Continued on additional pages(s)*

H. Has an environmental filing fee (Fish and Game Code section 711.4) been paid?

☒ Yes *(Enclose proof of payment)* ☐ No *(Briefly explain below the reason a filing fee has not been paid)*

Note: If a filing fee is required, the Department may not finalize a Lake or Streambed Alteration Agreement until the filing fee is paid.

15. SITE INSPECTION

Check one box only.

☐ In the event the Department determines that a site inspection is necessary, I hereby authorize a Department representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant the Department such entry.

☒ I request the Department to first contact *Gavin Berg* to schedule a date and time to enter the property where the project described in this notification will take place. I understand that this may delay the Department's determination as to whether a Lake or Streambed Alteration Agreement is required and/or the Department's issuances of a draft agreement pursuant to this notification.

16. DIGITAL FORMAT

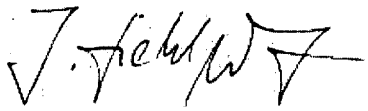
Is any of the information included as part of the notification available in digital format (i.e., CD, DVD, etc.)?

☒ Yes (Please enclose the information via digital media with the completed notification form) ☐ No

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

17. SIGNATURE

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, the Department may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the projects(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless the Department has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.



Signature of Applicant or Applicant's Authorized Representative

Date November 20, 2009

Josef Eichhammer

Print Name

Attachment D

ATTACHMENT 2

ENVIRONMENTAL EVALUATION OF PROJECT UPDATES

PALEN SOLAR POWER PROJECT (09-AFC-7)
CEC STAFF ASSESSMENT – ENGINEERING CHANGES

Response Date: May 4, 2010

Minor Changes to the Palen Solar Power Project

Palen Solar I, LLC (PSI) has made various minor modifications to the Palen Solar Power Project (PSPP) since the Application for Certification (AFC) was submitted in August 2009. These minor changes are not reflected in the March 2010 Staff Assessment/Draft Environmental Impact Statement and reflect further definition of linear facilities and other changes required by other regulatory agencies and our construction team. The following pages briefly describe the various changes and evaluate their environmental implications for the PSPP, i.e., the effects of these changes (if any) on the existing analysis of Project impacts.

The PSPP Project changes discussed below include:

- Addition of an Onsite Concrete Batch Plant During Construction;
- Addition of Evaporation Ponds to process Industrial Wastewater Flows;
- Revision to Construction Water Requirements, Number of Groundwater Wells, and Construction Water Storage Approach
- Finalization of the Gen-Tie Line Route to the Southern California Edision (SCE) Red Bluff Substation;
- Changes to the Layout of Project Facilities;
- Addition of a Temporary Construction Power Line from Offsite;
- Relocation of the Existing SCE 161-kV Power Line;
- Refinement of Daily Construction Schedule;
- Finalization of the Telecommunications Line;
- Revised List of Water Treatment Chemicals, and
- Addition of an Onsite Fuel Depot

ADDITION OF CONCRETE BATCH PLANT

With the anticipated requirement for approximately 125,000 cubic yards of concrete for each of the two solar plants of the PSPP, PSI has decided to include an on-site concrete batch plant to provide a cost-effective and reliable source of concrete for the solar field and power block foundations and pads. The batch plant will have a production capacity of 150 cubic yards per hour and is expected to operate 10 hours per day, five days a week. Night operation of the batch plant will be required to overcome the difficulty of performing concrete placement in extremely high ambient temperatures (see **Refinement of Daily Construction Schedule** below).

The plant will consist of a series of storage bins and sand/aggregate piles, conveyors, ice storage and chipper, and provision for dust control. It requires a 75-kilowatt power supply of line power (or a diesel generator). Concrete will be transported from the batch plant to the on-site placement area(s) via a fleet of eight cement trucks. The proposed batch plant is portable and will be moved to a number of different locations to support current work activities. Likely deployment locations are the two power blocks and the Project's main warehouse area. (See drawing provided at the end of this document of the Temporary Construction Facilities for batch plant location.)

Implications for Project Impact Analysis:

PSI has evaluated the overall elapsed time for a standard ready mix truck to travel from an existing commercial ready mix facility in Blythe to the Project site with allowances for the time required to pass through security, on-road travel and offroad travel within the site and determined that the time exceeds the recommended time between concrete preparation and pour. Thus, PSI has determined that a temporary concrete batch plant will be required onsite for Project construction.

Providing the concrete batch plant onsite does not change the amount of concrete required for Project construction. It merely means that the raw materials (cement, sand, aggregate, etc.), and plant components (storage bins, mixers, etc.) will be delivered to the site rather than having ready mix concrete trucks deliver concrete product from an offsite batch plant location. An onsite batch plant will not disturb land outside the current, surveyed disturbance area boundaries for PSPP.

Air pollutant emissions for the batch plant are estimated using EPA AP-42 emission factors for each individual step in the concrete production process. Emissions are estimated for storage piles (sand, gravel, cement additive), weigh hopper loading, conveyor transfers, silo loading and discharge, and mixer loading. The weigh hopper loading and conveyor transfers for sand and gravel will operate with water sprays for dust emissions control, and both the silo and the mixer loading will operate with baghouse dust controls. Daily emissions are estimated based on a maximum production volume for the batch plant of 150 cubic yards per hours, 10 hours per day, with a total concrete requirement of 125,000 cubic yards per power block.

In addition, the batch plant will require 75-kW of temporary construction power (see **Addition of a Temporary Construction Power Line from Offsite** below) and will require the dedicated operation of one front-end loader. Emissions for the generator, if required, are based on Tier 2 engine emission factors and emissions from the front-end loader are based on the OFFROAD emissions model. Emission estimates for the Batch Plant are shown in Table Air-1. Detailed emission calculations are provided in the spreadsheet titled Batch Plant Emissions provided in Appendix C.

The batch plant emissions were incorporated into the revised ambient air quality modeling that was conducted for the construction phase of the PSPP. Please see the air quality evaluation below under the heading titled "**Revision of Daily Construction Schedule**" below for a discussion of the modeling procedure and results.

Batch plant operations require water and batch plant needs are included in a revised Project construction water volume of 5,750 acre-feet. A separate discussion is provided below of the changes in Project water requirements under the heading **Revision to Construction Water Requirements, Number of Groundwater Wells, and Construction Water Storage Approach).** That section addresses changes to the Chuckwalla Valley Groundwater Basin water balance and cumulative impacts assessment and the potential impact to adjacent water supply wells from increased Project groundwater pumping during construction.

The batch plants, along with the other Project construction activities, would be regulated under Riverside County noise ordinance requirements for construction activities. The County noise ordinance establishes limits for construction activities within ¼ mile of an existing residence. Because batch plant operations would not occur near the boundary of the PSPP site, they also would not occur within ¼ mile of the nearest residence. The County noise ordinance does not limit construction noise levels. Batch plant noise levels would be approximately 90 dBA Leq at 50 feet

2

(depending on design). The batch plant noise levels are somewhat higher than the construction noise levels addressed at the site boundary in the AFC noise analysis. However, the fact that this source would be located away from the boundary of the remote PSPP site allows greater distance for noise attenuation. Project noise impacts would not be substantially different because of the temporary onsite operation of a concrete batch plant.

With respect to hazardous materials issues, batch plant operations will require use of some low toxicity hazardous materials, such as fly ash and/or calcium chloride. However, the impacts of the temporary use of these materials would not substantially affect Project hazardous materials impacts and they would remain less than significant.

From the waste management perspective, batch plant operations will generate minimum amounts of waste concrete (i.e., daily clean out of cement trucks) and bag house or other dust control equipment particulates. The batch plant will recycle materials (e.g., sand, gravel, and water) wherever possible to minimize the volume of waste. Project waste management impacts would remain less than significant.

The onsite batch plant would eliminate the ready mix concrete truck trips associated an offsite batch plant. This would be offset by truck trips delivering concrete making materials to the site. Overall, Project traffic impacts would be unchanged.

Because no additional land disturbance would result from the onsite batch plant, impacts would be unchanged with respect to biological, cultural, and other natural resources.

ADDITION OF EVAPORATION POND(S) TO MANAGE INDUSTRIAL WASTEWATER FLOWS

As previously proposed, reject water from the Project's water treatment system (reverse osmosis [RO]) concentrate would have been used for on-site dust suppression, however, this approach was found to be problematic by the RWQCB because of their designation of the RO concentrate as a waste stream, which effectively eliminates the option of land disposal. Subsequently, PSI decided to abandon this approach. Instead, after first maximizing the amount of recycling of waste streams through use of the High Efficiency Reverse Osmosis (HERO) system for recovery, PSI has decided to use evaporation ponds to manage on-site industrial waste streams. Ongoing Project design development has determined that waste streams such as blowdown from the small wet auxiliary cooling tower and blowdown from the HTF-to-steam heat exchanger may in certain cases not be recoverable in the HERO system and these streams will be sent to the on-site evaporation pond(s).

PSI plans to construct two 4-acre evaporation ponds in each power block. Two ponds were selected for reliability. The plant will utilize one of the two ponds for approximately 24 months, and then switch to the other. When one pond requires maintenance or solids removal, PSPP can still operate with the other pond. The evaporation ponds will be double-lined and will meet all applicable regulatory requirements for surface impoundments and will be covered with narrow-mesh netting to prevent access by ravens and migratory birds.

Implications for Project Impact Analysis:

The proposed evaporation ponds will disturb no additional land surface areas beyond what was previously analyzed. While the residue in the evaporation ponds represent an additional waste

stream that will require offsite disposal, the volume and infrequency of such disposal would not change the Project's less-than-significant waste management impacts.

A primary concern with evaporation ponds is potential biological resources implications. Incorporation of evaporation ponds into the Project design potentially could modify Project impacts in two ways, both related to the attraction posed by the ponds to avian species. First, the ponds may attract ravens in numbers beyond those afforded by the normal, arid conditions extant in the Project vicinity. A larger raven population increases the potential for predation of juvenile desert tortoises. The ponds also represent an attractant to other migratory and resident avian species. Chemicals present in the evaporation pond water potentially could be harmful to these species. In addition, measures taken to prevent access to water surfaces may themselves put birds at risk.

Biological resources mitigation planning for the PSPP already includes development of a Raven Management Plan. This Plan will be revised to incorporate measures that will be taken to prevent potential adverse effects to desert tortoises as a result of a subsidized raven population. The Plan will entail exclusion netting designed to prevent access to the water surface by ravens. The Raven Management Plan will also detail the measures taken to preclude access to the water surface by other avian species, and to prevent avian species from being harmed in any way by the exclusion devices.

Evaporation ponds, along with the Project's proposed Land Treatment Unit (LTU) have the potential to impact underlying groundwater and surface water quality. A report of waste discharge (ROWD) has been submitted describing the design, operation, management and detection monitoring program for the LTU. At this time, the evaporation pond design is still under development; a complete description of this Project element, including pond design, construction and maintenance, wastewater process and characterization along with a detection monitoring program will be part of the ROWD application to the Colorado River Basin Regional Water Quality Control Board, which is anticipated in May of 2010.

Construction and operation of the evaporation ponds will not affect the type or quantity of hazardous materials used by the PSPP. The waste streams sent to the evaporation ponds will be the same with or without evaporation ponds. At least a portion of the discharge from the Project's auxiliary cooling towers and boilers will be routed to the evaporation ponds. Blowdown that bypasses the HERO and is discharged to the evaporation ponds will still contain solids and other chemicals (e.g., corrosion inhibitor), which means the blow down will be classified as a designated liquid waste. Solids (suspended and total dissolved solids) will be present and unchanged whether the blowdown is routed completely through the HERO or a portion of the blowdown is routed to the HERO and the evaporation ponds. As mentioned above concerning potential water resources impacts, the operator of an evaporation pond is required to submit a Report of Waste Discharge (ROWD) and obtain Waste Discharge Requirements (WDRs) from the RWQCB. The WDR will describe the design criteria, monitoring and sampling protocol, and other management criteria to minimize a release to the environment. The waste volumes associated with periodic cleanout of the dried evaporation pond residues would not significantly affect available disposal facilities.

Onsite evaporation ponds will not have a substantial effect on the Project's air quality impacts. The process of evaporation ponds construction is expected to have minimal effect on Project construction phase air quality impacts. Earthwork (cut and fill, grading, and compaction), and other activities (e.g., truck trips delivering clay for pond liners) associated with pond construction would slightly change Project construction emissions. Air quality impacts of evaporation pond operation would be minimal.

4

PALEN SOLAR POWER PROJECT (09-AFC-7)
CEC STAFF ASSESSMENT – ENGINEERING CHANGES

Response Date: May 4, 2010

REVISION TO CONSTRUCTION WATER REQUIREMENTS, NUMBER OF GROUNDWATER WELLS, AND CONSTRUCTION WATER STORAGE APPROACH

There has been no change in the Project's plan to supply construction and operation phase water to the Project from onsite wells. The anticipated Project construction water demand is now 5,750 acre-feet (average of ~3.4 million gallons per calendar day over the 39-month construction period). This is an increase from the estimate of 1,500 acre-feet included in the PSPP AFC. Expected water usage during Project operation has not changed. The Project (both solar units) will require a total of approximately 300 acre-feet per year (afy).

To supply the needed quantity of water and inconsideration of the proposed change in the construction water volume and based on the uncertainty in well yield due to the limited number of well tests performed to date, PSI proposes to install and operate up to 10 wells on site. The wells will be located within the Power Block and elsewhere within the Solar Field to provide primary and secondary water supply to the Project. This is an increase in the number of on-site wells compared to the number proposed in the AFC.

Water for construction activities including dust control, soil excavation and compaction, equipment flushing, etc., will be stored onsite in temporary tanks. The temporary tanks are envisioned as "Baker Tanks," which are steel fixed axle tanks /vehicles that can be pulled to the site and set at any convenient location. Upon completion of the Project activity, the tanks are removed from the site in the same manner.

Implications for Project Impact Analysis:

The change in proposed construction water supply represents an increase of about 12 times over the previously estimated volume of about 480 acre-feet per year for 39 months, for a total of approximately 1,500 AF over the entire construction period. The impacts from the change were evaluated using the Cumulative Impacts Assessment spreadsheet (AFC Table 5.17-12 (rev 2)) and the numerical groundwater model provided in the data response of March 12, 2010. The cumulative impacts assessment was modified only changing the construction water volume to the proposed 1,917 acre-feet per year over a 3-year period beginning in 2011. The recharge and discharge elements (i.e., mesa "inflow and "outflow") were not changed over the water balance provided in Table Soil and Water-194-2 (rev1) (see March 2010 submittal [not included as no changes were made to table]) under the assumption that the infiltration would be about 5% of precipitation. The forecast shows that the Project during construction will account for about 68% of the total water used by renewable energy projects proposed in the Chuckwalla Valley Groundwater Basin for an approximately three-year period starting in 2011.

The Project's operational water volume is unchanged and accounts for about 1% to 2% of the total renewable water use, and represents about a 3% to 18% increase in total demand in the Chuckwalla Valley Groundwater Basin under an assumption of no change in the base year inflow and outflow estimates. By comparison, the proposed operational volume represents about 2.4% of the estimated recharge. While the cumulative forecast from all the current and future sources results in a short-term net annual deficit, depending on the assumption of aquifer storage, the cumulative decline across the Chuckwalla Valley Groundwater Basin is between about 0.5 and 2 feet. It would be anticipated that the water level decline would be greater in areas of higher water demand. As noted in the AFC, the proposed water use for the Project alone represents about 0.1% of the available water in storage in the Chuckwalla Valley Groundwater Basin. Given its fractional

5

contribution to the total water use, the Project does not represent a cumulatively considerable contribution to the water resource impacts to the Chuckwalla Valley Groundwater Basin.

The groundwater model provided in the Data Response submitted March 12, 2010, was revised to reflect an updated volume of construction water supply for the PSPP. Table Soil and Water 207-1 (rev2), "Pumping Schedule for Numerical Groundwater Modeling", was modified to incorporate the change in the construction water volume over the volume proposed in the AFC. For the numerical simulations, the total water volume (5,750 acre-feet) was applied over a 3-year period as a conservative estimate of the construction water impacts as the Project construction period is proposed at 39 months. No other changes were made in the operational water volume (300 acre-feet per year) or aquifer characteristics, or transmissivity zoning as provided for the Data Response (see Figure DR S&W 207-3, March 2010). While the operational volume was not changed, the full volume of water for construction and operation was segregated and applied through pumping wells at four locations within the Project footprint (Figure Soil and Water-1).

The revision to the construction volume was simulated for both the Project Only and Cumulative Impacts scenarios (Run 7 and Run 15 from prior modeling, March 2010). The model configuration and zonation (i.e., distribution) of transmissivity and storage coefficient were not changed over the configurations provided in March 2010 Data Response (i.e., no changes were made to Figure DR S&W 207-3). Run 7 (Project only) and Run 15 (Cumulative Impacts) were updated only with the change to the construction water volume as shown on Table Soil and Water 207-1 (rev2). The transmissivity distribution was not changed from the distribution to provide a comparative assessment between the previous modeling and the updated version with the change in the construction water volume. As noted previously, the transmissivity distribution was mapped in a conservative sense, in that lower range values were applied over larger areas which would tend to produce a larger cone-of-depression. It is important to emphasize that the numerical modeling is a 2-D simulation and as such the transmissivity values are uniformly applied through the model domain and assumed constant through the vertical extent of saturated sediments. This represents a conservative approach to the analysis of water supply and impacts from the Project, as it presumes through-going uniformity of aquifer characteristics that are not documented in the hydrostratigraphy for the Basin. The Basin shows significant heterogeneity and possibly higher transmissive sediments at depth below the Project and in the central portion of the Basin.

The model results are shown in Table DR-Soil and Water 207-2 (rev2). As can be seen in the results, the maximum drawdown occurs at the end of construction (see Figure Soil and Water-2 and Soil and Water-4). During the operational period, the pumping rate drops and is distributed uniformly in the area of the Power Blocks, as such so does the drawdown. It is also noted that at the end of operation, the drawdown is slightly larger than at the middle of operation due to prolonged pumping (see Table DR-Soil and Water 207-2 (rev2)). The impact to adjacent water supply wells was also assessed using the radius of influence from the construction and operational pumping wells to the 5-foot drawdown and 1-foot drawdown contours. The maximum distance at 1 foot drawdown for the Project occurs at the end of operation for either scenario, though there is no drawdown above 5 feet predicted beyond the Project footprint (see Figure Soil and Water-3 and Soil and Water-5). Additionally, during construction no offsite water supply wells are predicted to be affected by project pumping causing a drawdown of 5 feet or more (Figure Soil and Water-2 and Soil and Water-4). The scenarios modeled reveal that no offsite well is expected to be affected to a drawdown of 5-feet or more by the Project pumping.

In a numerical groundwater flow model, inflows and outflows of the model domain can be obtained using the model flow budget for each simulation. The cumulative difference between the inflows

6

and outflows is the storage change for the aquifer. As can be seen from Table DR-Soil and Water 207-2 (rev2), the largest net storage change occurs at the end of operation for either model scenario. Assuming a total recoverable storage of 15,000,000 acre-ft in the basin (DWR, 1979), the impact of basin storage over the full term of the Project (30 years) is insignificant even for the largest storage change at the end of operation (0.97%).

The numerical modeling files are provided in Appendix Soil and Water-E. which accompanies this submittal.

IDENTIFICATION OF GEN-TIE LINE ROUTE TO THE TWO PROPOSED SCE RED BLUFF SUBSTATION SITE LOCATION OPTIONS

PSI plans to provide a 230-kV transmission line connection to the proposed SCE Red Bluff substation (RBSS). The proposed 230/500-kV RBSS will be constructed, owned, operated, and maintained by SCE. Since there are two RBSS locations currently being considered by SCE, both along the Devers-Palo Verde transmission line corridor, PSI has identified two gen-tie route options that correspond to each of the proposed RBSS locations under consideration by SCE. Both of the RBSS sites are currently under consideration by SCE are located due west of the PSPP site. These two transmission corridor options are shown in Figure Trans-1 and are designated as options RBSS 1 and RBSS 2. The proposed RBSS 1 location is the one nearest to the PSPP site, located approximately three miles west of the PSPP site boundary, and about half a mile south of I-10 along the Devers-Palo Verde 500-kV transmission line corridor. The proposed RBSS 2 site is located farther from PSPP, approximately nine miles west of the PSPP site boundary, and about one mile south of I-10 also along the Devers-Palo Verde 500kV transmission line corridor.

Starting at the PSPP central switchyard metering point located near the northern boundary of the Unit #2 solar field centerline, the proposed PSPP transmission line would run north approximately ¼ mile until it exits the site boundary. At that point it jogs WNW for about a mile, and then runs due west for about a ¼ mile, and then SW for about half a mile. From there it proceeds due west for approximately 2 ½ miles where it reaches a point approximately ¾ mile north of the proposed RBSS 1 site location. The RBSS 2 transmission corridor option would continue to proceed due west from this point. The first option for the proposed transmission line would, therefore, approach RBSS 1 from the east and would tie-in to the 230-kV bus from the northern end of the substation. The alignment of this proposed corridor option would total approximately 5 ¼ miles.

For RBSS 2, the transmission line would continue to proceed due west from the point located ¾ miles directly north of the proposed RBSS 1 site for an additional three miles, where it jogs NW for about ½ mile and then proceeds another 2 ¾ miles to a point approximately one mile directly north of the proposed RBSS 2 site location. Therefore, the transmission line would approach the proposed RBSS 2 substation from the east and then tie-in to the 230-kV bus from the northern end of the substation, as in the RBSS 1 option. The alignment of this proposed route would total approximately 11 ¾ miles.

Either Red Bluff Substation location is expected to occupy a total of approximately 90 acres. Substation components would include an undetermined number of 230-kV and 500-kV lines, 230/500-kV transformer banks, circuit breakers, switchgear, and a microwave tower. A road would be included to provide vehicular access to the substation. The location and length of this road would be contingent upon the final location chosen for the RBSS. Land disturbance would be limited to the actual structure locations, construction staging areas, and access road. The RBSS will

7

be provided with a perimeter security wall, a minimum of eight feet in height, topped with a minimum of three strands of barbed wire.

Implications for Project Impact Analysis:

Selection of either of these routes between the PSPP plant site and the Red Bluff Substation will not substantially modify previous analyses with respect to air quality or water resources. Previous analyses in these disciplines have included a gen-tie line between PSPP and the RBSS and the differences between the selected route and the routes previously evaluated do not substantially change air emissions or water supply needs. The final selection of RBSS is expected to be identified in Desert Sunlight's DEIS this spring. PSI prefers the eastern option for RBSS due to its closer proximity to the project site and resulting lower cumulative environmental impacts for transmission lines in the area.

With respect to biological resources, portions of the gen-tie line outside the PSPP plant site were located outside the areas surveyed for biological resources in 2009. Full protocol-level biological surveys for these additional areas are currently underway for both of the proposed RBSS transmission line corridor options. It is anticipated that transmission line pole locations and access road construction will result in modest increases in impacts to Sonoran Creosote Bush Scrub and Desert Dry Wash Woodland vegetation. The current surveys will ensure a level of biological resource data that matches that derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. In addition, any necessary additional mitigation provisions will be calculated.

With respect to cultural resources, portions of the gen-tie line outside the PSPP plant site are outside the area surveyed for cultural resources in 2009. Cultural resource surveys for these additional areas are currently underway in order to ensure a level of cultural resource data matching that derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. The resources encountered will be incorporated into Project cultural resources evaluation and treatment programs.

With respect to transmission line safety and nuisance impacts, the electromagnetic field (EMF) is a function of the physical configuration of the transmission line and the voltage and current levels. An EMF study was prepared for a line voltage of 230-kV. No significant transmission line-related impacts were identified as a result of the Project studies and, as such, no additional mitigation is required. The double circuit PSPP transmission lines will operate at 230-kV and will have a conductor surface electric field strength significantly below 15 kV per centimeter because of the large ("Bluebird") conductor chosen for the project. Radio frequency interference and audible noise levels are not expected to be a concern during operation of the line.

CHANGES TO POWER BLOCK LAYOUT

Minor refinements have been made to the power block layouts for each of the two plants to be constructed at PSPP. Generally, these updates include a slightly enlarged ACC for improved STG performance in hot weather; adding new, lower capacity water tanks that have a smaller diameter but are slightly taller than described in the AFC; and relocation and expansion of the water treatment area, which has been shifted to make room for the center header. In addition, the entire power block is reversed north to south from the orientation presented in the AFC.

8

These changes are reflected in attached drawing 2008-045E-PP-001-ALT, Plot Plan Air Cooled Condenser Option (Power Block Layout_ RevE.pdf) for a revised plot plan and power block layout.

Implications for Project Impact Analysis:

The proposed layout changes do not involve disturbance of any previously undisturbed ground surface areas. Thus, they would have no implications for existing analyses related to biological, cultural, or other natural resources. The changes would not substantially affect water use during construction or operation; The relatively minor changes to the sizes and layout of facilities within the PSPP site will not substantially change the existing visual resources impact analysis. Relatively small changes to power block facilities in the interior of the roughly 3,000-acre plant site will be virtually unnoticeable from offsite locations.

The following paragraphs address the air quality implications of several proposed minor changes to the Project's emission sources, source locations, and modeling requirements, including:

- Reconfiguration of the power blocks;
- Increase in hours of operation of the cooling tower;
- Correction to the number of mirror wash events used in the air quality impacts analysis;
- Change to the maintenance vehicle travel within the solar field;
- Elimination of the vehicle travel associated with the use of RO concentrate for dust suppression; and
- Modeling to assess EPA's new 1-hour NO_2 standard (effective date April 12, 2010).

The reconfiguration of the power block by itself would be expected to have a negligible impact to the air quality impacts analysis. Moving an emission source relative to the fence line or other receptors would be expected to change the modeling results at any specific receptor; however, given the distance from the power block to the fence line, any changes in equipment location within the power block would have a negligible impact to a receptor at or beyond the fence line more than 1,000 meters away.

PSI has determined that the wet cooling tower used for heat rejection of the lube oil and generator cooling loops will have to operate 24 hours per day rather than 16 hours per day as was stated in the AFC. PSI expects that the cooling tower will not operate at full capacity during the additional 8 hours per day; however, emissions are estimated based on full load operation. The revised cooling tower emissions are shown in Table Air-2. The ambient air quality modeling analysis has been revised based on the emission increase. Modeling results are discussed and presented below.

The AFC and subsequent Data Request responses contain inconsistent information regarding the frequency of mirror washing; the AFC Project Description stated once per week during the winter months and twice per week during the summer months and the AFC air quality analysis was based on washing once per month during the winter and twice per month during the summer. PSI has confirmed that the AFC Project Description more accurately reflects the anticipated wash schedule. The emission estimates for mirror washing have been revised to reflect the more frequent wash schedule; the emission estimates are shown in Table Air-3. The modeling results have also been revised based on the correct wash schedule; modeling results are discussed and presented below.

PSI has developed a more comprehensive understanding of the maintenance inspection requirements for the solar field and has revised the maintenance vehicle mileage and corresponding emission estimates accordingly. Simply put, the maintenance inspection vehicles would travel perpendicular to the solar troughs and piping in the vicinity of the connectors rather than parallel to the troughs and piping. In this way, the travel distance for inspections and corresponding vehicle emissions are reduced substantially compared to initial estimates; the emission estimates are also shown in Table Air-3.

As noted elsewhere, PSI no longer proposes to use RO concentrate for dust suppression and instead will direct this wastewater stream to the evaporation ponds for disposal. Consequently, water truck use for dust suppression activities will not be required, and the emissions associated with water truck use would not occur. The maintenance vehicle emission estimates shown in Table Air-3 have been revised to eliminate the emissions associated with water truck use, and the ambient air quality modeling results have been revised based on this Project change; modeling results are discussed and presented below.

Finally, EPA has adopted a new ambient air quality standard for a one-hour averaging period for NO_2, effective April 12, 2010. The Applicant has prepared a modeling analysis for the 1-hour NO_2 standard to demonstrate compliance with this requirement.

The worst-case normal operations emissions of the Project ancillary sources were modeled along with vehicular emissions from the solar field maintenance vehicles. The emission rates used in the modeling were adjusted from those presented in the AFC and subsequent Data Request responses as discussed above. As was established in the modeling submitted as part of Attachment DR-AIR-5 to the Data Request responses in January 2010, there are no emissions sources within six miles of the PSPP site that emit more than five tons per year of any criteria pollutant. As a result, no modeling was performed of non-project sources beyond the addition of ambient background concentrations. The maximum modeled concentrations for Project emissions are summed with ambient background concentrations for comparison to the CAAQS/NAAQS in Table Air-4.

As shown in Table Air-4, the total concentrations comprised of maximum modeled impacts plus ambient background concentrations are below the CAAQS/NAAQS for all pollutants with the exception of the 24-hour PM10 CAAQS and NAAQS, and the annual PM10 CAAQS.

For the PM10 impacts, the ambient background already exceeds the standards and Project contributions are relatively small (28 percent and nine percent of the 24-hour and annual PM10 CAAQS, respectively). Note that identifying appropriate background data for use in this analysis is difficult because while the Project site is in a part of Riverside County designated as attainment for PM10, the available background data are from monitoring stations that are located to the west in parts of Riverside County or other counties that are designated non-attainment for PM10. Additionally, the closest monitors are located in urban/industrial / agricultural areas which are unlikely to represent background pollutant concentrations in the Project area which is undeveloped desert.

A discussion of the modeling methodology and the modeling results are provided in the Modeling freport provided as Appendix A to this submittal. An archive of the modeling file is provided as Appendix B to this submittal.

ADDITION OF A TEMPORARY CONSTRUCTION POWER LINE FROM OFFSITE

10

Construction power will be provided to the site from Southern California Edison. Two alternative sources of construction power are being investigated: a feed from the existing 12.47-kV distribution line that feeds the microwave tower located southwest of the Corn Springs Road interchange (see Figure Palen Telecom and Power Routing 2), and a new 12.47 kV transmission line routed down the project transmission line right-of-way from Desert Center Rice Road. If the 12.47-kV distribution line located near the microwave tower South of I10 is the selected source, then the line will be extended under I-10 and routed into the PSPP site along the site access road. The Project will include construction of a 12.47-kV internal distribution system and step down transformers to provide power as needed to construction operations.

Implications for Project Impact Analysis:

Using temporary line power rather than portable generators lowers Project air quality impacts during construction. Emissions from power line construction would minimally increase emissions. However, installation of the temporary power lines would reduce the need for portable diesel-fueled generators and thus reduce NOx, SOx, VOC, CO and PM10 emissions during the construction period compared to the Project as described in the AFC. Lower air quality impacts are anticipated as a consequence of this Project change.

With respect to biological resources, the temporary construction power line corridor is outside the area surveyed for biological resources in 2009. Full protocol-level biological surveys of the proposed alignments are currently underway. Potential biological impacts are expected to be minimal as this improvement consists of the blading and paving of an existing dirt road segment, approximately one mile in length, and the temporary installation of wooden poles. The current biological surveys will ensure a level of biological resource data that matches the data derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. In addition, any necessary additional mitigation provisions will be calculated.

With respect to cultural resources, the temporary construction power line corridor is outside the area surveyed for cultural resources in 2009. Cultural resource surveys for these additional areas are currently underway. These surveys will ensure a level of cultural resource data that matches the data derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. The resources encountered will be incorporated into the Project's cultural resources evaluation and treatment programs.

RELOCATION OF THE EXISTING SCE 161-KV POWER LINE

There is an existing Southern California Edison (SCE) 161-kV Eagle Mountain-Blythe power line which runs in a northwesterly direction across the southwest portion of the PSPP site. PSI is working with SCE to relocate the SCE line within the BLM ROW. Figure T-Line 1, Palen 161-kV T-Line Relocation, provides an overview of the proposed relocation. The transmission line relocation is part of ongoing Project activities. The AFC identified this relocation as part of the proposed PSPP project. PSI is now making a slight alternation to the route of the relocated line to accommodate one 90-degree turn outside the fenceline rather than two 135-degree turns. This change was recently requested by Southern California Edison.

SCE will be required to remove approximately 6,200 feet of existing conductor, seven 65-foot

11

H-frame structures, one 65-foot three pole structure, and associated hardware and guying. The relocated power line will require SCE to install approximately 18 65-foot H-frame structures, three 65-foot three pole structures, approximately 8,000 feet of conductor, and associated hardware and guying. Because of the relatively limited size of the project, the temporary equipment and material staging area would be limited to 20 acres. An unimproved spur road would be required to access the relocated transmission line segments and structure locations.

New structure locations would first be graded and/or cleared of vegetation to provide a level and vegetation-free surface for footing and structure construction. Site preparation would also be required for the assembly of the structures to provide a level and vegetation-free area for the laydown, assembly, and erection of the structures. This laydown area would be approximately 150 feet by 75 feet (0.26 acre).

Implications for Project Impact Analysis:

Relocation of the Eagle Mountain-Blythe 161-kV line will not substantially impact air quality or water resources. Emissions associated with installation of power poles would represent a minimal increase in construction emissions and water consumption. The primary areas of concern with respect to the final gen-tie line route are biological and cultural resources because the selected route includes areas not previously surveyed for biological and cultural resources. The impacts to water resources are expected to be minimal given the relatively short run and limited soil compaction required to install the spur road, laydown area, and pole structures.

With respect to biological resources, portions of the 7,900-foot corridor proposed for the relocated line are outside the area surveyed for biological resources in 2009. Full protocol-level biological surveys for these additional areas are currently underway. It is anticipated that transmission line pole locations and access road construction will result in modest increases in impacts to Sonoran Creosote Bush Scrub and Desert Dry Wash Woodland vegetation. The current surveys will ensure a level of biological resource data matching that derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. In addition, any necessary additional mitigation provisions will be calculated.

With respect to cultural resources, portions of the 7,900-foot corridor are outside the area surveyed for cultural resources in 2009. Cultural resource surveys for these additional areas are currently underway in order to ensure a level of cultural resource data matching that derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. The resources encountered will be incorporated into Project cultural resources evaluation and treatment programs.

REFINEMENT OF THE DAILY CONSTRUCTION SCHEDULE

Based on refinements to the Project construction plan, PSI has determined that certain construction activities would have to be conducted at night in order to meet the Project schedule. For instance, it has been determined that concrete pours should be conducted at night; the high ambient temperatures during the daytime hours would jeopardize the quality of the concrete, as concrete cannot be poured if it is too hot.

PSI also believes that solar collector assembly work would have to be conducted 24 hours per day to meet the construction schedule. In addition, to provide a more comfortable work environment,

12

PSI would like to allow for certain other low-noise construction activities to be conducted at night, including pulling wire and welding. These activities would require operation of the concrete batch plant, generators, light plants, welders, forklifts, possibly small cranes, and miscellaneous other equipment.

Implications for Project Impact Analysis:

The resource areas potentially affected by the requested change in daily work schedule are primarily noise and air quality. Noise impacts potentially could be different because the additional work hours would occur outside normal work hours and include nighttime hours where ambient noise levels are lower than during the day. Also, the impacts of Project emissions on ambient air quality are affected by meteorological conditions. There are calm atmospheric conditions during non-daylight hours including the hours around dawn and dusk that must be taken into account when analyzing the impacts of construction activities in those times of the day.

With respect to noise impacts, PSI is willing to accept a limitation on construction activities outside the already proposed work hours that is consistent with the intent of Riverside County Noise Ordinance. This ordinance prohibits construction activities outside of specified hours within 1/4 mile of an existing residence, and PSI has recommended modification of a Condition of Certification NOISE-6 to make this limitation explicit.

In the AFC and subsequent responses to Staff Data Requests, PSI had proposed to limit construction activities to eight hours per day during the winter months and 10 hours per day during the summer months. Under the original plan, only limited construction activities would occur at night, or during the early morning or late afternoon hours when stable atmospheric conditions prevail. PSI provided ambient air quality modeling to demonstrate that under these circumstances, Project construction would not cause adverse air quality impacts.

Based on a review of the modeling results, the Applicant determined that the majority of the modeled impacts from construction activities were due to the heavy earthwork that would occur near the Project fence line. To evaluate the potential impact of the limited nighttime operations, we have assumed that no earthwork would occur outside of the daytime schedule previously evaluated, and thus emissions from graders, scrapers and dump trucks would not occur. All other construction equipment is assumed to be operational. The emissions from the non-earthwork equipment were evaluated using the modeling approach and methods described in the AFC and DR responses.

The results of the revised construction modeling are shown in Table Air-5. As shown in the table, all impacts, when added to the appropriate ambient backgrounds, are below their respective NAAQS/CAAQS with the exception of 24-hour and annual PM10, and 1-hour NO_2.

In the case of annual PM10 impacts, the maximum modeled annual mean for PM10 exceed the CAAQS when background concentrations are added because the PM10 air quality monitoring station data used for this Project show that the annual PM10 CAAQS is already exceeded in the area where the data were collected. Annual PM10 Project impacts represent only 17.7 percent of the CAAQS for annual PM10 and only 10.4 percent of the total impact to the annual PM10 concentrations when the worst-case background is considered.

For 24-hour PM10, the air quality monitoring station data used for this Project also shows that the CAAQS are already exceeded in the area where the data were collected. Project impacts by themselves are below the NAAQS and exceed the CAAQS on only one 24-hour period out of the

13

1,095 days modeled. In that instance, the CAAQS is exceeded at 4 receptors with a maximum concentration of 51.88 micrograms per cubic meter ($\mu g/m^3$) compared to the CAAQS of 50 $\mu g/m^3$. The four receptors are directly along the fence line to the north of the construction sources and within the PSPP right-of-way (ROW), with the diffuser area blocking public access to that fence line. Along with the very conservative nature of the modeling, the remoteness of the location and the extreme unlikelihood that the public would be at that location for any amount of time, the PM10 impacts are not expected to pose a risk to public health.

For 1-hour NO_2, a total of 907 hours, or 3.4 percent of the 26,304 hours modeled, indicated impacts which, when added to the maximum ambient background concentration over the most recent three years of available data, exceeded the 1-hour NO_2 CAAQS. As an additional refinement, time-matched background data was added to each modeled impact, and the sum compared to the 1-hour NO_2 CAAQS. The results of those added values are shown in Table Air-5. Of the 907 hours that were examined, it was found that only five hours out of the three-years modeled (less than one percent), when added to their time matched ambient background, would exceed the CAAQS, with a maximum total concentration of 397 $\mu g/m^3$. These impacts occurred on or within 200 meters of the fence line directly to the north of the solar array installation sources after dark. Again, because of the remoteness of the location, the fact that the impacts that exceed the CAAQS occur at night, and the inherently conservative nature of the modeling, the NO_2 impacts are not expected to pose a risk to public health.

Note that identifying appropriate background data for use in this analysis is difficult because while the Project site is in a part of Riverside County designated as attainment for PM10, the available background data are from monitoring stations that are located to the west in parts of Riverside County or other counties that are designated non-attainment for PM10. Additionally, the closest monitors are located in urban / industrial / agricultural areas which are unlikely to represent background pollutant concentrations in the Project area which is undeveloped desert.

Because these results represent the worst-case location for the modeled sources, the limited number of hours (less than one percent of the hours modeled) in which exceedances occur, the limited duration of the construction causing these impacts, the fact that what exceedances do occur do so within the Project ROW, and the liklihood that the background concentrations used in the *analysis exceed the actual background levels in the Project area, the adverse impact to the public* from construction activities within the constraints outlined in this discussion is expected to be minimal.

FINALIZATION OF THE TELECOMMUNICATIONS LINE

The Project will obtain telecommunications service from the telecommunications service provider that serves the Desert Center area. Voice and data communications would be provided by a new twisted pair telecommunications cable. The routing of this cable will exit the Project site in the right-*of-way for the site access road, cross under I-10 west of the Corn Springs Road interchange* and proceed to the microwave repeating tower located approximately 700 feet south of the freeway (see Figure Palen Telecom and Power Routing 2). At the microwave tower additional equipment will be installed to connect project communications with the telecom provider's network. Wireless telecom equipment will be used to support communication with Staff dispersed throughout the project site. The project would utilize electronic telemetry systems to control equipment and facilities operations for the site.

14

Implications for Project Impact Analysis:

The addition of new telecommunications equipment to the PSPP would not substantially change project impacts in any of the topical areas addressed in the AFC. The installation of this line is not expected to have an adverse impact to air quality resources because the construction requirements do not differ significantly from the construction plan and associated emissions presented in the AFC, and there are no operating emissions associated with this equipment.

With respect to biological resources, the telecommunications line corridor is outside the area surveyed for biological resources in 2009. Full protocol-level biological surveys of the proposed alignments are currently underway. Potential biological impacts are expected to be minimal as this improvement consists of trenching and burying the lines in the drainage ditch under the freeway approximately 30 inches deep while taking adequate steps to avoid erosion. The current biological surveys will ensure a level of biological resource data that matches the data derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. In addition, any necessary additional mitigation provisions will be calculated.

With respect to cultural resources, the telecommunications line corridor is outside the area surveyed for cultural resources in 2009. Cultural resource surveys for these additional areas are currently underway. These surveys will ensure a level of cultural resource data that matches the data derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. The resources encountered will be incorporated into evaluation and treatment programs.

REVISED LIST OF WATER TREATMENT CHEMICALS

Additional water treatment chemicals will be required for the boiler, RO system, clarifier, multimedia filters, and cooling towers. These additional water treatment chemicals (beyond what has already been provided in AFC Table 5.6-3) include soda ash, lime, sodium hypochlorite, coagulant, magnesium chloride, polymer, anti-scalant, sodium bisulfate, corrosion inhibitor, dispersant, sodium hydroxide, scale inhibitor, biodispersant, phosphate, amine, and hydrazine. Currently, detailed engineering changes to the water treatment process are being prepared, and we expect the revised Table 5.6.3 showing all additional process chemicals including quantities, hazardous material and CAS #s, relative toxicity and hazard class, RQ, PEL, storage description and capacity, and storage practices/special handling precautions, etc. will be provided to the CEC.

Implications for Project Impact Analysis:

Listed additional hazardous materials are typical water treatment chemicals; however, hazardous materials, such as sodium hydroxide, in sufficient concentration and quantity may trigger risk management plan or California Accidental Release Prevention requirements. All hazardous materials storage or process vessels will be designed in conformance with applicable American Society of Mechanical Engineers codes. Bulk storage tanks or totes will have secondary containment structures capable of holding the tank or tote volume plus an allowance for precipitation. Concrete containment structures will be coated with a chemical resistant coating to ensure long-term integrity of the containment structure.

15

As with all other aspects of the PSPP, appropriate safety programs will be developed to address hazardous materials storage and use, emergency response procedures, employee training requirements, hazard recognition, fire safety, first aid/emergency medical procedures, hazardous materials release containment/control procedures, hazard communications training, Personal Protective Equipment training, and release reporting requirements. In short, the additional chemicals on site would not affect Project impacts.

ADDITION OF AN ON-SITE FUEL DEPOT DURING CONSTRUCTION

A fuel depot will be constructed to refuel, maintain, and wash construction vehicles. It will occupy an area of approximately 75 feet x 150 feet and will consist of a fuel farm with two 2000-gallon on-road vehicle diesel tanks, two 8,000-gallon off-road vehicle diesel tanks, one 500-gallon gasoline tank, and a wash water holding tank. Each diesel tank would be subdivided into two compartments, an 8,000-gallon compartment for off-road diesel fuel and a 2,000-gallon compartment for on-road diesel fuel. The fuel farm will include secondary spill containment; a covered maintenance area, also with secondary containment; and a concrete pad for washing vehicles. (Please see the attached Figure Depot-1, Fuel Depot Layout for a generalized layout of the proposed fuel depot.)

Implications for Project Impact Analysis:

The gasoline storage tank is subject to air permit requirements under SCAQMD rules; the diesel tanks are exempt from permit requirements in the SCAQMD pursuant to Rule 219(E)(14)(c).

The emissions from the two 10,000-gallon diesel storage tanks and the 500-gallon gasoline storage tank proposed for PSPP were calculated using EPA's TANKS 4.09D tank emission estimation program and the maximum annual fuel usage during the construction and operational phases of the project. The maximum annual fuel usage was calculated from the CO_2 emissions derived from the OFFROAD2007 and EMFAC2007 models for each equipment and vehicle type used during the construction of the project. The CO_2 emissions were divided by the ARB's default CO_2 emission factor, which is based on the carbon content of the fuel, to estimate the fuel consumption. This method was selected to calculate fuel usage because the OFFROAD2007 model incorporates fuel economy and average load rates into the emission factors, so additional adjustments are not required. To prevent the underestimation of annual emissions, it was assumed that the maximum monthly fuel usage for the construction of the project would occur every month. The maximum annual gasoline and diesel usage from the operation of PSPP was taken from the GHG emissions calculations submitted in the DR responses, using the same method as described for construction. Note that this method would overestimate the fuel throughput and corresponding tank emissions during both construction and operations because some of the equipment is expected to be refueled offsite. Fuel Depot emissions are summarized in Table Air-6. The VOC emissions from these tanks are not expected to cause or contribute to a significant adverse air quality impact.

As noted in the PSPP AFC (page 5.6-12), diesel fuel is the hazardous material with the greatest potential for environmental consequences during Project construction due to the volume of diesel fuel that will be used in construction equipment and the frequent refueling that will be required). When refueling is needed, vehicles will enter a dedicated refueling area where secondary containment is present to minimize the impact to the environment. A dedicated location increases the ability to effectively manage spills, leaks, storage, handling, loading/unloading, and other activities associated with vehicle fueling. Any fuel spilled will be contained and promptly cleaned up

with no contaminated soil generated. If anything, this Project change is expected to decrease the potential for environmental impacts associated with refueling spills.

PALEN SOLAR POWER PROJECT (09-AFC-7) CEC STAFF ASSESSMENT – ENGINEERING CHANGES
Response Date: May 4, 2010

Figures and Tables

PALEN SOLAR POWER PROJECT (09-AFC-7)
CEC STAFF ASSESSMENT – ENGINEERING CHANGES

Response Date: April 2010

TABLE OF CONTENTS

Figures

Temporary Construction Facilities

Soil and Water Figure 1 Pumping Well Locations

Soil and Water Figure 2 Project Only Revised Construction Water Supply

Soil and Water Figure 3 Project Only Revised Operational Water Supply – End of 30 Years

Soil and Water Figure 4 Cumulative Impacts Revised Construction Water Supply – End of Palen Construction

Soil and Water Figure 5 Cumulative Impacts Revised Operational Water Supply – End of 30 Years

Figure Trans-1 Proposed Palen Transmission Line Routings

Figure Plot Plan Air Cooled Condenser Option

Figure Palen Telecom and Power Routing 2

Figure T-Line 1 Palen 161-kV T-Line Relocation

Figure Depot-1 Fuel Depot Layout

Tables

Table Air 1 Concrete Batch Plant Emissions

AFC Table 5.17-12 (Rev2) Cumulative Water Budget

Table S&W-207-1 (Rev 2) Pumping Schedule for Cumulative Water Budget Assessment

Table DR-S&W-207-2 (Rev 2) Results from Predictive Simulations

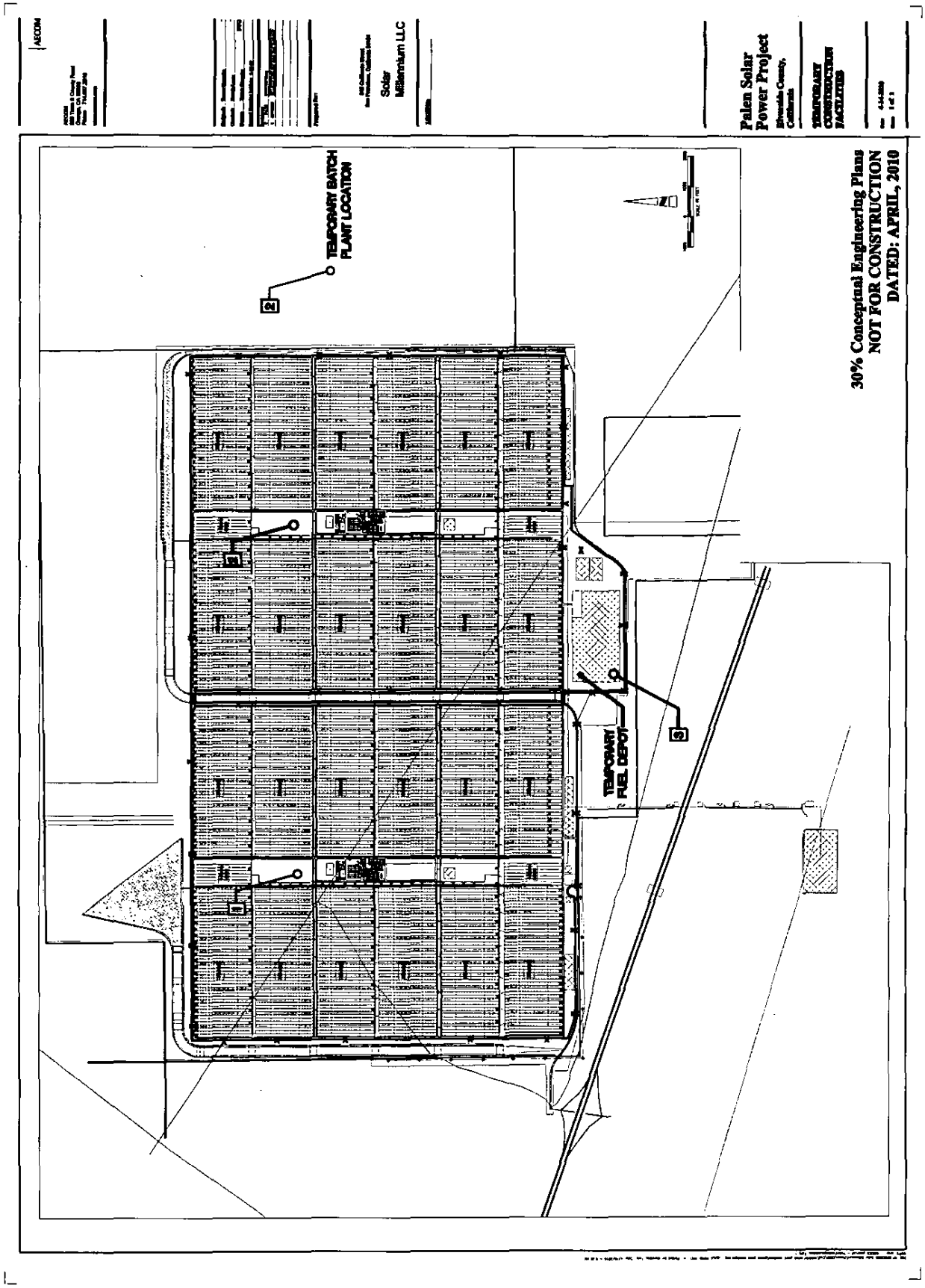
Table Air-2 Revised Emissions for One Cooling Tower Unit

Table Air-3 Revised Motor Vehicle Combustion Criteria Pollutant Emissions for the Project

Table Air-4: CAAQS/NAAQS Modeling Impacts for Normal Operations

Table Air-5: NAAQS/CAAQS Analysis for Project Construction

Table Air-6 Fuel Depot VOC Emissions


AECOM
Solar Millennium LLC
Palen Solar Power Project
TEMPORARY CONSTRUCTION FACILITIES
30% Conceptual Engineering Plans
NOT FOR CONSTRUCTION
DATED: APRIL, 2010
TEMPORARY BATCH PLANT LOCATION
TEMPORARY FUEL DEPOT

CocoPah Farms
10
Map Location
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AZ
Legend
Project Right-of-Way
Groundwater Well Location based on Latitude and Longitude in USGS Database
Groundwater Well Location based on the State Well Number (approximate)
Location of Pumping Well Used in the Model
1 inch = 8,000 feet
0
6,000
12,000
Feet
Data Sources:
Air Photo, NAIP, 2005
Basemap, (Roads, streams, cities), ESRI
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Palen Solar Power Project
Figure Soil and Water-1
Pumping Well Locations
Palen Solar I, LLC
AECOM
Project: 60139694
Date: April 2010
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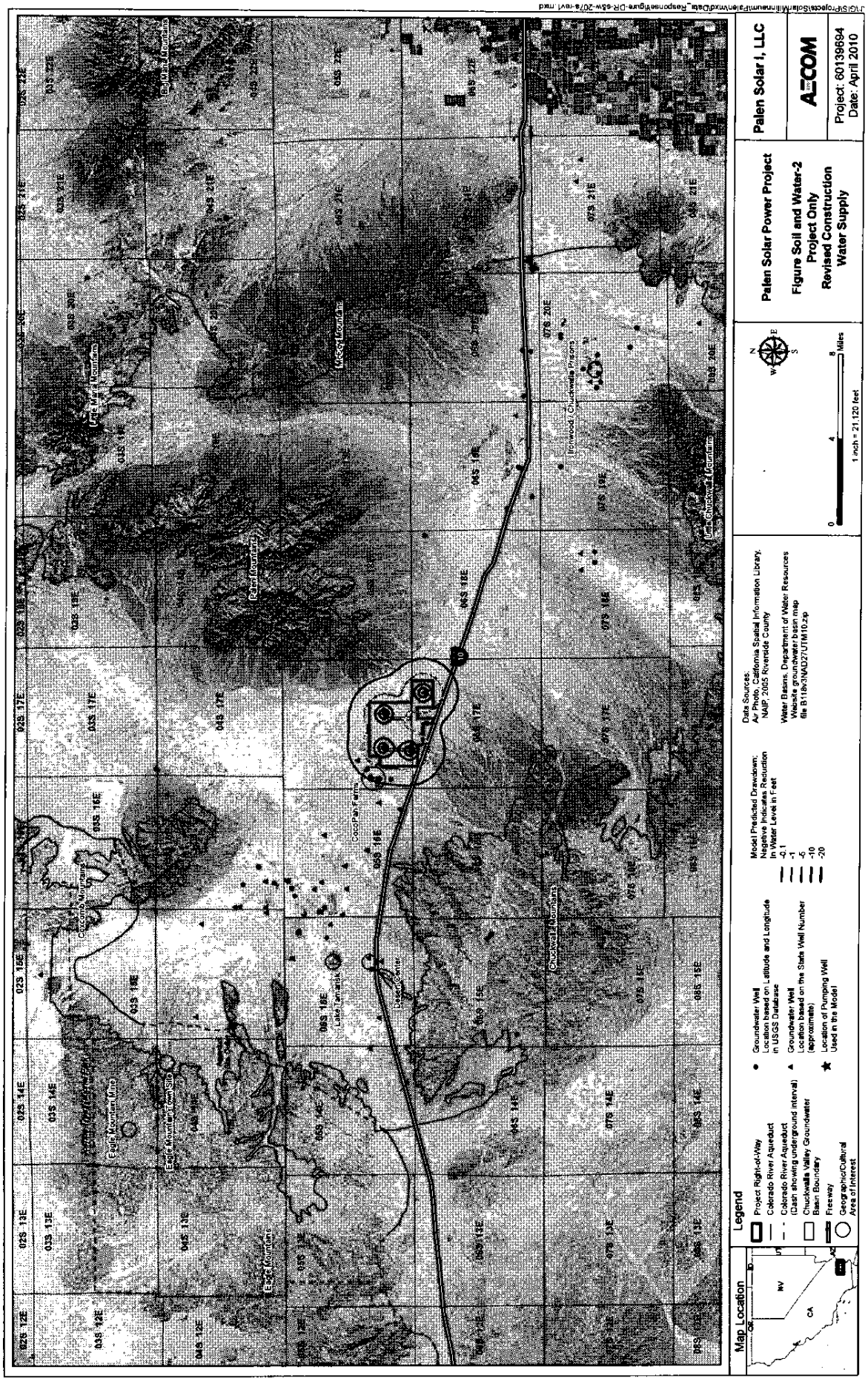
Legend
Project Right-of-Way
Colorado River Aqueduct
Colorado River Aqueduct (Dash showing underground interval)
Chuckwalla Valley Groundwater Basin Boundary
Freeway
Geographic/Cultural Area of Interest
Groundwater Well Location based on Latitude and Longitude in USGS Database
Groundwater Well Location based on the State Well Number (approximate)
Location of Pumping Well Used in the Model
Model Predicted Drawdown; Negative Indicates Reduction in Water Level in Feet
-0.1
-1
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Map Location
Data Sources:
Air Photo: California Spatial Information Library; NAIP, 2005 Riverside County
Water Basins: Department of Water Resources Website groundwater basin map file B118r3NAD27UTM10.zip
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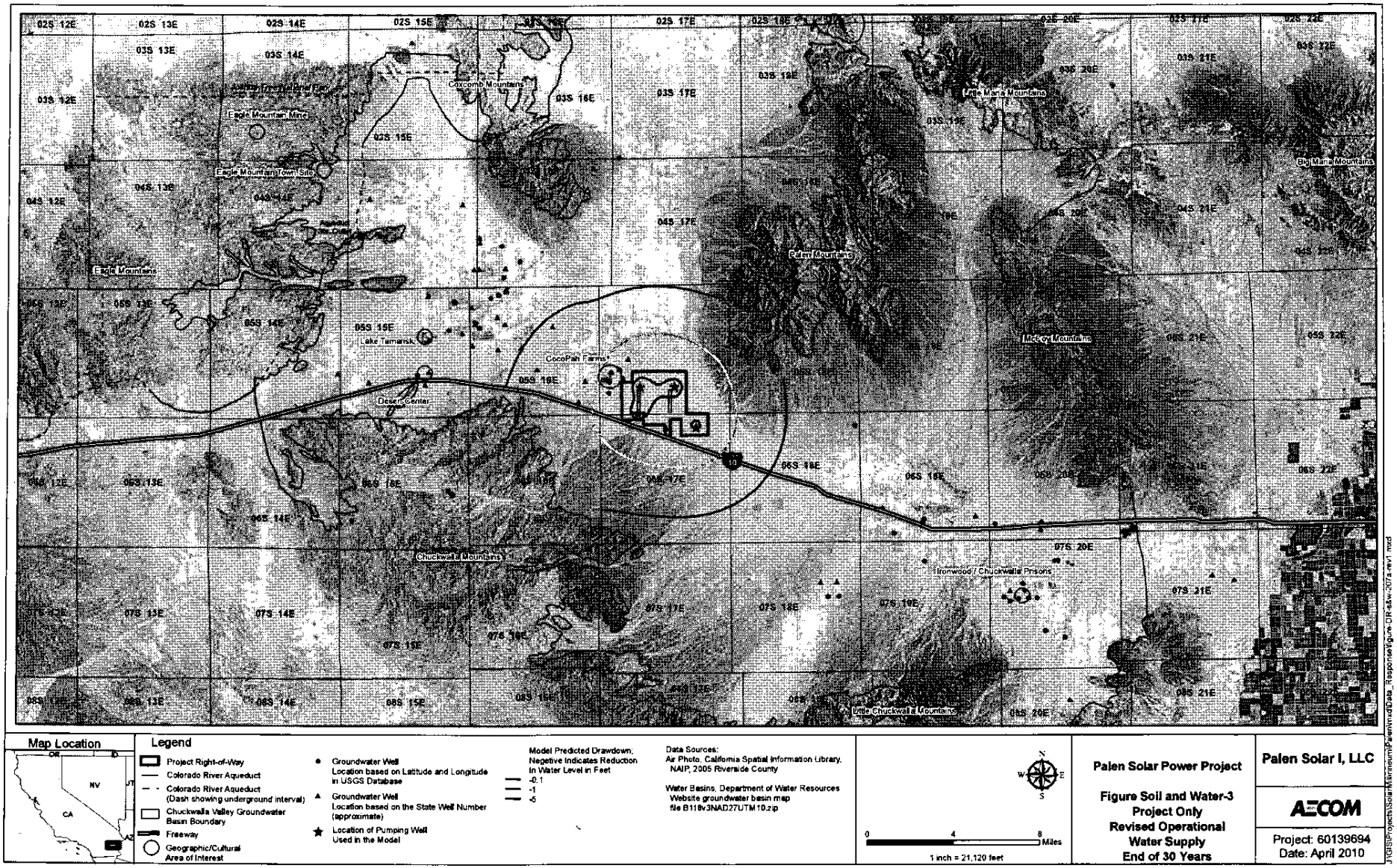
8 Miles
1 inch = 21,120 feet
Palen Solar Power Project
Figure Soil and Water-2
Project Only
Revised Construction
Water Supply
Palen Solar I, LLC
AECOM
Project: 60139694
Date: April 2010



Map Location

Legend

- Project Right-of-Way
- Colorado River Aqueduct
- Colorado River Aqueduct (Dash showing underground interval)
- Chuckwalla Valley Groundwater Basin Boundary
- Freeway
- Geographic/Cultural Area of Interest
- Groundwater Well Location based on Latitude and Longitude in USGS Database
- Groundwater Well Location based on the State Well Number (approximate)
- Location of Pumping Well Used in the Model

Model Predicted Drawdown; Negative Indicates Reduction In Water Level in Feet
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Data Sources:
Air Photo, California Spatial Information Library, NAIP, 2005 Riverside County

Water Basins, Department of Water Resources Website groundwater basin map file B118v3NAD27UTM10.zip

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1 inch = 21,120 feet

Palen Solar Power Project

Figure Soil and Water-3
Project Only
Revised Operational
Water Supply
End of 30 Years

Palen Solar I, LLC

AECOM

Project: 60139694
Date: April 2010

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Coxcomb Mountains
Eagle Mountain Mine
Eagle Mountain Town Site
Eagle Mountains
Lake Tamarisk
CocoPah Farms
Desert Center
Palen Mountains
Little Maria Mountains
Big Maria Mountains
McCoy Mountains
Chuckwalla Mountains
Ironwood / Chuckwalla Prisons
Little Chuckwalla Mountains
10
Map Location
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Legend
Project Right-of-Way
Colorado River Aqueduct
Colorado River Aqueduct (Dash showing underground interval)
Chuckwalla Valley Groundwater Basin Boundary
Freeway
Geographic/Cultural Area of Interest
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Data Sources:
Air Photo, California Spatial Information Library, NAIP, 2005 Riverside County
Water Basins, Department of Water Resources Website groundwater basin map file B118v3NAD27UTM10.zip
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1 inch = 21,120 feet
Palen Solar Power Project
Figure Soil and Water-4
Cumulative Impacts
Revised Construction
Water Supply
End of Palen Construction
Palen Solar I, LLC
AECOM
Project: 60139694
Date: April 2010
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Map Location

Legend

- Project Right-of-Way
- Colorado River Aqueduct
- Colorado River Aqueduct (Dash showing underground interval)
- Chuckwalla Valley Groundwater Basin Boundary
- Freeway
- Geographic/Cultural Area of Interest
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- Location of Pumping Well Used in the Model

Model Predicted Drawdown; Negative Indicates Reduction In Water Level in Feet

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Data Sources:
Air Photo, California Spatial Information Library, NAIP, 2005 Riverside County

Water Basins, Department of Water Resources Website groundwater basin map file B118v3NAD27UTM10.zip

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1 inch = 21,120 feet

Palen Solar Power Project

Figure Soil and Water-5
Cumulative Impacts
Revised Operational
Water Supply
End of 30 Years

Palen Solar I, LLC

AECOM

Project: 60139694
Date: April 2010

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Attachment E

First-In-Line Solar Applications

Field Office	Serial Number	Project #	Applicant	Date Application Received	Acres	Megawatts (Mw)	Planned Technology	Geographic Area	Status of Application
El Centro	CACA 47740	AA01	Stirling Energy Systems, Inc. (SES) Solar Two LLC	1/6/05	6,017	750	Solar: pending solar thermal	Imperial County T16S Rgs. 10 and 11E	Joint EIS/IER with CEC as CEQA lead. AFC filed with CEC June 30, 2008. AFC/POD determined adequate under minimal criteria. NOI published 10/17/2008.NOA for DEIS be Targeted for 12/18/09
Palm Springs	CACA 48649	B249	First Solar (Desert Sunlight)	11/7/06	14,905	550	Solar: pending photovoltaic	Desert Center Area	Received cost recovery funds. Received POD. POD to be sent to NFO Contractors. Completing aerial topo mapping; initiating bio, cult surveys.
Needles	CACA 48668	B240	Solar Partners Ivanpah SEGS (DPT Ivanpah LLC)	11/17/06	6,873	400	Solar: pending solar thermal	Ivanpah, S of the CA/NV line T16N/R14E, T17N/R14E	Admin DEIS/FSA waiting on a few final chapters. Cumulative Impacts, Introduction, Biology and Air Quality. All other chapters reviewed by BLM and CEC. Estimate publication of NOA for DEIS/FSA 10/30/09.
Needles	CACA 48669	B238	First Solar Statelline (formerly OptiSolar, Inc.)	12/14/06	4,168	380	Solar: pending photovoltaic	Ivanpah Valley T17N/R14E	Modified application filed 8/7/09.
Palm Springs	CACA 48728	B251	NextEra Energy (FPL) - Genesis McCoy	1/31/07	20,608	250	Solar: pending solar thermal	Blythe Area, Eastern Riverside County	Received cost recovery funds. Received POD. ROW in process for monitoring, water well drilling.
Barstow	CACA 48741	B291	Solar Investments VI LLC (G-S)	1/18/07	8,384	800	Solar: pending solar thermal	(Baker) T. 14N., R.8E.	Application complete. POD revision rec. 01/09. Issue w/WWcorrdor.

First-In-Line Solar Applications

Barstow	CACA 48742		Solar Investments, Inc. (G-S)	1/18/07	10,611	1,000	Solar: pending solar thermal	(Silurian Valley) T16N, R8E	Application complete. original POD rec. but due to change in technology-PV is needed. New POD pending.
Palm Springs	CACA 48808	B248	Chuckwalla Solar LLC	9/15/06	4,099	200	Solar: pending photovoltaic	Desert Center area I	Received cost recovery funds. NOI being sent out (for publication) in Federal Register 11/9/07
Palm Springs	CACA 48810	B260	Solar Millennium (Chevron Energy Solutions Co. #2)	3/14/07	3,117	484	Solar: pending solar thermal	(Palen) Desert Center area in Eastern RIVCO	Sent, Revised Financial Plan and Request for Additional Cost Reimbursement Funds 10/19/2009
Palm Springs	CACA 48811	B260	Chevron Energy Solutions Co. #1	3/16/07	11,056	968	Solar: pending solar thermal	Blythe area in Eastern RIVCO	Sent, Revised Financial Plan and Request for Additional Cost Reimbursement Funds 10/19/2009 Requested updated POD 9/9/09 winthin 30 days. AFC filed w/ CEC 8/24/09
Barstow	CACA 48818	B263	First Solar (formerly OptiSolar, Inc.)	2/26/07	15,824	1,205	Solar: pending photovoltaic	(Opal) T.2N, R9E &R10E	Rec'd cost recovery funds. w/in 29 Palms segregation area. Rec'd POD. Review of POD pending
Barstow	CACA 48819	B264	First Solar (formerly OptiSolar, Inc.)	2/26/07	14,372	1,000	Solar: pending photovoltaic	(Desert Ruby) T3N, R5 & 6E; T4N, R5E	Rec'd cost recovery funds. w/in 29 Palms segregation area. Rec'd POD. Review of POD pending.
Ridgecrest	CACA 48820	B271	First Solar (formerly OptiSolar, Inc.)	2/13/07	5,325	745	Solar: pending photovoltaic	Mojave area near Hwy. 14 below Pin Tree Canyon, N. of Hwy. 58	No cost recovery received. Received POD.
Barstow	CACA 48875	B262	DPT Broadwell Lake LLC (Brightsource)	1/24/07	8,625	500	Solar: pending solar thermal	T'8N and 9N; R7E	Received cost recovery funds. Received POD.

First-In-Line Solar Applications

Palm Springs	CACA 48880	B252	NextEra Energy (FPL) - Genesis Ford Dry Lake	1/31/07	18,083	250	Solar: pending solar thermal	Blythe Area, Eastern Riverside County	Received cost recovery funds. Application complete pending 30% engineering design 9/9/09.
Barstow	CACA 48941	B265	First Solar (formerly OptiSolar, Inc.)	4/7/07	5,033	585	Solar: pending photovoltaic	(Desert Onyx) T11N, R3 & 4W	Received cost recovery funds. Received POD. POD review pending.
Needles	CACA 49002	B302	Leopold Companies, Inc.	4/2/07	35,466	4,100	Solar: pending solar thermal	Ward Valley T1S/R19E, T1N/R19E, T2N/R19E, T1N/R20E, T2N/R20E	POD forwarded to contractor for Review 8/26/09
Needles	CACA 49004		Boulevard Associates, LLC	5/14/07	6,959	1,000	Solar: pending solar thermal	Mesquite Hills T10N/R8E, T11N/R8E,T 11NR9E	POD forwarded to contractor for Review 8/26/09
Needles	CACA 49006	B323	Boulevard Associates, LLC	5/14/07	12,046	1,000	Solar: pending solar thermal	Killbeck T2N/R16E, T3N/R16E, T2N/R7E	POD forwarded to contractor for Review 8/26/09
Needles	CACA 49008	B324	Boulevard Associates, LLC	5/14/07	35,639	1,000	Solar: pending solar thermal	Cadiz lake T1N/R15E, T2N/R15E, T1N/R16E, T1S/R16E, T2N/R16E	POD forwarded to contractor for Review 8/26/09
Ridgecrest	CACA 49016	B299	Solar Millennium, LLC	3/23/07	3,811	745	Solar: pending solar thermal	Near Ridgecrest City Limits off of Brown Rd. Hwy 395	Received cost recovery funds. Received POD.

Comment Letter 6

First-In-Line Solar Applications

Ridgecrest	CACA 49017	B273	First Solar (formerly OptiSolar, Inc.)	4/3/07	6,719	745	Solar: pending photovoltaic	On the W side of Hwy 395 near Kramer Junction in the proximity of the current solar power plant development and the former Federal penitentiary.	Rec'd cost recovery funds. Letter sent to OptiSolar re: re-established application (11/13/08)
Palm Springs	CACA 49097		Bull Frog Green Energy, LLC	6/13/07	6,634	2,500	Solar: pending photovoltaic	Blythe Ca area S. of I-10 in Eastern RIVCO	Received cost recovery funds. Received POD.
Palm Springs	CACA 49098		OTB Power Holdings, Inc.	6/13/07	8,746	1,000	Solar: pending photovoltaic	Blythe Ca area S. of I-10 in Eastern RIVCO	Appplication Rejected; Case Closed 10/19/2009
El Centro	CACA 49150	B284	SunPeak Solar	7/17/07	5,464	500	Solar: pending photovoltaic	Imperial County T13S, R12E	Received cost recovery funds. Received POD. Req'd name change documents 9/4/09.
Barstow	CACA 49361		First Solar (formerly OptiSolar, Inc.)	10/9/07	7,936	500	Solar: pending photovoltaic	(Amber) T4N,R3, R4E &R5E	**Denial of Application letter sent 11/13/09 due to non-payment of cost recovery funds.**
Palm Springs	CACA 49397	B292	OptiSolar, Inc. (Quartzite)	9/28/07	7,548	600	Solar: pending photovoltaic	Blythe area in Eastern RIVCO	Proffer Established. Received POD.

First-In-Line Solar Applications

Needles	CACA 49423		Solel, Inc.	7/23/07	6,614	500	Solar: pending solar thermal	Arrowhead T9N/R20E, T9N/R21E, T10N/R21E	Moved to 1st in line. Oct 09
Needles	CACA 49424		Solel, Inc.	7/23/07	7,453	600	Solar: pending solar thermal	Stedman T6N/R9E, T6N/R10E, T6N/R11E	POD forwarded to contractor for Review 8/26/09
Needles	CACA 49430		Iberdrola Renewables	9/20/07	13,373		Solar: pending solar thermal	Cadiz Lake T4N/R14E, T18N/R14E	POD forwarded to contractor for Review 8/26/09
Needles	CACA 49431		Boulevard Associates, LLC	9/21/07	10,199	1,000	Solar: pending solar thermal	Kellbaker Rd./ Amboy T6N/R12E, T7N/R12E, T6N/R13E	POD forwarded to contractor for Review 8/26/09
Needles	CACA 49432	B304	PG&E	9/24/07	5,313	800	Solar: pending other/ unknown technology	Cadiz/ Trilobite T5N/R13E, T5N/R14E	Received cost recovery funds. Received POD. POD to be sent to NFO Contractors. Completing aerial topo mapping; initiating bio, cult surveys.
Palm Springs	CACA 49488		EnXco Development, Inc.	11/13/07	1,327	300	Solar: pending solar thermal	Blythe area in Eastern RIVCO	Proffer Established. Received POD.
Palm Springs	CACA 49489		EnXco Development, Inc.	11/13/07	16,088	300	Solar: pending solar thermal	Blythe area in Eastern RIVCO	Proffer Established. Received POD.
Palm Springs	CACA 49490		EnXco Development, Inc.	11/13/07	20,608	300	Solar: pending solar thermal	Blythe area in Eastern RIVCO	Proffer Established. Received POD.
Palm Springs	CACA 49491		EnXco Development, Inc.	11/13/07	1,327	300	Solar: pending solar thermal	Blythe area in Eastern RIVCO	Proffer Established. Received POD.

First-In-Line Solar Applications

Palm Springs	CACA 49493	B300	Solel, Inc.	11/6/07	8,750	500	Solar: pending solar thermal	Desert Center N. on Hwy 177 in Eastern RIVCO	Application Rejected; Case Closed 10/19/2009; appeal period ends Nov. 20
Palm Springs	CACA 49494	B300	Solel, Inc.	11/6/04	7,317	500	Solar: pending solar thermal	Desert Center N. on Hwy 177 in Eastern RIVCO	Application Rejected; Case Closed 10/19/2009; appeal period end Nov. 20
Ridgecrest	CACA 49511		First Solar (formerly OptiSolar, Inc.)	11/28/07	8,943	600	Solar: pending photovoltaic	On the E side of Ridgecrest, along the boundary of China Lake Naval Weapons Center through Poison Canyon in the Hwy 178 corridor to Trona	Recd cost recovery funds. Letter sent to OptiSolar re: re-established application (11/13/08)
Barstow	CACA 49537	AA02	Stirling Energy Systems, Inc. Solar One Phase 2	3/14/07	3,392	350	Solar: pending solar thermal	T.8&9N., R.5&6E	(9/22/09) Winzel & Kelly report on hydrology and 30% designs indicate feasible and sufficiently developed to move forward to NOI. (6/22/09) CEC Informational Hearing held; BLM NOI Scoping meeting concurrently; determining if applications can be merged into one application.

Comment Letter 6

First-In-Line Solar Applications

Barstow	CACA 49539	AA02	Stirling Energy Systems, Inc. Solar One Phase 1	3/14/07	5,212	500	Solar: pending solar thermal	T.8&9N., R.6E	(9/22/09) Winzel & Kelly report on hydrology and 30% designs indicate feasible and sufficiently developed to move forward to NOI. (6/22/09) CEC Informational Hearing held; BLM NOI Scoping meeting concurrently; determining if applications can be merged into one application.
Barstow	CACA 49561	B323	Chevron Energy Solutions Co.	12/7/07	518	45	Solar: pending photovoltaic	T4N R2E. Secs; 19,20	Complete POD 6/25/09. EIS initiated; NOI published 7/23/09.
Barstow	CACA 49584	B313	Caithness Soda Mtn, LLC (former Solenergis)	12/18/07	7,995	350	Solar: pending photovoltaic	(Soda Mountain/Razor) T12N, R7E &8E	Application received. Detailed POD received 9/16/08. Revised POD req. due 3/09. Joint proj w/ SBCO
Barstow	CACA 49585		Power Partners Southwest (EnxCo)	12/12/07	3,710	1,000	Solar: pending solar thermal	(Troy Lake) T8N, R4E, T9N, R4E	Application received. Revised map. POD revision rec. inadequate from outline. Revised POD due 02/27/09
El Centro	CACA 49613	B326	First Solar (formerly OptiSolar, Inc.)	12/3/07	7,525	500	Solar: pending photovoltaic	Imperial County T13S, R9E; T12S, R9E	Received cost recovery funds. Signed MOU rec'd 6/29/09.
El Centro	CACA 49615	B319	Pacific Solar Investments, Inc. (Iberdrola)	9/5/07	28,174	1,500	Solar: pending solar thermal	Imperial County Ts 14S & 15 S, Rs.19 & 20 E	Inadequate POD submitted with application. Acreage needs to be refined. Working w/applicant to identify issues. POD ltr sent to applicant 7/31/08. Cost recovery funds rec'd.
Palm Springs	CACA 49702		Bull Frog Green Energy, LLC	6/1/08	22,717	2,500	Solar: pending photovoltaic	Blythe Ca area S. of I-10 in Eastern RIVCO	Received cost recovery funds. Received POD.

First-In-Line Solar Applications

Barstow	CACA 49811		NextLight Renewable Power LLC	3/24/08	7,691	500	Solar: pending photovoltaic	Ludlow 7N,7&8E	90-Day POD letter sent.
Needles	CACA 49813		Iberdrola Renewables	4/1/08	12,833	1,000	Solar: pending solar thermal	Cadiz-East T4N/R15E, T4N/R16E	Working with Proponent regarding solar testing. POD received
El Centro	CACA 49884	B321	SolarReserve, LLC	4/24/08	3,830	100-250	Solar: pending solar thermal	Imperial County T16S, R17E, Sec 21, 22, 23, 26, 27, 28, 33, 34, 35	Received cost recovery funds. Received 2nd POD. Met with applicant. Requested additional information within 30 days.
El Centro	CACA 50013	B320	Power Partners Southwest LLC, (EnXco)	4/7/08	1,064	300	Solar: pending photovoltaic	Imperial County T. 10 S., R. 14 E, sec.22, 26.	Partial rejection Sec 22 overlaps geothermal apln. Received cost recovery funds. Received POD.
El Centro	CACA 50174	B334	LightSource Renewables LLC	8/11/08	2,571	400	Solar: pending photovoltaic	Imperial County T16/17S, R17/18 E., South of I-8, North of State Hwy 98.	Cost recovery funds rcvd. POD rcvd.
Palm Springs	CACA 50379		Lightsource Renewables, LLC	8/8/08	2,446	550	Solar: pending solar thermal	Blythe Ca area S. of I-10 in Eastern RIVCO	Cost recovery agreement and MOU sent 11/14/08
Needles	CACA 50504		Ausra	11/17/08			Solar: pending solar thermal	Danby Lake	2nd in line
Needles	CACA 50506		Ausra	11/18/08	22,622		Solar: pending solar thermal	Danby Lake	2nd in line

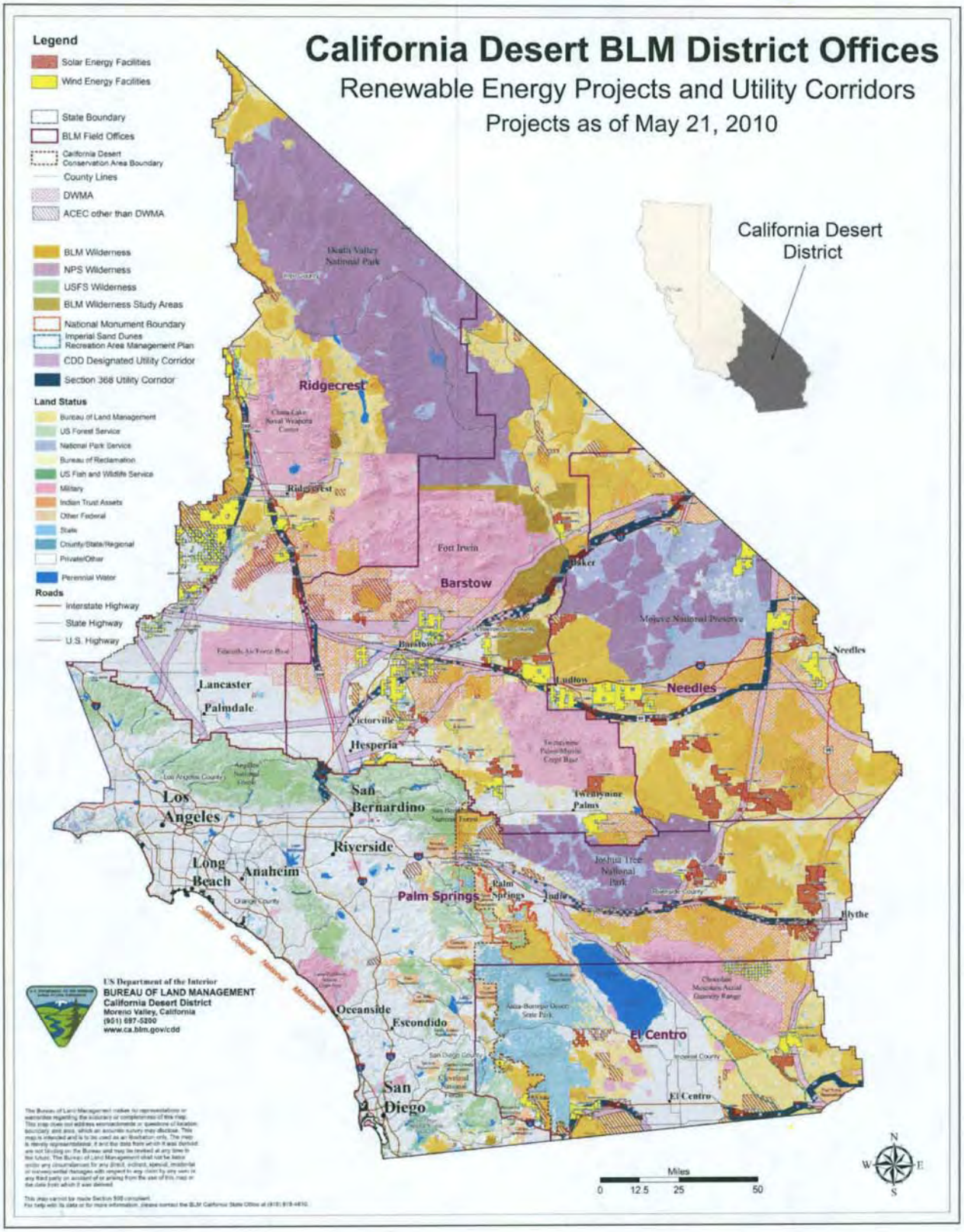
First-In-Line Solar Applications

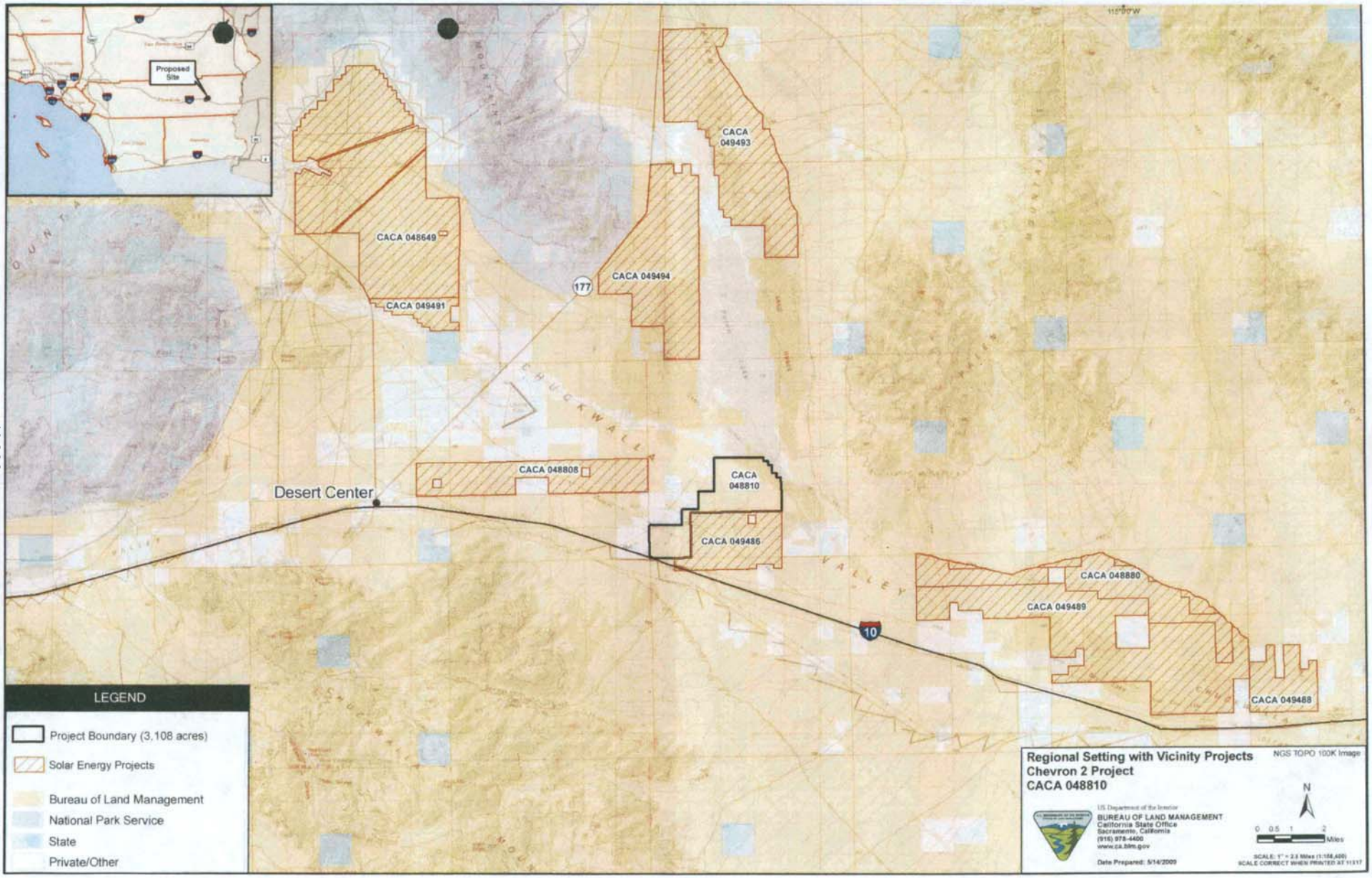
Needles	CACA 50552		LightSource Renewables LLC	12/19/08	10,330	500	Solar: pending solar thermal	Amboy T6N/R12E, T5N/R12E	Decisions Letter to Deny Application sent 8/27/2009
El Centro	CACA 51369	B383	Enio Rici Invenergy Solar Development LLC						

Comment Letter 6

Attachment F

CDD Renewable Energy Projects and Utility Corrridors
May 21, 2010




Proposed Site
CACA 049493
CACA 048649
CACA 049494
CACA 049491
177
CHUCKWALLA
CACA 048808
CACA 048810
Desert Center
CACA 049486
CACA 048880
CACA 049489
10
CACA 049488
LEGEND
Project Boundary (3,108 acres)
Solar Energy Projects
Bureau of Land Management
National Park Service
State
Private/Other
Regional Setting with Vicinity Projects
Chevron 2 Project
CACA 048810
NGS TOPO 100K Image
BUREAU OF LAND MANAGEMENT
California State Office
Sacramento, California
(916) 978-4400
www.ca.blm.gov
Date Prepared: 5/14/2009
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Miles

Attachment G

SURVEY APPROACH AND METHODOLOGIES FOR THE SOLAR MILLENNIUM PARABOLIC TROUGH PALEN SOLAR POWER PROJECT

2010

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April 2010

TABLE OF CONTENTS

Section	Page
Biological Resource Survey Approach	1
Biological Resource Survey Protocols	1
Desert Tortoise Protocol	2
Presence-or-Absence Surveys	2
Buffer Transect Sign Surveys	3
Western Burrowing Owl Protocol	3
Phase I Survey: Habitat Assessment	3
Phase II Survey: Burrow Mapping	4
Phase III Survey: Burrowing Owl Surveys, Census, and Mapping	4
Botanical Surveys	4
Vegetation Community Mapping	5
Rare Plant Surveys	6
Additional Survey Considerations	9
Jurisdictional Waters Delineation	10
Formal Delineations for Potential Jurisdictional Waters of the United States	10
Formal Delineations for Potential Jurisdictional Waters of the State	11
Functions and Values Assessments	11
Golden Eagle Surveys	13
General Biological Survey Details	13
References	15

Attachment 1 - Figures

Figure P1 - Palen Solar Power Project DT Survey Areas - Spring 2010
Figure P2 - Palen Solar Power Project WBO Survey Areas - Spring 2010
Figure P3 - Palen Solar Power Project Vegetation Mapping and Rare Plant Surveys - Spring 2010
Figure P4 - Palen Solar Power Project Jurisdictional Waters Survey Areas - Spring 2010

Attachment 2 - Target List of Special Status Plant Species for 2010 Surveys

Survey Approach and Methodologies for the Solar Millennium Parabolic Trough Palen Solar Power Project 2010

Biological Resource Survey Approach

After submittal of the Application for Certification (AFC) documents to the California Energy Commission (CEC) in 2009, an alternative site configuration was proposed for the Palen Solar Power Project (PSPP). Additionally, various Project design refinements were made related to potential transmission line routes and the substation area.

Additional biological surveys are needed in 2010 to gather data concerning an alternative site configuration and changes in linears in support of Project review, approval, and permitting. The following biological resource surveys will be conducted at the Project site during 2010: desert tortoise (*Gopherus agassizii;* DT) survey, burrowing owl (*Athene cunicularia*; WBO) survey, botanical survey (vegetation community mapping and rare plant surveys), golden eagle (*Aquila chrysaetos*; GOEA) survey, and jurisdictional waters delineation.

All protocols to be implemented in 2010, and described herein, are consistent with 2009 survey protocols, with the exception of a few modifications to the DT protocol, rare plant surveys, and jurisdictional waters surveys. DT protocol surveys for 2010 were initiated earlier than in 2009, and earlier than specified in established protocols (with U.S. Fish and Wildlife Service concurrence; see "Desert Tortoise Protocol" below). Botanical surveys in 2010 will address additional special-status plant species not previously included in 2009 surveys (see "Botanical Surveys" below). The jurisdictional waters delineation in 2010 will also include surveys of a 250-foot buffer of Project and Alternative disturbance areas not included in the 2009 surveys (see "Jurisdictional Waters Delineation" below).

Some survey protocols have already been initiated in 2010 at the Project site. DT surveys were initiated on March 16, 2010. Botanical surveys were initiated on March 8, 2010. GOEA surveys have also been initiated. Jurisdictional waters delineation surveys have been completed. WBO surveys have not yet been initiated at the PSPP site but are anticipated to begin during the week of April 26, 2010.

In general, surveys at the Project site will occur within 1) proposed Project disturbance areas (based on footprint refinements) and, 2) Project disturbance area buffer zones that were not previously surveyed in 2009. At the PSPP site, surveys will additionally occur within 3) proposed Project Alternative site disturbance areas (or Alternative disturbance areas) and 4) Alternative disturbance area buffer zones that were not previously surveyed in 2009.

A detailed description of the survey locations and methods for each biological resource survey being implemented in 2010 is provided below.

Biological Resource Survey Protocols

This section identifies the specific locations in which biological resource surveys have already been completed (e.g.., survey extent [2009]) and will be conducted in 2010 (e.g., survey areas [spring 2010] and buffer survey areas [spring 2010]) at the Project site (Figures P-1 through P-4; see Attachment 1 for all figures), and describes the detailed survey methodologies (i.e., protocols) that will be implemented in 2010. If Project or Alternative disturbance areas are further modified after the date listed on this

document, survey areas and protocols may be modified accordingly to meet the purpose and intent of documenting and evaluating the environmental baseline for biological resources on the Project site.

Desert Tortoise Protocol

DT surveys will include a combination of Presence-or-Absence surveys (i.e., 100 percent coverage surveys), and additional transect-based sign surveys within a Project buffer zone. DT Presence-or-Absence surveys will occur in suitable habitat within proposed Project disturbance areas and Alternative disturbance areas for which surveys were not previously conducted in 2009 (Figure P-1). Sign surveys will occur along CEC-required buffer transects (placed at 1,000-foot, 0.75-mile, and 1-mile intervals from disturbance areas) that were not previously surveyed in 2009 (Figure P-1); see below for more complete description of CEC-required buffer transects. A habitat assessment for DT has already been completed at the Project site in February 2010 and areas to be surveyed in 2010 were determined to be potentially suitable for DT.

Presence-or-Absence Surveys

Presence-or-Absence surveys (100 percent coverage surveys) for DT during 2010 will follow the guidelines published in the 1992 U.S. Fish and Wildlife Service (USFWS) survey protocol (USFWS 1992), with the following exception: no surveys of the five zone of influence (ZOI) transects that are typically required outside of and parallel to the disturbance area at 100, 300, 600, 1,200, and 2,400 feet will be conducted. Use of the USFWS 1992 protocol with the exception of ZOI transects (as occurred in 2009), rather than the revised 2009 protocol (USFWS 2009), was agreed upon by USFWS, California Department of Fish and Game (CDFG), U.S. Bureau of Land Management (BLM), and CEC in 2009 prior to survey initiation per an email communication dated March 10, 2009, from Julie Vance (refer to Section 2.2.1 of the AFC).

In accordance with the 1992 USFWS protocol, previously unsurveyed portions of the Project disturbance area at the Project site will be surveyed using transects spaced approximately 30 feet apart along transects oriented north to south or along transects that are parallel to the edges of the disturbance areas. The survey will be conducted by slowly and systematically walking linear transects while surveyors visually search for DT and sign. Particular emphasis will be placed on searching around the bases of shrubs and along the banks of shallow washes. All types of DT sign (live tortoises, shells, bones, scutes, limbs, scat, burrows, pallets, tracks, egg shell fragments, drinking sites etc.) will be recorded using a Global Positioning System (GPS) unit. If vegetation or topography reduces the surveyor's ability to see DT sign, the spacing between survey transects will be reduced, as necessary. This would occur in areas with high vegetation density or where topography obscures the surveyor's ability to see DT sign.

Any DTs observed will be measured at middle carapace length (MCL) and evaluated for health. Photographs of DT observations will be taken when possible (e.g., animal not deep in burrow). Photographs of large carcasses and/or unusual sign will also be taken. Burrows, scat, and shell remains will be classified using the Information Index for Desert Tortoise Sign: Burrows and Dens, Scats and Shell Remains as in the USFWS protocol (USFWS 1992).

DT Presence-or-Absence surveys were initiated on March 16, 2010 (with wildlife agency approval; see discussion below) at the PSPP site; at this time mean daily temperatures had reached a minimum of approximately 65°F, adequate annual forage was available for DTs, and evidence of DT activity was observed at the nearby Blythe Solar Power Project site. The proposal to initiate Presence-or-Absence surveys at the PSPP site earlier than the March 25 to May 31 survey period, as stated in the UFSWS 1992 protocol, or the April through May survey period as stated in the USFWS 2009 protocol (USFWS 2009), was presented in a letter to Pete Sorenson at the USFWS (dated March 2, 2010, attached) with subsequent USFWS concurrence via email from Pete Sorenson on March 16, 2010. DT surveys will continue roughly until the end of April or until the survey effort is completed (prior to May 31).

After completion of Presence-or-Absence surveys, results will be used to calculate estimated adult DT (> 160-mm MCL) abundance within disturbance areas surveyed in 2010. Abundance estimates will be calculated according to the 2009 survey protocol (*Preparing for Any Action That May Occur within the Range of the Mojave Desert Tortoise* (*Gopherus agassizii*) [USFWS 2009]) if protocol assumptions are met (e.g., minimum of 20 DTs are detected within the survey area).

Buffer Transect Sign Surveys

To comply with the recommendations of the draft CEC *Recommended Biological Resources Field Survey Guidelines for Large Solar Projects* (CEC 2007a), transects outside of and parallel to proposed Project disturbance areas will also be surveyed for DT and their sign (Figure P-1). These CEC-required buffer transects will be placed at 3,960 feet (0.75 mile) and 5,280 feet (1 mile) from and parallel to the edge of nonlinear portions of disturbance areas as well as at 1,000 feet from the edge of linear portions of disturbance areas (e.g., transmission line). Surveys along buffer transects will be conducted in a similar fashion as for transects described for Presence-or-Absence surveys, by slowly and systematically walking linear transects while surveyors visually search for DT, their sign, or other special-status species and their sign. Particular emphasis will be placed on searching around the bases of shrubs and along the banks of shallow washes. These transects are more broadly focused than the DT Presence-or-Absence protocol transects, described above, and are not a part of the 1992 USFWS DT protocol requirements. However, they provide additional information on DT occurrence and habitat suitability as well as other biological resources in the area surrounding Project or Alternative disturbance areas.

Western Burrowing Owl Protocol

WBO surveys will focus on suitable habitat in proposed Project disturbance areas Alternative disturbance areas, and surrounding buffer zones that were not surveyed in 2009 (Figure P-2). Surveys will follow the *Burrowing Owl Survey Protocol and Mitigation Guidelines* prepared by The California Burrowing Owl Consortium (CBOC) (1993). In accordance with the protocol, a habitat assessment (Phase I survey) for WBO will be conducted in previously unsurveyed portions of the Project and Alternative disturbance areas and in the surrounding 150-meter (approximately 492-foot) buffer zone. Following the Phase I survey, a focused burrow survey (Phase II survey) and WBO survey (Phase III survey) will be conducted in suitable habitat within proposed disturbance areas and the surrounding 492-foot buffer zone. Also, a more general survey of habitat suitability and occurrence of WBO, other special-status species, and sign will be conducted within a 1-mile CEC buffer surrounding disturbance areas (according to the CEC's Draft Recommended Biological Resources Field Survey Guidelines for Large Solar Projects [CEC 2007a]), if accessible to the biologists conducting the surveys (see "General Biological Survey Details," below).

The following describes, in more detail, the WBO survey approach and methodology that will be followed in 2010, and is consistent with surveys conducted in 2009.

Phase I Survey: Habitat Assessment

A habitat assessment (Phase I survey) for WBO will be conducted by qualified biologists in early spring 2010. The unsurveyed portions of proposed Project and Alternative disturbance areas and the surrounding 150-meter (approximately 492-foot) buffer zone will be evaluated for suitability for WBO, as well as unsurveyed areas within a 1-mile buffer of proposed disturbance areas. Suitable habitat for WBO includes open habitat with available burrowing opportunities, including agricultural fields (active and fallow), Mojave creosote scrub, desert saltbush, ephemeral washes, and ruderal areas. Suitable habitat will be mapped in the field using high-resolution field maps and GPS units. Any WBOs or WBO sign (e.g., whitewash, pellets, feathers) observed during the Phase I survey will be recorded and mapped.

Phase II Survey: Burrow Mapping

The Phase II burrow survey will be initiated in early spring and will mostly be conducted concurrently with focused Presence-or-Absence DT surveys. The Phase II burrow survey will occur in suitable WBO habitat within previously unsurveyed portions of proposed Project and Alternative disturbance areas, as well as within the 492-foot buffer zone, as required by the CBOC protocol. Where the Phase II burrow survey is conducted concurrently with Presence-or-Absence DT surveys, it will be conducted along pedestrian transects spaced at a maximum of 10 meters (approximately 30 feet) apart; otherwise, spacing between transects may extend up to 30 meters (approximately 100 feet), in accordance with the CBOC protocol. Biologists conducting the Phase II survey will record and map potentially suitable burrows (based on burrow dimensions and characteristics); they will also record and map WBO observations, presence and types of WBO sign (e.g., whitewash, pellets, feathers) observed, and active or potentially active WBO burrows (based on the presence and quality of sign at suitable burrows). These features will be recorded electronically using GPS units and on data forms; WBO observations and potentially active burrows will also be mapped on field maps. Phase II burrow data will also include the type of burrow, if known (e.g., kit fox [*Vulpes macrotis*]; DT), and a GPS identity code.

Phase III Survey: Burrowing Owl Surveys, Census, and Mapping

Phase III surveys will be initiated and completed during the peak breeding season (April 15 through July 15, as defined in the CBOC protocol) and will continue until all burrows with WBO sign have been visited on four separate days. Phase III surveys are intended to determine owl presence on the site and how the site is being used by WBO. It is anticipated that surveys will be completed by the end of May 2010. During the first survey visit of Phase III, previously mapped (during Phase II) suitable burrows will be surveyed by biologists carefully approaching on foot to determine the presence of WBOs and/or WBO sign, in order to assess potential burrow status. Subsequent survey visits (i.e., visits 2–4) will focus on burrows with WBO sign. Based on 2009 survey results, the Project sites are known to include several burrows with WBO sign that is old and degraded, sparse, and absent of any indication of current or recent use. Although all burrows with confirmed WBO sign (including those with old, degraded or sparse sign) will be surveyed four times, only burrows with sign of current or recent occupancy by WBOs will be identified as "potentially active" for purposes of this survey. For any potentially active WBO burrows (i.e., burrows with sign of current or recent occupancy by WBO) identified during visit 1, the burrow areas will be observed during subsequent visits (i.e., visits 2–4) using binoculars or a spotting scope, using the vehicle as a blind (if possible); all other burrows with sign will be approached on foot. It is important to minimize disturbance near active/occupied burrows; if WBOs are detected in association with a burrow, attempts will be made to determine the burrow status without approaching the burrow too closely on foot.

Phase III surveys will be conducted between 1 hour before and 2 hours after sunrise, and between 2 hours before and 1 hour after sunset. Phase III surveys will not be conducted during inclement weather (e.g., wind speeds > 20 miles per hour, heavy rain or fog, etc.). Field data recorded during each survey visit will include date; survey number; weather conditions (temperature, wind, precipitation, cloud cover); surveyor name; start and stop times for each survey visit; location of burrows surveyed during each visit; the suitability of each burrow, based on burrow dimensions and characteristics (collected during first visit to the burrow); presence, absence, and type of WBO sign (if present) at each burrow; occupancy status (active, potentially active, inactive, based on presence and condition of sign); documentation of any WBO detections, including abundance, age, sex, and behavior; and other wildlife species observed. Photographs will be taken of all potentially active burrow locations. In addition, photographs of individual WBOs and active burrows would be taken, if possible without disturbing owls. Any special-status species or their sign observed during these surveys will be recorded electronically using GPS and on data forms.

Botanical Surveys

Botanical surveys in 2010 will include vegetation community mapping (to be conducted during spring) and rare plant surveys (to be conducted during spring and fall, depending on the timing and amount of 2010

precipitation). Vegetation community mapping will occur within proposed Project disturbance areas, Alternative disturbance areas , and within associated one-mile CEC buffers that either were not previously surveyed or need to be resurveyed using a smaller minimum mapping unit (MMU) (refer to "survey areas (Spring 2010)" and buffer survey areas (Spring 2010)" on Figure P-3). Rare plant surveys will occur within the Project (or Alternative) disturbance areas and associated 1-mile CEC buffer areas that were not previously surveyed in 2009 (refer to "survey areas (Spring 2010)" and buffer survey areas (Spring 2010)" on Figure P-3).

Additionally, rare plant surveys at the PSPP site will also occur within proposed disturbance areas (Project or Alternative) and associated one-mile CEC buffer areas (Figure P-3) that were previously surveyed in 2009 (i.e., refer to "survey extent (2009)" on Figure P-3), to the extent necessary, to comply with the December 2009 CEC data request for consideration of 15 additional special-status plant species and detailed mapping of ribbed cryptantha (*Cryptantha costata*).

Botanical surveys were initiated on the PSPP site on March 8, 2010.

Vegetation Community Mapping

Vegetation community mapping during spring 2010 will be conducted in accordance with the same methods as 2009 mapping efforts, with minor updates based on 2009 field experience. These updates include the following topics:

- Scale of field maps: Field maps used for vegetation mapping will have a scale of 1 inch = 700 feet. Maps at a 200-foot scale (used in 2009) were determined to exceed the resolution of the aerial imagery available and were found to be too cumbersome given the large size of the Project sites being surveyed.
- Clarification of mapping intensity: Similar to 2009, survey intensity in 2010 will vary according to the MMU of disturbance areas versus the 1-mile CEC buffers; areas with smaller MMUs (disturbance areas) will be surveyed with greater intensity than areas with larger MMUs (1-mile CEC buffer areas). To accomplish this, field biologists will walk transects at a spacing that allows visual coverage of all unique vegetation signatures having an area equal to or greater than the defined MMU size.

A detailed methodology for 2010 vegetation community mapping is provided below.

Field biologists will use orthotopographic maps at a scale of 1 inch equals 700 feet for both vegetation mapping and recording rare plant points or polygons (see "Rare Plant Surveys" below). If rare plants are documented during vegetation mapping, these sites will be noted and revisited during focused rare plant surveys in order to map plants in more detail and accurately delineate species populations using GPS equipment. Vegetation communities will be classified according to Holland (1986). Sawyer and Keeler-Wolf (1995) and CDFG (2003) classifications will be used to provide additional detail where appropriate, such as denoting special or sensitive vegetation communities that are either known or believed to be of high priority for inventory in the California Natural Diversity Database (CNDDB) due to their unique nature, limited distribution (i.e., rarity), or importance for special status wildlife species.

Vegetation mapping within proposed Project (or Alternative) disturbance areas may be conducted concurrently with rare plant surveys, by having surveyors walk meandering transects; transect spacing will be based on habitat complexity and topography, and will be close enough to allow visual coverage of vegetation signatures at the minimum mapping unit (0.01 acre for riparian areas and 1.0 acre for all other cover types within proposed disturbance areas [Project or Alternative]). Within the buffer, the MMU for all land cover types, including riparian, will be 1.0 acre. Vegetation mapping within the 1-mile CEC Project (or Alternative) buffer areas will therefore be conducted by walking transects within native habitat that are spaced wider than those walked within disturbance areas, but allow visual coverage of vegetation

signatures that are 1.0 acre in size or larger. Developed land and agricultural areas will be surveyed by a combination of walking transects and selecting key vantage points from existing dirt access roads.

Dominant plant species present within each riparian and upland vegetation community mapped on site will be recorded according to the 50/20 dominance rule (U.S. Army Corps of Engineers [USACE] 1987). According to this rule, dominant plant species are defined as those that, when ranked in order of abundance, collectively make up 50 percent relative cover. Each dominant species individually makes up at least 20 percent relative cover, or is needed to surpass the 50 percent relative cover threshold. Once the dominant plant species are identified according to this method, they will be grouped according to relative cover: species below 20 percent, species ranging from 20 to 50 percent cover, and species exceeding 50 percent cover.

Additionally, a description of each vegetation community mapped on site will be recorded including the extent of disturbance, presence of special soils, potential jurisdictional waters, and habitat suitability for rare plant species (see "Rare Plant Surveys", below). Invasive species listed by the California Invasive Plant Council (Cal-IPC) as A-1, A-2, and B status species (Cal-IPC 2009) will be noted when occurring in high concentrations (approximately 108 square feet and larger) and in nearly monotypic stands. Potential invasive plant species that may be encountered during 2010 surveys on the Project site include tamarisk (*Tamarix* spp.), Saharan mustard (*Brassica tournefortii*), Mediterranean grass (*Schismus* sp.), red brome (*Bromus madritensis*), and cheat grass (*Bromus tectorum*).

Rare Plant Surveys

Rare plant surveys during spring 2010 will be conducted in accordance with the same methods as 2009 surveys, with updates based on 2009 field experience and CEC guidance. These updates include the following:

- Survey intensity: Detailed descriptions are now provided to explain the differences between survey intensity within the disturbance area versus that in the 1-mile CEC buffer, especially with respect to habitat suitability.
- Habitat suitability: methods for determining habitat suitability have been enhanced at the request of CEC.
- Complete tracklog: each biologist will have a GPS unit recording their path during surveys, and these data will be compiled and submitted with the deliverable.
- Search image: biologists will visit reference sites and/or herbaria specimens to obtain a search image for each targeted California Native Plant Society (CNPS) List 1B or List 2 plant species during the reconnaissance phase of surveys.
- Coachella Valley milkvetch (*Astragalus lentiginosus* var. *coachellae*) focused surveys: if suitable habitat is defined within the disturbance areas and surrounding 1-mile CEC buffers, these areas will be intensively surveyed according to the Coachella Valley milkvetch survey plan (described below). The need for focused Coachella Valley milkvetch surveys is unlikely based on research to date (see below). The survey plan has been created as a precaution.
- Deliverable enhancements: the botanical survey report will include all raw field data as attachments and will contain discussion of special status plant species occurrences with respect to onsite conditions as well as known species ranges and suitable habitats.
- Fall surveys: while late-season surveys were not feasible in 2009 due to limited rainfall, 2010 may have adequate late-summer rainfall to warrant fall surveys and additional consideration has been given to four fall-blooming special status plant species.

A detailed methodology for 2010 rare plant surveys is provided below, which includes 2009 methods as well as the updates noted above.

Rare plant surveys will follow survey guidelines from the following resources: 1) Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 2000); 2) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG 2009)[1]; 3) CNPS Botanical Survey Guidelines (CNPS 2001); and 4) Survey Protocols for Survey and Manage Strategy 2: Vascular Plants (Whiteaker et. al. 1998).

Target species for rare plant surveys will include special-status plant species that meet at least one of the following criteria:

- Covered under the Federal or California Endangered Species Act (ESA and CESA, respectively) (CDFG 2009)
- Listed as rare under the California Native Plant Protection Act (Fish and Game Code Section 1900 et seq.)
- BLM sensitive species (BLM Sensitive) (BLM 2009)
- CNPS List: 1A (presumed extinct in California), 1B (rare, threatened, and endangered in California and elsewhere), or 2 (rare, threatened, or endangered in California, but more common elsewhere) species are considered special status plant species if they meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Sections 2050 through 2098 (CESA) (CNPS 2009)
- CNPS List: 3 (plants about which we need more information a review list), or 4 (plants of limited distribution–a watch list was also recorded here) (CNPS 2009)
- Locally significant species, covered under the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) (BLM 2002) or the West Mojave Plan (WEMO) (BLM 2005)

At the direction of BLM, cottontop cactus (*Echinocactus polycephalus*), hedgehog cactus (*Echinocereus* spp.), and all varieties of California barrel cactus (*Ferocactus cylindraceus*) encountered on site will also be recorded and mapped during rare plant surveys (LaPre 2009). The CEC has identified 15 additional target species above and beyond those considered in 2009 to be specifically targeted during 2010 rare plant surveys, 11 of which have potential to occur on the Project site (see Attachment 2). Attachment 2 contains the complete list of plant species that will be targeted during 2010 rare plant surveys.

Rare plant surveys will be "intuitive controlled" (per Whiteaker et al. 1998). The surveys will be conducted by walking transects placed systematically throughout disturbance areas (Project and Alternative) and associated 1-mile CEC buffers while searching for target plant species and suitable habitats. In disturbance areas not previously surveyed during 2009, botanists will traverse all representative habitats, providing complete visual coverage in areas determined to be suitable for target plant species (including microhabitats) (see Attachment 2 for target plant list). This will include closely spaced transects in the desert washes, incised channels, and sandy dune habitats (50-100 feet, possibly less depending on topographic complexity) and wider spacing in the flat creosote bush scrub and desert pavement (approximately 100-200 feet, or more depending on visibility). Transects will follow topographic relief rather than predefined survey grids, for the purpose of providing focused coverage of the desert washes.

1. This document replaced the DFG document entitled "Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened and Endangered Plants and Natural Communities."

Resurveys will occur as many times as necessary to ensure the blooming periods of all target rare plant species have been covered.[2] Additionally, disturbance areas that were previously surveyed in 2009 would be revisited systematically, as deemed appropriate based on field conditions, in order to comply with the December 2009 CEC data request for consideration of 15 additional special-status plant species and detailed mapping of ribbed cryptantha (*Cryptantha costata*).

In the 1-mile CEC buffer areas, suitable habitats associated with the major desert washes or sandy dune habitats will also be surveyed with complete visual coverage but the areas may not be resurveyed with the same rigor as the disturbance area and isolated microhabitats (areas much less than 1 acre in size and not associated with the desert washes or larger dune complexes) may not be examined with complete visual coverage at the discretion of the lead field botanist.

Suitable habitats will be determined based on geography, slope aspect, soil substrate, vegetation community, associated plant species, and familiarity with each species based on reference populations and historical surveys conducted in the region. Unsuitable habitats may be traversed while traveling between areas of suitable habitat, providing partial survey coverage in these areas. Each field botanist will carry a GPS to record their path through the Project site(s) each day.

The exception to the "intuitive controlled" method described above is with respect to the Coachella Valley milkvetch surveys. This federally endangered plant species must receive more focused attention in areas of suitable habitat where the species has potential to occur. Andrew Sanders has determined that Coachella Valley milkvetch is not currently documented outside of the Coachella Valley area. To reach this conclusion, Mr. Sanders thoroughly reviewed the vouchered collections (identified as Coachella Valley milkvetch) from the Desert Center area (Dice 980324-2; Dice 980324-3; and Sears 1173) and other collection data (e.g., http://ucjeps.berkeley.edu/consortium/ and University of California at Riverside (UCR) herbaria specimens). After careful consideration, Mr. Sanders found the Desert Center collections (i.e., all Coachella Valley milkvetch collections outside the Coachella Valley) to be *Astragalus lentiginosus* var. *variabilis* rather than *A. lentiginosus* var. *coachellae*.

Therefore, focused surveys for Coachella Valley milkvetch will not be necessary at the PSPP site unless the species is observed on site or Andrew Sanders encounters additional information leading to a reversal of his findings. Prior to the end of the survey window for Coachella Valley milkvetch (late May), a letter from Andrew Sanders will be provided to USFWS, CDFG, CEC, and BLM to finalize and defend the treatment of Coachella Valley milkvetch during 2010 rare plant surveys.

In the event that focused surveys for Coachella Valley milkvetch do occur, a survey plan has been prepared and is located below (see "Supplemental Survey Methods for Coachella Valley Milkvetch (if Necessary)", below).

The timing of rare plant surveys will be based on the most phenologically appropriate time for each target plant species; surveys will occur when reproductive structures (i.e., flowers and fruits) and distinctive leafy parts are present and easily identifiable. When possible, known locations of rare plants in the vicinity of the Project site will be visited to verify the status of these species during the 2010 growing season

2. In DR-BIO-81 of the AECOM Response to the CEC Data Request (December 2009), it was suggested that biologists should walk 10-20 meter parallel transects within all habitats of the disturbance areas, regardless of habitat suitability. This approach has been revised, since habitat complexity will dictate how far each botanist will be able to see and will therefore dictate the necessary spacing. AECOM botanists have consulted with regional experts including Andy Sanders and David Silverman to conclude that intuitive controlled surveys per Whiteaker et al. 1998 are sufficient for documenting a complete floral inventory on site (including the target special status plant species).

(germinating, flowering, seeding, etc.). If reference site visits are not possible, specimens from the UCR Herbarium will be studied to inform field biologists of important keying characters.

In general, the ideal survey window for 2010 will be closely associated with the rainfall pattern, considering both rainfall totals and the timing of precipitation. Several survey visits may be necessary to accommodate the distinct phenologies of each target rare plant species with potential to occur on the Project site, including surveys during both spring and fall (if rainfall is sufficient for fall-blooming species). It is anticipated that approximately 2-5 survey visits may be necessary to complete rare plant surveys.

During rare plant surveys (spring or fall) each field botanist will record a complete floral inventory, including the phenology(ies) observed (to document the blooming period and calibrate the timing of additional surveys). Plant nomenclature will follow that of *The Jepson Desert Manual* (Baldwin et. al. 2002). Additionally, scientific names will be used in all records to avoid confusion between taxa. Time will be allotted as necessary to confirm the identity of unknown species to the taxonomic level necessary to determine whether it is a target rare plant species or not (e.g., genus, species, or subspecies/variety).

If a target rare plant population is located, the population will be assessed for vigor and possible threats (e.g., off-road vehicle activity and invasive plants) and the number of individuals will be counted (or subsampled and population size estimated in the event of large populations). All sensitive plant locations identified will be recorded directly with submeter handheld GPS units and will be subsequently mapped on aerial photo-based field maps (700-foot scale orthotopographic maps). Rare plant detections will be mapped either as individual point locations (for single plants) or as occupied polygons (for groups of plants). The threshold distance for distinguishing point locations from polygons will be 7 meters; for example, plants occurring within 7 meters of each other will be included in a polygon, and plants beyond the 7-meter threshold will be documented using individual points).

In addition to mapping special status species occurrences, suitable habitat for the target species will be assessed and mapped. In many cases, not enough information is known about microhabitat preferences of a species to define its habitat beyond the level of vegetation communities.

CNDDB forms will be completed and submitted to CDFG (as publically available data) for all special-status plant species observed. Voucher specimens of special-status plant species will be collected if it is determined that such collection would not jeopardize the existing population. These collections will be submitted to the UCR herbarium.

Additional Survey Considerations

During vegetation mapping and rare plant surveys, field botanists will document any creosote bush rings observed if they are readily distinguishable.

Regional experts will be consulted for guidance through all phases of survey work for concurrence with the methods employed by AECOM survey teams. This includes botanists such as David Silverman (of Xeric Specialties Consulting) and Andrew Sanders (of the UCR Herbarium). These experts will receive copies of this methodology for approval, and once in the field they will train crews on species identification, conduct expert habitat assessments, and provide guidance on optimal survey timing for the targeted special status plant species.

Supplemental Survey Methods for Coachella Valley Milkvetch (if Necessary)

All surveys for rare plants will be conducted in compliance with the standardized guidelines issued by the regulatory agencies (USFWS 2000, CDFG 2000, and the CNPS 2001). The species specific methods presented below are intended to be a supplement to the standardized guidelines.

Surveys for Coachella Valley milkvetch will be conducted from approximately February through May 2010, depending upon climactic conditions. The number of surveys required will depend upon the phenology of the populations at the reference sites. It is presumed that two to three separate surveys will be required. Prior to initiating surveys, vouchered specimens deposited at the UCR herbarium will be studied to insure survey personnel are familiar with the species. Visits to one or more known locations of Coachella Valley milkvetch will be conducted to determine current phenology and detectability.

Systematic surveys will be conducted to detect presence and determine distribution of Coachella Valley milkvetch within the survey area. The survey area will only include areas of suitable Coachella Valley milkvetch habitat along the substation and transmission line disturbance area and buffer area. For systematic surveys, biologists will walk parallel transects 5 to 10 meters apart throughout the entire survey area. The survey transects will be recorded with a GPS track log using a submeter handheld GPS. Survey crews will include at least one member who has seen Coachella Valley milkvetch in its natural habitat. Other survey members will be trained using photographs and/or herbarium specimens.

If Coachella Valley milkvetch is detected within the survey area results will be recorded as described below. One herbarium specimen will be deposited at the UCR herbarium, if it is determined that collection will not jeopardize the existing population.

Jurisdictional Waters Delineation

A formal delineation for potential jurisdictional waters of the United States and of the State was completed in April 2010 at the Project site within portions of the disturbance area (Project and Alternative), and within a 250-foot buffer of these areas, for which surveys were not previously conducted in 2009 (Figure P-4). Additionally a qualitative functions and values assessment for ambient conditions and projected post-project conditions of these areas was also completed.

Formal Delineations for Potential Jurisdictional Waters of the United States

Jurisdictional waters of the United States are defined in 33 CFR. 328.3 (Definitions). Previously unsurveyed portions of the proposed Project disturbance area and Alternative disturbance area at the Project site have the potential for the presence of, at a minimum, two types of federally regulated waters, warranting the following:

1. Formal delineations for waters of the United States in the form of wetlands based on the three-parameter method.[3] The three-parameter method for identifying and delineating wetlands is outlined in and in accordance with Federal guidance and procedure following the *Corps of Engineers Wetlands Delineation* (Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (2008 Supplement) (Environmental Laboratory 2008).[4]

2. Formal delineations for other waters of the United States to define and identify the jurisdictional lateral extent of nonwetland waters using field indicators of ordinary high water mark (OHWM) as defined by 33 CFR 238.3(e), Federal guidance and procedure outlined in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual* (USACE 2008), and *Distribution of Ordinary High Water Mark*

3. The three-parameter method is the simultaneous presence (co-occurrence) of wetland hydrology, hydric soil, and hydrophytic vegetation.

4. The Manual and 2008 Supplement are guidance documents for delineating jurisdictional waters in the form of wetlands only.

(OHWM) indicators and their reliability in identifying the limits of "Waters of the United States" (Lichvar et al. 2006).

3. Other relevant Federal guidance and procedural documents (e.g., Regulatory Guidance Letter, Special Public Notices, and USACE Los Angeles District specific guidance)

Formal Delineations for Potential Jurisdictional Waters of the State

The California Code of Regulations (Title 14 CCR 1.72) defines a stream as: "...a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation." Under Section 1600 *et seq.* of the California Fish and Game Code (CFGC), CDFG regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. The limits of CDFG jurisdiction are defined in CFGC Section 1600 *et seq.* as the "bed, channel or bank of any river, stream or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit." However, in practice, CDFG usually extends its jurisdictional limit and assertion to the top of a bank of a stream, the bank of a lake, or outer edge of the riparian vegetation, whichever is wider.

CFGC Section 1602(a) is based on Title 14 CCR 720: "For the purpose of implementing Sections 1601 and 1603 of the Fish and Game Code which requires submission to the department of general plans sufficient to indicate the nature of a project for construction by or on behalf of any person, governmental agency, state or local, and any public utility, of any project which will divert, obstruct or change the natural flow or bed of any river, stream or lake designated by the department, or will use material from the streambeds designated by the department, all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams and streambeds which may have intermittent flows of water, are hereby designated for such purpose".

Boundaries for xeric riparian waters of the State will be determined (and recorded) by the presence of shelving and/or scour resulting in an established bank, bed, and channel of an ephemeral wash feature and its associated riparian areas (where applicable). In specific areas within the ephemeral wash channels, where evidence of shelving or scour is absent, subsurface investigations will be undertaken to identify established channel banks. Although some portions of the ephemeral washes present shelving with smooth-toe transitions, these features are composed of friable sand and are evidence of recent sand deposition covering the bank features.

For wetlands and other aquatic habitats occurring in California, CDFG relies on the USFWS wetland definition and classification system, which is based on *Classification of Wetland and Deepwater Habitats of the United States* (Cowardin et al. 1979). Therefore, jurisdictional wetland delineations within disturbance areas will be conducted based on the one-parameter[5] method outlined in CDFG/USFWS guidance documents and classification manual(s) to define presence and State jurisdictional extent. The Cowardin method requires diligence to avoid false positive conclusions (e.g., concluding that an area with no transitional relation to the aquatic system is a wetland based on presence of vegetation equally likely to be found in wetland or nonwetland circumstances).

Functions and Values Assessments

A qualitative assessment of the functions and values will also be conducted for ephemeral stream (i.e., xeric riparian) features identified in unsurveyed portions of proposed Project and Alternative disturbance

5. For Federal jurisdictional waters, a determination for the presence of wetland is based on the presence of three parameters occurring simultaneously at the area of investigation and study. These three wetland parameters are 1) hydrophytic vegetation, 2) hydric soils, and 3) wetland hydrology. Therefore, for State-defined wetlands, only one of these three wetland criteria is required to be present for the State to consider an aquatic feature a wetland.

areas at the Project site. This qualitative assessment utilized the Hydrogeomorphic Approach (HGM) to assess the physical, chemical, and biological functions and values of xeric riparian features utilizing a synthesis of the methodologies and definitions outlined in:

1. *A Hydrogeomorphic Classification for Wetlands* as a guide (Brinson et al. 1995)
2. *An Approach for Assessing Wetland Functions Using Hydrogeomorphic Classification, Reference Wetlands, and Functional Indices* (Smith et al. 1995)
3. *Wetland Values: Concepts and Methods for Wetlands Evaluation* (USACE 1979)
4. *The Ecological and Hydrological Significance of Ephemeral and Intermittent Streams in the Arid and Semi-arid American Southwest* (U.S. Environmental Protection Agency [USEPA] 2008)
5. USEPA Watershed Academy: *Wetland Functions and Values* (USEPA 2009)
6. U.S. Geologic Survey (USGS) Water Supply Paper 2425: *Wetland Functions, Values, and Assessment* (USGS 1996)

The assessment will be based on observations made during above-mentioned jurisdictional delineation field surveys and other resource surveys (e.g. cultural, botanical, and wildlife) occurring in 2010. The assessment is intended to quantitatively evaluate ambient and projected post-project desert aquatic (including xeric riparian) features without a reference site. Since the assessment will not be based on a comparison to an actual reference site in the field, the qualitative rankings of variables used for the assessment of the quality of functions and values will be confined to the quality of the habitats within the study area.

Brinson et. al. (1995), Smith et al. (1995), and USEPA (2008) will be used as the primary guidance documents for assessing xeric riparian function, which include assessment of the following four major functional categories:

1. Hydrologic Function
2. Biogeochemical Function
3. Plant Habitat Function
4. Animal Habitat Function

USACE (1979), USEPA (2009) and USGS (1996) will be used as the primary guidance documents for assessing xeric riparian values, which include assessment of the following seven major value categories:

1. Aquifer Recharge (including Base Flow and Water Supply)
2. Flood Protection
3. Water Quality
4. Economic
5. Aesthetic
6. Recreational
7. Cultural

Xeric riparian values 1 through 4 will be incorporated within xeric riparian functions because wetland values also arise from the many ecological functions associated with wetlands (USEPA 2009). Xeric riparian values 5 through 7 will be ascertained through subjective review during the jurisdictional

delineation field assessment, a review of related documents such as cultural resources reports, the Riverside or Kern County General Plans, and speaking with resource agency personnel.

Golden Eagle Surveys

A GOEA field survey will be conducted in 2010 of the PSPP site within proposed Project and Alternative disturbance areas and within an associated buffer zone; however, these surveys are being conducted by an entity other than the AECOM Team.

Helicopter-and ground-based raptor surveys shall be conducted, following the USFWS interim guidelines for GOEA surveys (USFWS 2010), to record and report occupancy (Phase 1) and productivity (Phase 2) of resident golden eagles including, but not limited to, the following:

- individual activities,
- nests and territories on and surrounding the subject solar farm project, and within an approximate 10-mile radius of the proposed Project (assumed USFWS requirement)

The first survey (Phase 1 helicopter survey) has already been completed and a second survey (Phase 2) will begin a minimum of 30 days after the Phase 1 survey was conducted.

General Biological Survey Details

In addition to above-described protocols, the following general surveys actions/approaches will be taken by the AECOM survey team.

- While conducting biological resource surveys at the Project site in 2010 (e.g., DT surveys, WBO surveys, vegetation mapping and rare plant surveys, etc.) biologists will also be looking for and recording occurrences of all sensitive, listed, or other special-status wildlife species or their sign, including but not limited to:
    - Potential bat roosting sites—caves, abandoned buildings, cliffs etc.
    - Nelson's bighorn sheep
    - American badger (*Taxidea taxus*)
    - Mohave ground squirrel
    - Desert kit fox (*Vulpes macrotis*)
    - Mojave fringe-toed lizard (*Uma scoparia*)
    - Loggerhead shrike (*Lanius ludovicianus*)
    - Bendire's thrasher (*Toxostoma bendirei*)
    - Crissal thrasher (*Toxostoma crissale*)
    - Gilded flicker (*Colaptes chrysoides*)
    - Gila woodpecker (*Melanerpes uropygialis*)
    - Raptors
        - Northern harrier (*Circus cyaneus*)
        - White-tailed kite (*Elanus leucurus*)
        - Cooper's hawk (*Accipiter cooperii*)
        - Peregrine falcon (*Falco peregrinus*)
        - Prairie falcon (*Falco mexicanus*)
        - Swainson's hawk
        - Golden eagle
        - Ferruginous hawk (*Buteo regalis*)

- All surveyors will be given Desert Tortoise Awareness training.
- All surveyors will be briefed on potential rare plants within their survey area, including descriptions and photographs/drawings. Biologists will record coordinates and take photographs of any potential occurrences of rare plants and communicate this information to an AECOM Team botanist for verification immediately.
- Within areas of the 1-mile disturbance area (Project or Alternative) survey buffer not previously surveyed, a more general survey of habitat suitability and occurrence of special-status species and their sign will be conducted (according to the CEC's Draft Recommended Biological Resources Field Survey Guidelines for Large Solar Projects [CEC 2007]), if accessible to the biologists conducting the surveys.

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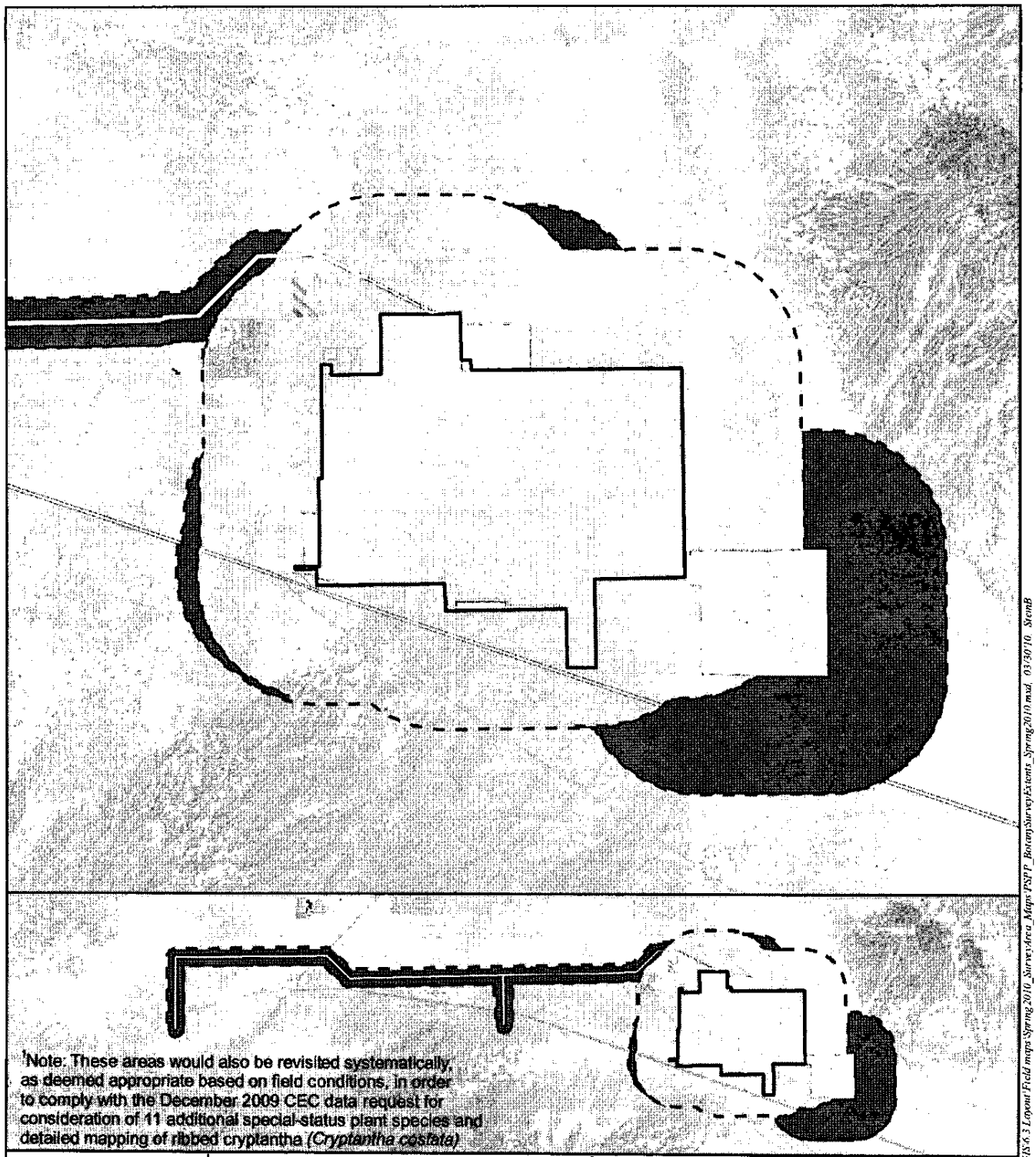
Attachment 1

Figures


[1]Note: These areas would also be revisited systematically, as deemed appropriate based on field conditions, in order to comply with the December 2009 CEC data request for consideration of 11 additional special-status plant species and detailed mapping of ribbed cryptantha (Cryptantha costata)
Map Location
OR
ID
NV
UT
CA
AZ
Legend
Disturbance Area (March 2010)
Survey Extent (2009)[1]
Survey Areas (Spring 2010)
BRSA (Surveyed 2009)
BRSA (March 2010)
Buffer Survey Areas (Spring 2010)
0
6,000
12,000
Feet
Palen Solar Power Project
Figure P-3
Vegetation Mapping and Rare Plant Survey Areas Spring 2010
Source: NAIP 2009; AECOM 2010
1 inch = 6,000 feet
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W
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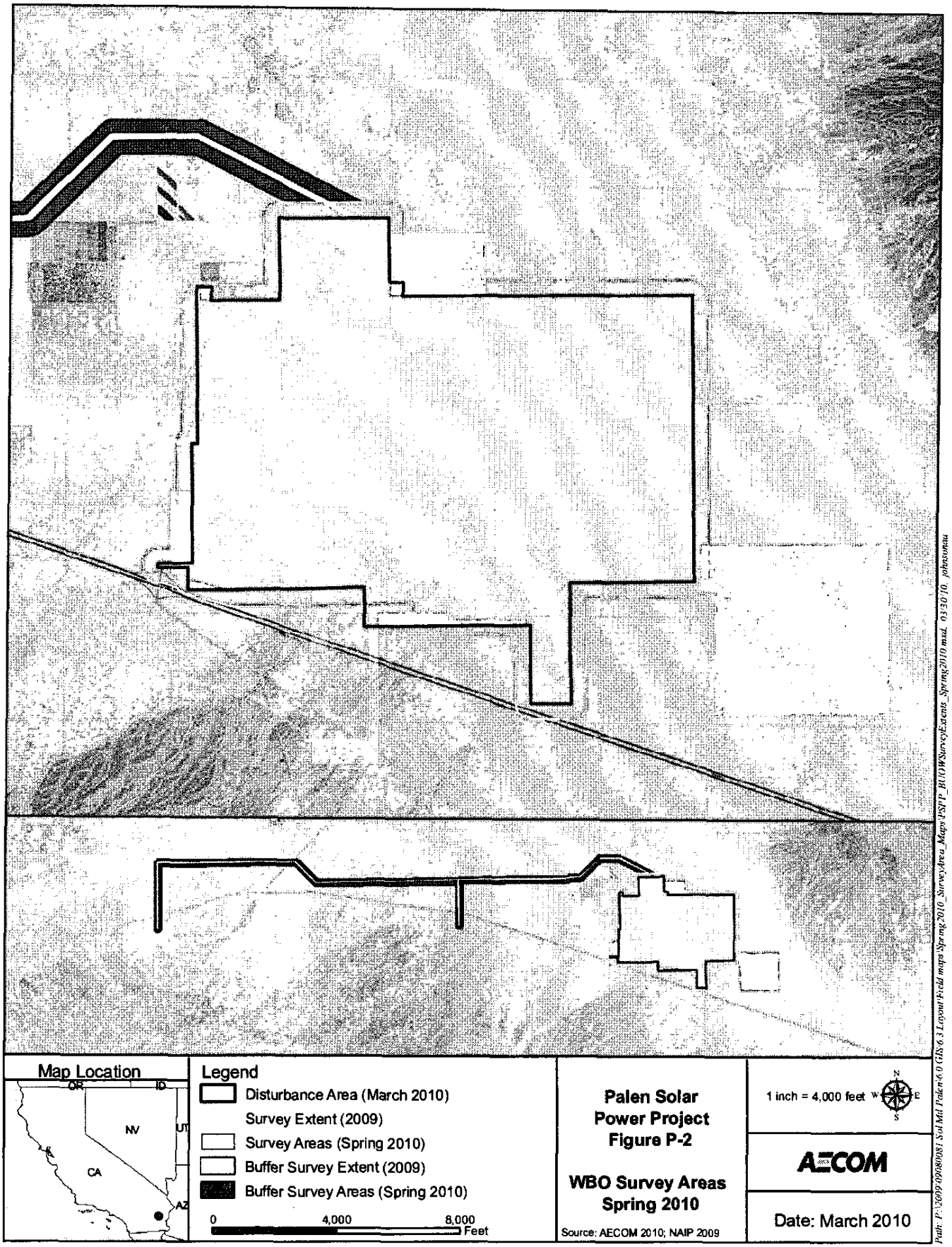
S
AECOM
Date: March 2010
Path: P:\2009\09086081 Sol Mfl Palen\6.0 GIS\6.3 Layout Field maps\Spring 2010_SurveyArea_Maps\PSPP_Botany\SurveyExtents_Spring2010.mxd 03/30/10 SteinB


Map Location
OR
ID
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UT
CA
AZ
Legend
Disturbance Area (March 2010)
Survey Extent (2009)
Survey Areas (Spring 2010)
Buffer Survey Extent (2009)
Buffer Survey Areas (Spring 2010)
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Palen Solar Power Project
Figure P-2
WBO Survey Areas Spring 2010
Source: AECOM 2010; NAIP 2009
1 inch = 4,000 feet
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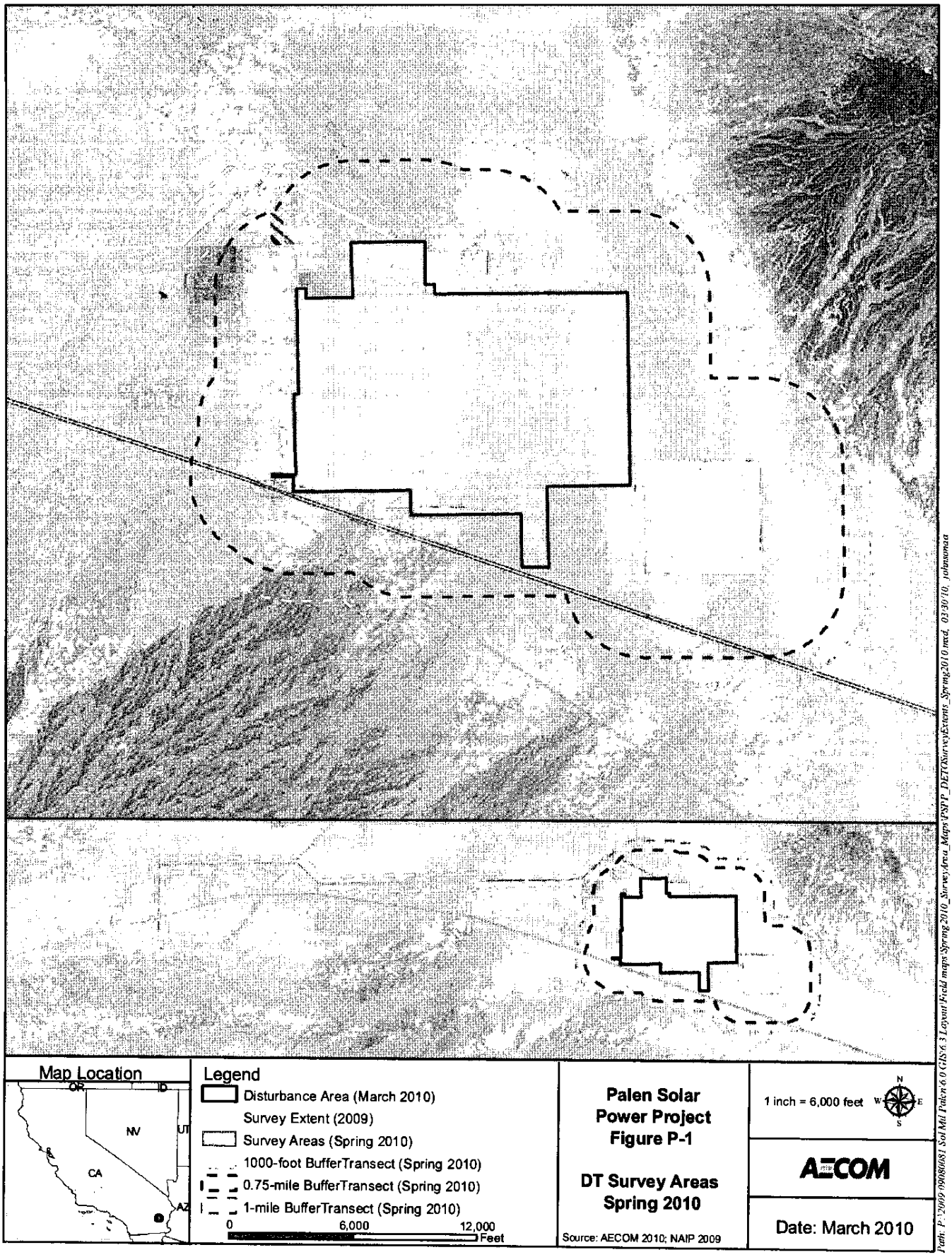
Date: March 2010
Path: P:\2009\09080981 Sol Mtl Palen\6.0 GIS\6.3 Layout\Field maps\Spring 2010_SurveyArea_Maps\PSPP_BUOWSurveyExtents_Spring2010.mxd 093010 johnsonka


Map Location
OR
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Legend
Disturbance Area (March 2010)
Survey Extent (2009)
Survey Areas (Spring 2010)
1000-foot BufferTransect (Spring 2010)
0.75-mile BufferTransect (Spring 2010)
1-mile BufferTransect (Spring 2010)
0
6,000
12,000
Feet
Palen Solar Power Project
Figure P-1
DT Survey Areas Spring 2010
Source: AECOM 2010; NAIP 2009
1 inch = 6,000 feet
N
W
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S
AECOM
Date: March 2010
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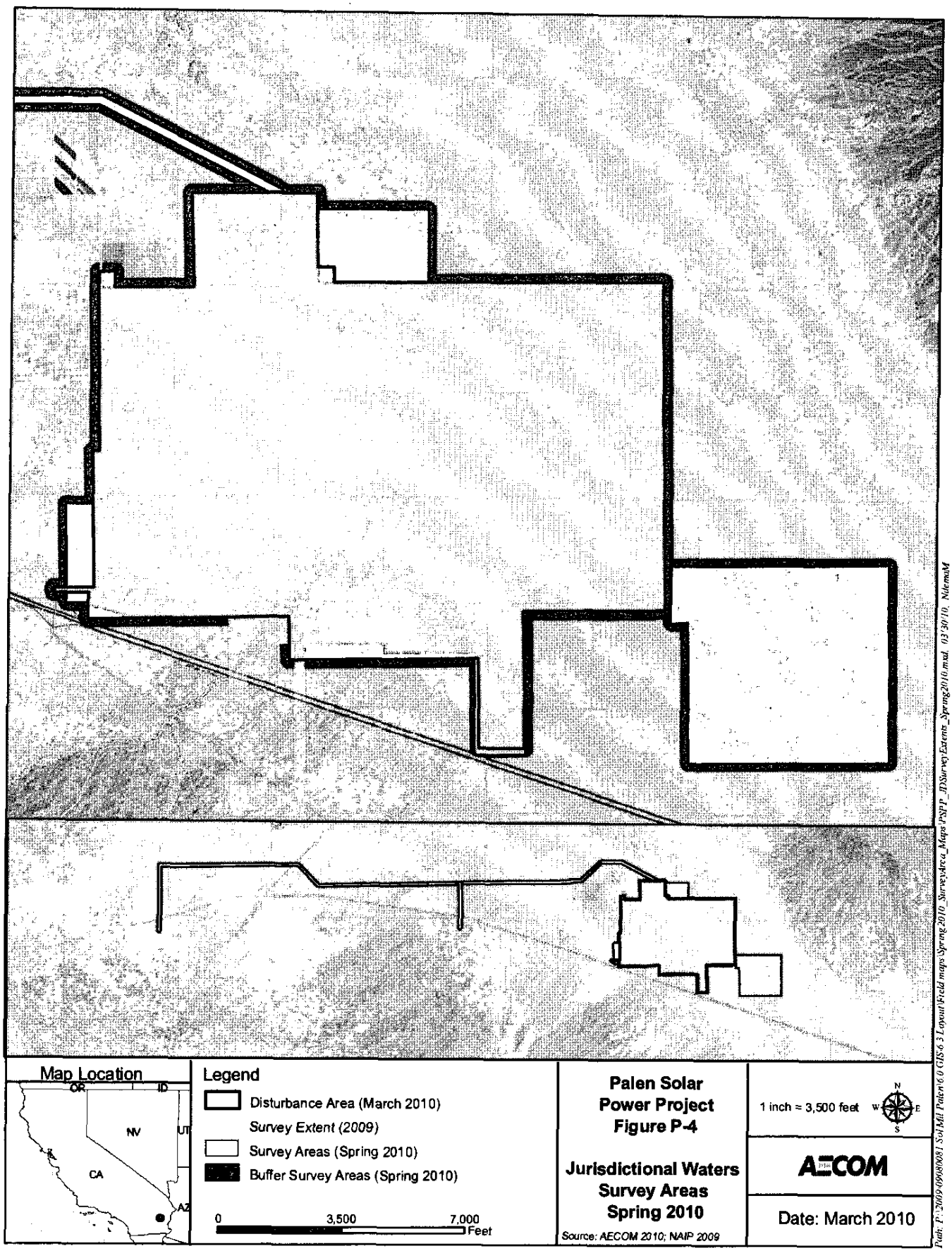
Map Location
OR
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AZ
Legend
Disturbance Area (March 2010)
Survey Extent (2009)
Survey Areas (Spring 2010)
Buffer Survey Areas (Spring 2010)
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3,500
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Palen Solar Power Project
Figure P-4
Jurisdictional Waters Survey Areas Spring 2010
Source: AECOM 2010; NAIP 2009
1 inch ≈ 3,500 feet
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AECOM
Date: March 2010
Path: P:\2009\09080081\Sol Mil Palen\6.0 GIS\6.3 Layout\Field maps\Spring 2010_SurveyArea_Maps\PSPP_JDSurveyExtent_Spring2010.mxd, 03/30/10, NdemuM

Attachment 2

Target List of Special Status Plant Species for 2010 Surveys

Attachment 2
Target List of Special Status Plant Species for 2010 Surveys
Palen Solar Power Project

Scientific Name	Common Name	Status[3]	Expected Fall or Spring[4]
Acleisanthes longiflora	Angel trumpets	CNPS List 2.3 NECO	Spring
Androstephium breviflorum[1]	small-flowered androstephium	CNPS List 2.2	Spring
Astragalus insularis var. harwoodii	Harwood's milkvetch	CNPS List 2.2 NECO	Spring
Astragalus lentiginosus var. coachellae	Coachella Valley milkvetch	ESA: Threatened CNPS List 1B.2	Spring
Ayenia compacta[1]	California ayenia	CNPS List 2.3	Spring
Calliandra eriophylla	Fairyduster	CNPS List 2.3 NECO	Spring
Calochortus striatus	Alkali mariposa-lily	CNPS: List 1B.2 BLM: Sensitive	Spring
Castela emoryi	Crucifixion thorn	CNPS List 2.3 NECO	Spring
Chamaesyce abramsiana[1]	Abram's spurge	CNPS List 2.2	Fall
Chamaesyce platysperma[1]	Flat-seeded spurge	CNPS List 1B.2	Fall
Colubrina californica	Las Animas colubrine	CNPS List 2.3 NECO	Spring
Condalia globosa var. pubescens[1]	bitter snakewood	CNPS List 4.2	Spring
Corypantha alversonii	Foxtail cactus	CNPS List 4.3 NECO	Spring
Cryptantha costata[1]	ribbed cryptantha	CNPS List 4.3	Spring
Cryptantha holoptera[1]	winged cryptantha	CNPS List 4.3	Spring
Cynanchum utahense	Utah milkvine	CNPS List 4.3 NECO	Spring
Ditaxis claryana	glandular ditaxis	CNPS List 2 .2 NECO	Spring or Fall
Ditaxis serrata var. californica	California ditaxis	CNPS List 3.2 NECO	Spring or Fall
Echinocactus polycephalus var. polycephalus[2]	cottontop cactus	No special status (considered but rejected)	Spring
Echinocereus engelmannii[2]	hedgehog cactus	CNPS List 1B.1 (var. *howei*)	Spring
Echinocereus triglochidiatus[2]	hedgehog cactus	No special status	Spring
Eriastrum harwoodii[1]	Harwood's woollystar	CNPS List 1B.2	Spring

Scientific Name	Common Name	Status[3]	Expected Fall or Spring[4]
Ferocactus cylindraceus[2]	California barrel cactus	No special status	Spring
Horsfordia alata[1]	pink velvet mallow	CNPS List 4.3	Spring or Fall
Hymenoxys odorata[1]	bitter hymenoxys	CNPS List 2	Spring or Fall
Imperata brevifolia	California satintail	CNPS List 2.1	Spring or Fall
Matelea parvifolia[1]	spearleaf	CNPS List 2.3	Spring
Mentzelia puberula[1]	Argus blazing star	No special status (taxonomy unresolved)	Spring
Physalis lobata[1]	lobed ground cherry	CNPS List 2.3	Fall
Portulaca halimoides[1]	desert portulaca	CNPS List 4.2	Fall
Proboscidea althaeifolia[1]	desert unicorn plant	CNPS List 4.3	Spring
Salvia greatae	Orocopia sage	CNPS List 1B.3 NECO	Spring
Selaginella eremophila	Desert spikemoss	CNPS List 2.2	Spring
Senna covesii	Coves' cassia	CNPS List 2.2 NECO	Spring
Teucrium cubense ssp. *depressum*	dwarf germander	CNPS List 2.2	Spring
Wislizenia refracta ssp. *refracta*	Jackass clover	CNPS List 2.2 NECO	Spring or Fall
Xylorhiza orcuttii	Orcutt's Woody-aster	CNPS List 1B.2 BLM Sensitive	Spring

1. Species requested to be surveyed by CEC (AECOM 2010)
2. Species requested to be surveyed by BLM (LaPre 2009)
3. Sensitivity Status Key

ESA Federal Endangered Species Act (ESA) Threatened

CNPS California Native Plant Society Lists:

1B: Considered rare, threatened, or endangered in California and elsewhere

2: Plants rare, threatened, or endangered in California, but more common elsewhere

3: Plants for which we need more information – Review list

4: Plants of Limited Distribution – A Watch list

Decimal notations: .1 – Seriously endangered in California, .2 – Fairly endangered in California, .3 – Not very endangered in California

BLM Special Status Plants (Palm Springs Field Office)

NECO Special-status species considered in analysis of the Northern and Eastern Colorado Coordinated Management Plan (BLM 2002).

4. Based on the known blooming periods of these plant species, many of these species are opportunistic with respect to rainfall. While they have been listed in this table as occurring Spring, Fall, or Both, actual blooming times will correlate more closely with the climate than the calendar. Field surveys will be comprehensive, not selective; all plants on this list will be considered during all surveys, regardless of the probability of finding them. A complete floral inventory will be recorded for the site as well.

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April 22, 2010

Mr. Rick York
California Energy Commission
1516 Ninth Street, MS-40
Sacramento, CA 95814-5512

Subject: Biological Survey Methodologies for the Palen Solar Power Project Site, 2010

Dear Mr. York:

On behalf of Solar Millennium, LLC, AECOM is submitting to the California Energy Commission (CEC) the attached summary of biological resource survey studies and methodologies planned or currently being implemented for 2010 for the Palen Solar Power Project (Project) in the Colorado Desert area of California. The plant site is located near Desert Center, in eastern Riverside County. The purpose of this letter is to inform CEC and relevant resource agencies of our biological survey approach and methodologies for this Project site in 2010.

As a result of Project modifications and the development of Project alternatives (as required by the Bureau of Land Management [BLM] environmental review process) that occurred after surveys were completed in 2009, the AECOM Team is undertaking additional technical surveys and studies in 2010. These additional surveys are necessary to satisfy Data Requests issued by the CEC during the Applications for Certification (AFC) process and to support related environmental documentation for this Project, as required for Project approval. Survey results will also be used to update environmental baseline information to support permit applications to other federal, state, and local agencies. In particular the survey results will be used to update and fully characterize the existing biological resource conditions on the project site (including alternatives) as requested by the CEC in its Data Requests, to support determinations regarding Project (or alternative) impacts, to further formulate mitigation requirements, and to provide specific data needs of reviewing agencies.

Key to providing Project updates in support of necessary Project approvals and permits described above is the collection of data concerning the occurrence and distribution of biological resources within previously unsurveyed portions of the Project site (including alternatives) and associated buffers. The biological surveys and data collection planned and currently being implemented for 2010 take into account the physical characteristics of areas to be surveyed, the life histories of the target species, and the guidelines and protocols promulgated by the resource agencies.

Consistent with what was requested by the agencies in 2009, the AECOM Team is providing a written summary of the 2010 survey approach and methodologies, together with a detailed map of areas planned for survey at the Project site. Maps of planned survey areas for each biological resource at the Project site are enclosed. Please note that the maps showing planned survey areas are consistent with current Project (and alternative) design and may change with further refinement of the Project or alternative. In the event that the Project site or alternative are further modified after submittal of this letter, survey areas may be adjusted accordingly to meet the same purpose and intent of documenting and evaluating the environmental baseline for biological resources on the Project site. Biological surveys have already been initiated at the Project site (see attached document.

In submitting this information, it is our hope to keep CEC, and the other resource management agencies (BLM, CDFG, and USFWS) that have been involved in the review and approval of this Project, apprised of our efforts related to biological resource surveys on this Project site. It is Solar Millennium's desire to ensure that the surveys conducted at the Project reflect the most current CEC

AECOM

and resource agency guidance and that the methodologies being implemented are communicated to CEC and resource agencies early in the survey season.

Please call Bill Graham at (619) 233-1454 if you have any questions.

Sincerely,

William Graham
Principal
Bill.Graham@aecom.com

Enclosures:
Palen Solar Power Project Proposed 2010 Survey Protocols
Figures P-1 through P-4. Palen Solar Power Project Preliminary Survey Maps 2010

cc: Janet Eubanks, BLM
Holly Roberts, BLM
Mark Massar, BLM
Shelly Ellis, BLM
Larry LaPre, BLM
Magdalena Rodriguez, CDFG
David Hacker, CDFG
Pete Sorenson, USFWS
Tannika Engelhard, USFWS
Danielle Dillard, USFWS
Carl Benz, USFWS

Attachment H

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May 7, 2010

Ms. Susan Sanders
California Energy Commission
1516 Ninth Street
Sacramento, California 95814

Dear Ms. Sanders:

Subject: Palen Solar Power Project (09-AFC-7) – Preliminary Spring 2010 Survey Results for Desert Tortoise, Rare Plants and Jurisdictional Waters

On behalf of Palen Solar I, LLC, AECOM is submitting preliminary results of biological surveys conducted for desert tortoise (*Gopherus agassizii*; DT), rare plants, and jurisdictional waters for the Palen Solar Power Project. This information was requested at the Palen and Blythe Staff Workshops conducted on April 28 and 29, 2010.

The preliminary results are presented in the tables and figures attached. Table 1 presents a summary of the observations of DT sign and DT occurrences noted during spring 2010 surveys. Table 2 presents the rare plant population counts observed during spring 2010 surveys. Results from the fall and spring 2009 surveys are not included in DT and rare plant tables or the figures attached. However, the Jurisdictional Waters map does include results from the 2009 surveys and a table presenting the results of both survey years is provided in the figure. Please note that the totals provided in the tables herein are simply the results of our observations. These tables do not represent total impacts nor is this an impact analysis. Comprehensive technical reports and impact analyses are currently being prepared and will be submitted to the CEC in early June.

Please let us know if you have any questions.

Sincerely,

Bill Graham
Vice President

Attachments: Table 1. Palen Solar Power Project Desert Tortoise Observations Spring 2010
Table 2. Palen Solar Power Project Rare Plant Populations Counts Spring 2010
Figure. Preliminary Results Desert Tortoise Spring 2010 Surveys
Figure. Preliminary Results Botany Rare Plants Spring 2010 Surveys
Figure. Preliminary Results State Waters Spring 2010 Surveys
CD. Raw Data Files

cc: Alice Harron, Solar Millennium
Elizabeth Ingram, Solar Millennium
Scott Galati, Solar Millennium Counsel
Mark Luttrell, AECOM

09080082_39 Palen Preliminary Spring 2010 Survey Results Cover Letter.doc

Table 1. Palen Solar Power Project Desert Tortoise Observations Spring 2010

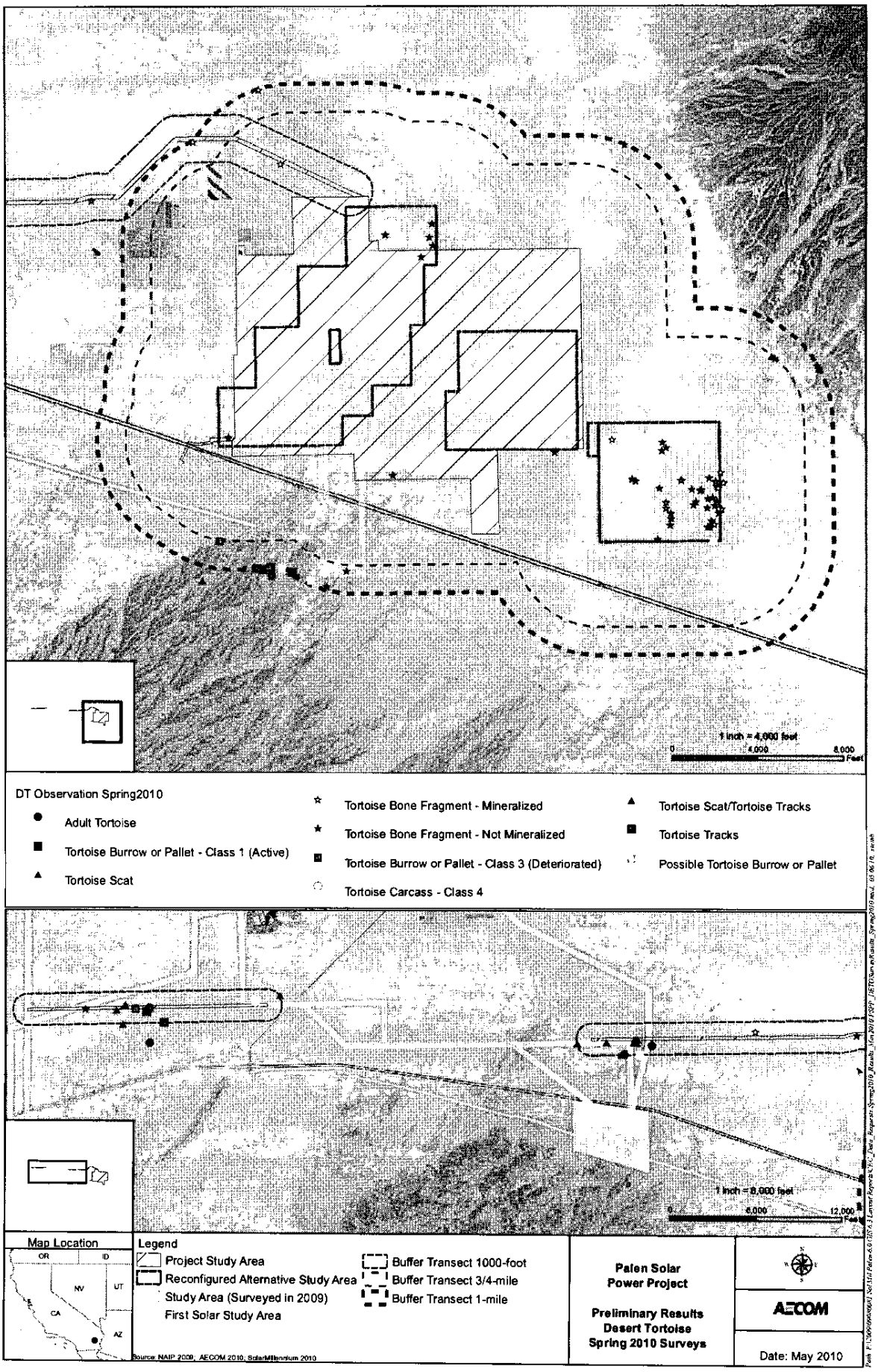
Description	Proposed Project Study Area	Reconfigured Alternative Project Study Area	Proposed Project/Reconfigured Alternative Study Area[1]	Buffer	Incidental Observations Outside Buffer Area	Grand Total
Adult Tortoise	1			4	2	7
Active Tortoise Burrow or Pallet - Class 1				4		4
Tortoise Burrow or Pallet - Class 3 (deteriorated, definitely tortoise)				2		2
Possible Tortoise Burrow or Pallet (Class 4 or 5)		1		3	1	5
Tortoise Scat	4			11	3	18
Tortoise Bone Fragment - Mineralized		5		5	1	11
Tortoise Bone Fragment - Not Mineralized	2	37	1	6	1	47
Tortoise Carcass (shell bone falling apart; growth rings on scutes are peeling)				1		1
Tortoise Tracks				3		3

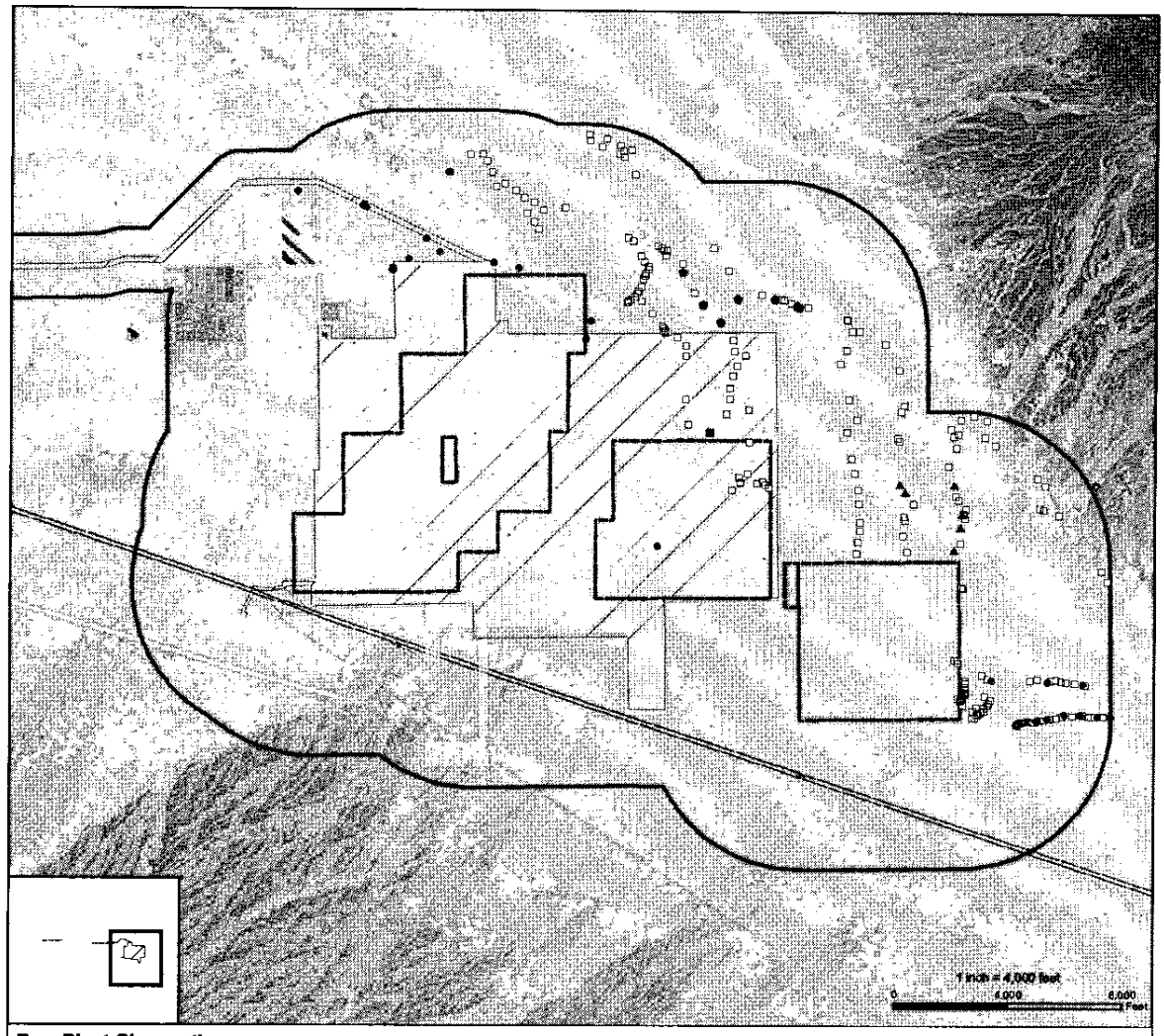
[1]This encompasses the areas where the Proposed Project Study Area and Reconfigured Alternative Study Area overlap.

Table 2. Palen Solar Power Project Rare Plant Population Counts Spring 2010[1]

Species	Proposed Project Study Area	Reconfigured Alternative Project Study Area	Propose Project/Reconfigured Alternative Study Area[2]	Buffer	Incidental Observations Outside Buffer Area	Grand Total
Atriplex canescens				920		920
Cottontop cactus	1					1
Harwood's milkvetch	4		1	172		177
Harwood's wollystar				13		13
Ribbed cryptantha	6,750	337	30	68,859		75,976
Utah milkvine					11	11

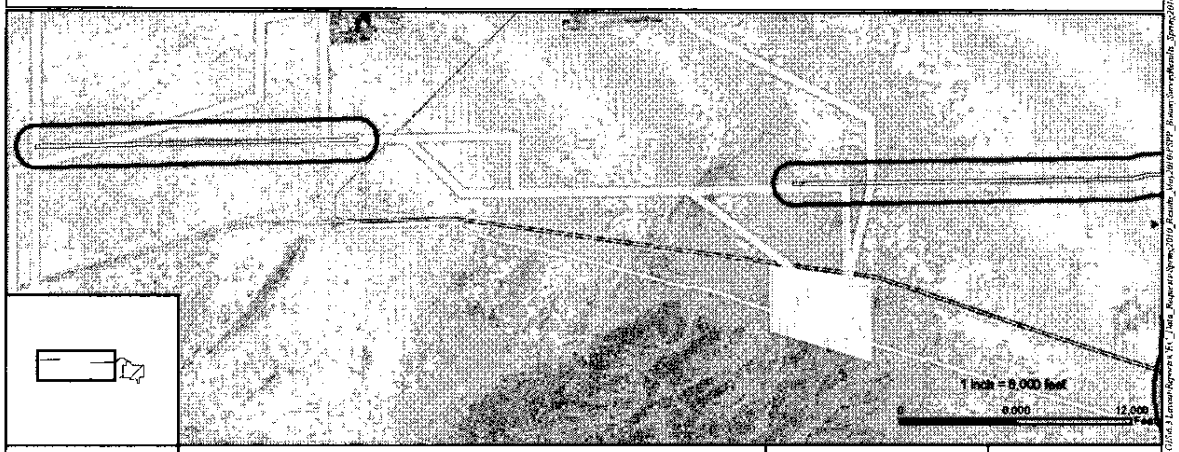
[1] Note that each point on the figure may represent multiple individuals
[2]This encompasses the areas where the Proposed Project Study Area and Reconfigured Alternative Study Area overlap.


1 inch = 4,000 feet
0
4,000
8,000
Feet
DT Observation Spring2010
Adult Tortoise
Tortoise Burrow or Pallet - Class 1 (Active)
Tortoise Scat
Tortoise Bone Fragment - Mineralized
Tortoise Bone Fragment - Not Mineralized
Tortoise Burrow or Pallet - Class 3 (Deteriorated)
Tortoise Carcass - Class 4
Tortoise Scat/Tortoise Tracks
Tortoise Tracks
Possible Tortoise Burrow or Pallet
1 inch = 8,000 feet
0
4,000
12,000
Feet
Map Location
OR
ID
NV
UT
CA
AZ
Legend
Project Study Area
Reconfigured Alternative Study Area
Study Area (Surveyed in 2009)
First Solar Study Area
Buffer Transect 1000-foot
Buffer Transect 3/4-mile
Buffer Transect 1-mile
Source: NAIP 2009, AECOM 2010, SolarMillennium 2010
Palen Solar
Power Project
Preliminary Results
Desert Tortoise
Spring 2010 Surveys
AECOM
Date: May 2010

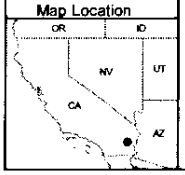


Rare Plant Observations

- Utah milkvine
- cottontop cactus
- Harwood's wollystar
- Atriplex canescens
- Harwood's milkvetch
- ribbed cryptantha



Map Location



Legend

- Project Study Area
- Reconfigured Alternative Study Area
- BRSA
- Study Area (Surveyed in 2009)
- First Solar Study Area

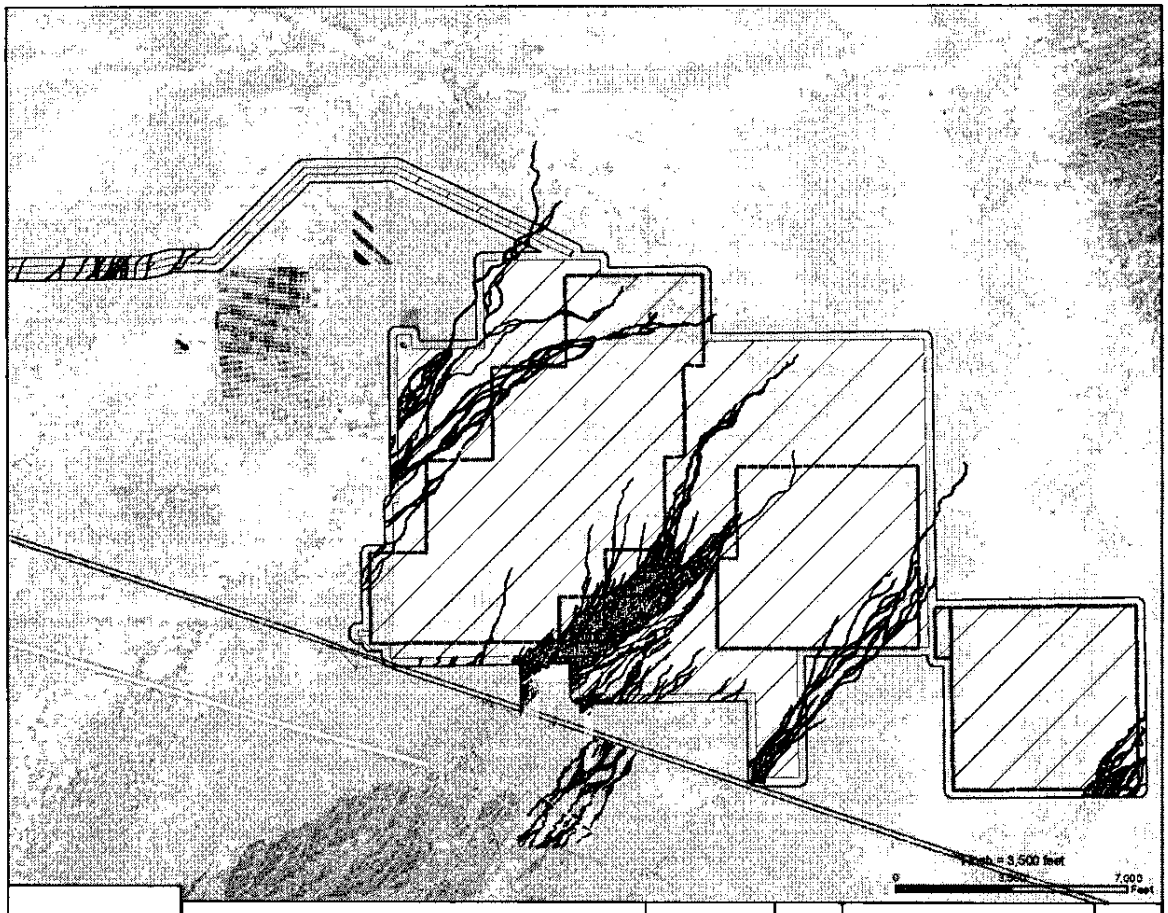
Palen Solar Power Project

Preliminary Results Botany Rare Plants Spring 2010 Surveys

Source: NAIP 2009; AECOM 2010

AECOM

Date: May 2010



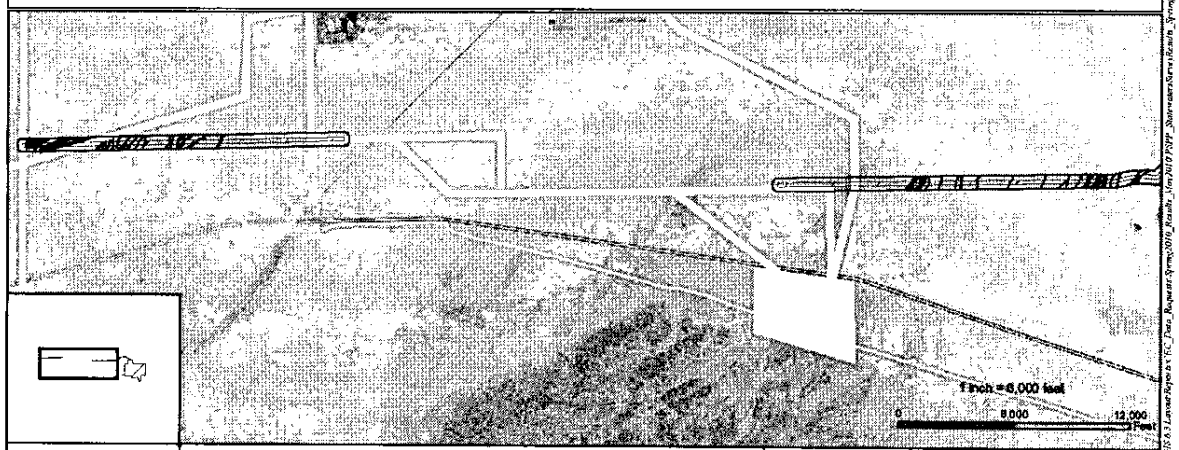
Jurisdictional Waters of the State		Project Study Area (acres)	Buffer (acres)	Reconfigured Alternative Study Area (acres)	Buffer (acres)
Desert Dry Wash Woodland	Riparian Interfluve	49.1	19.8	6.8	5.3
	Vegetated Ephemeral Dry Wash	119.3	39.1	13.6	11.8
	Wash Dependent Vegetation	1.4	0.1	0.0	0.1
Other Waters	Unvegetated Ephemeral Dry Wash	167.6	25.2	44.5	22.8

Jurisdictional Waters of the State of California

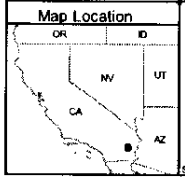
Desert Dry Wash Woodland Vegetated Ephemeral Dry Wash

Wash Dependent Vegetation **Other Waters**

Riparian Interfluve Unvegetated Ephemeral Dry Wash



Map Location



Legend

Project Study Area

Study Area (Surveyed in 2009)

250-foot Buffer Study Area

First Solar Study Area

Source: NAIP 2008, SolarMillennium 2010, AECOM 2010

Palen Solar Power Project

Preliminary Results State Waters Spring 2010 Surveys

AECOM

Date: May 2010

Attachment I

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May 27, 2010

Ms. Susan Sanders
California Energy Commission
1516 Ninth Street
Sacramento, California 95814

Subject: Palen Solar Power Project (09-AFC-7) – Preliminary Spring 2010 Survey Results Corrected and Preliminary Impact Calculations for Biological Resources

Dear Ms. Sanders:

On behalf of Palen Solar I, LLC, AECOM is submitting preliminary results of biological surveys conducted in spring 2010 for desert tortoise (*Gopherus agassizii*; DT), rare plants, jurisdictional waters, and incidental wildlife occurrences for the Palen Solar Power Project. This information was requested at the Palen and Blythe Staff Workshops conducted on April 28 and 29, 2010.

Preliminary survey results for DT, rare plants and jurisdictional waters were submitted to the CEC on May 7, 2010. The results provided herein supersede the results provided on May 7, 2010. The preliminary survey results are presented in figures and tables attached. Table 1 and Figure 1 present a summary of observations of DT sign and DT occurrences noted during spring 2010 surveys. Table 2 and Figure 2 present the rare plant population counts observed during spring 2010 surveys. Figure 3 presents the results of a formal jurisdictional delineation of waters of the State. Table 3 and Figure 4 present incidental wildlife occurrences observed during protocol surveys for DT, rare plants, western burrowing owl, and jurisdictional waters. Results from the fall and spring 2009 surveys are not included in the tables and figures for DT, rare plants or incidental wildlife occurrences. However, the jurisdictional waters figure does include results from the 2009 surveys and a table presenting the results of both survey years is provided in the figure. Please note that the results provided in Tables 1 through 3 and Figures 1, 2 and 4 are simply the results of our observations within the 100 percent coverage study area and associated buffers. These tables and figures do not represent total impacts within disturbance areas because we surveyed wider corridor widths and additional areas for contingency in the engineering design that ultimately will not be disturbed.

Figure 5 presents the additional disturbance areas surveyed in 2010 for an access road, transmission line corridor, and additional project components that are outside the 2009 project footprint. Therefore, the total Project Disturbance Area has been revised to be 4,051.1 acres. This total is still preliminary and subject to further refinement in the engineering design. A revised total disturbance area will be provided in final technical reports to be submitted to the CEC in early June.

Figure 6 present preliminary direct impacts to all cover types, including state waters, resulting from the revised Project Disturbance Area. These impact calculations are still preliminary and subject to further refinement in the engineering design. Revised impact calculations will be provided in final technical reports to be submitted to the CEC in early June.

Please let us know if you have any questions.

AECOM

Sincerely,

Mr. Bill Graham
Principal

Enclosure: Table 1. Palen Solar Power Project Desert Tortoise Observations Spring 2010
Table 2. Palen Solar Power Project Rare Plant Population Counts Spring 2010
Table 3. Palen Solar Power Project Incidental Wildlife Occurrences
Figure 1. Preliminary Results Desert Tortoise Spring 2010 Surveys
Figure 2. Preliminary Results Botany Rare Plants Spring 2010 Surveys
Figure 3. Preliminary Results State Waters Spring 2010 Surveys
Figure 4. Preliminary Results Incidental Wildlife Occurrences Spring 2010 Surveys
Figure 5. Preliminary Disturbance Areas May 2010
Figure 6. Preliminary Impacts to Cover Types May 2010
CD. Raw Data Files in Excel and Shapefiles

cc. Alice Harron, Solar Millennium
Elizabeth Ingram, Solar Millennium
Scott Galati, Solar Millennium Counsel
Mark Luttrell, AECOM

Palen Spring 2010 Preliminary Bio Survey Results Letter to CEC

AECOM

Table 1. Palen Solar Power Project Desert Tortoise Observations Spring 2010

Description	Proposed Project Study Area	Reconfigured Alternative Project Study Area	Proposed Project/Reconfigured Alternative Study Area[1]	Buffer	Incidental Observations Outside Buffer Area	Grand Total
Adult Tortoise	1			3	3	7
Active Tortoise Burrow or Pallet - Class 1				2		2
Tortoise Burrow or Pallet - Class 3 (deteriorated, definitely tortoise)	1			2		3
Possible Tortoise Burrow or Pallet (Class 4 or 5)		1		6		7
Tortoise Scat	5			10	3	18
Tortoise Bone Fragment - Mineralized	2	5		5	1	13
Tortoise Bone Fragment - Not Mineralized	3	37	1	26	1	68
Tortoise Carcass (shell bone falling apart; growth rings on scutes are peeling)				1		1
Tortoise Tracks				2	1	3

[1]This encompasses the areas where the Proposed Project Study Area and Reconfigured Alternative Study Area overlap.

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Table 2. Palen Solar Power Project Rare Plant Population Counts Spring 2010

Species	Proposed Project Study Area	Reconfigured Alternative Project Study Area	Proposed Project/Reconfigured Alternative Study Area[2]	Buffer	Incidental Observations Outside Buffer Area	Grand Total
Four wing saltbush				920		920
Cottontop cactus	1					1
Harwood's milkvetch				152		152
Harwood's wollystar		1		37		38
Ribbed cryptantha	6,750	337	30	68,859		75,976
Utah milkvine					11	11

[1] Note that each point on the figure may represent multiple individuals

[2]This encompasses the areas where the Proposed Project Study Area and Reconfigured Alternative Study Area overlap.

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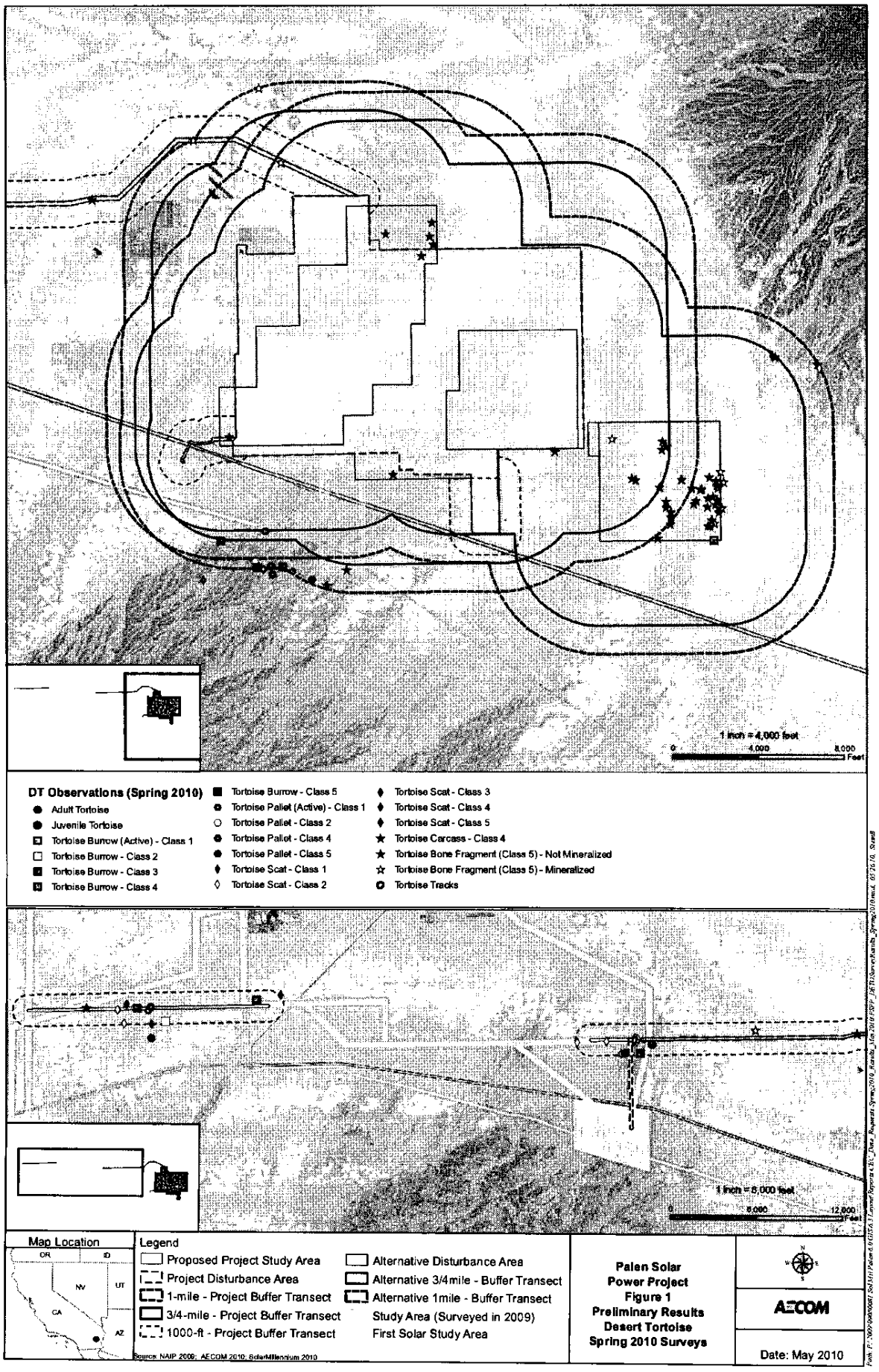
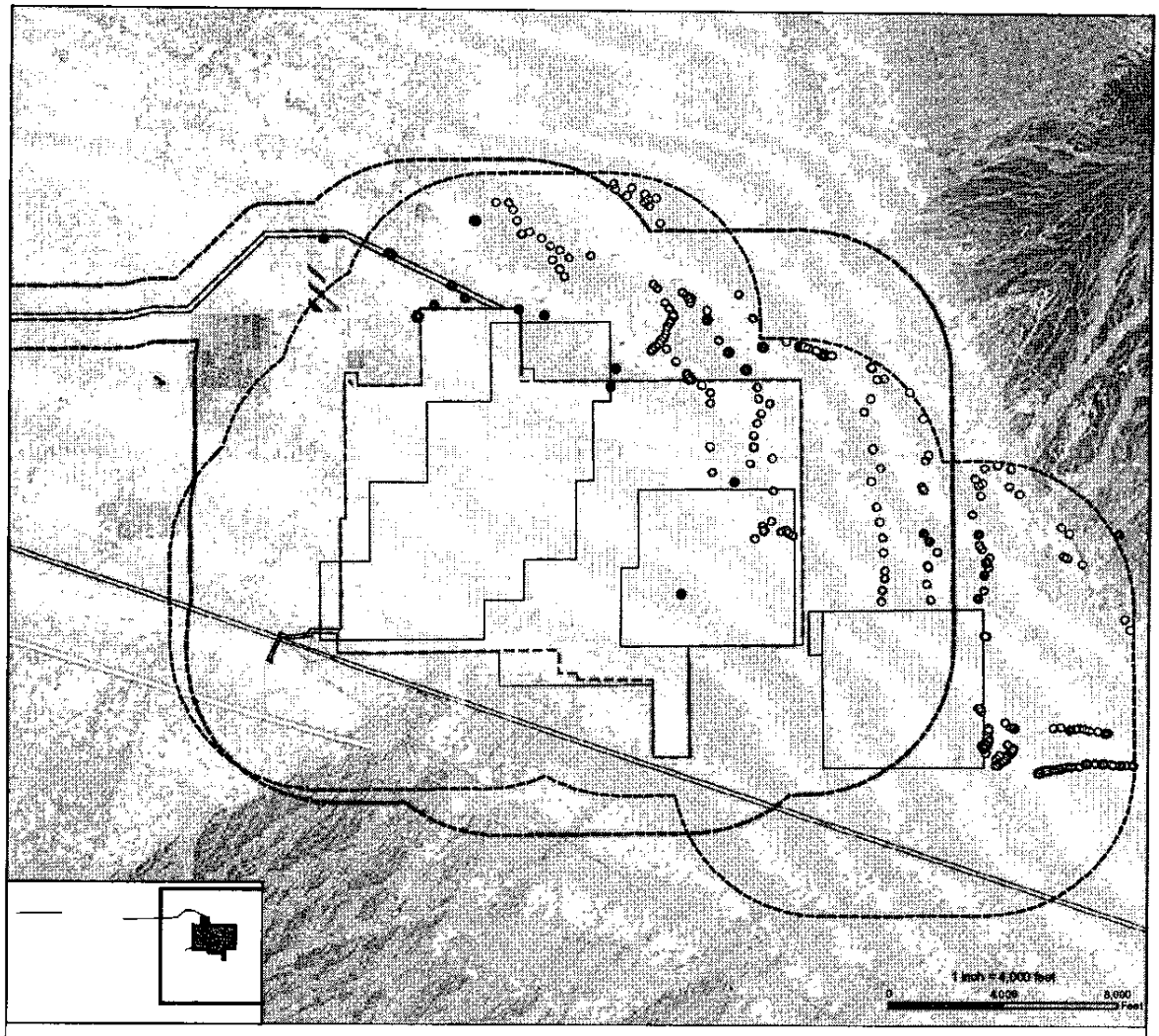
Table 3. Palen Solar Power Project Incidental Wildlife Occurrences

Species	Proposed Project Study Area	Reconfigured Alternative Project Study Area	Proposed Project/Reconfigured Alternative Study Area[1]	Buffer	Incidental Observations Outside Buffer Area	Grand Total
American Badger Den or Burrow	1	25	1	2	2	31
Ferruginous Hawk				1		1
Kit Fox Burrow or Complex	2	7		4	2	15
Loggerhead Shrike	2	1		3	3	9
Mojave Fringe-toed Lizard	5	310		62	11	388
Unidentified Woodpecker Species – Nest Cavity				1		
Northern Harrier		2		3		5
Swainson's Hawk	1	1		1		3

[1]This encompasses the areas where the Proposed Project Study Area and Reconfigured Alternative Study Area overlap.


1 inch = 4,000 feet
0
4,000
8,000
Feet
DT Observations (Spring 2010)
Adult Tortoise
Juvenile Tortoise
Tortoise Burrow (Active) - Class 1
Tortoise Burrow - Class 2
Tortoise Burrow - Class 3
Tortoise Burrow - Class 4
Tortoise Burrow - Class 5
Tortoise Pallet (Active) - Class 1
Tortoise Pallet - Class 2
Tortoise Pallet - Class 4
Tortoise Pallet - Class 5
Tortoise Scat - Class 1
Tortoise Scat - Class 2
Tortoise Scat - Class 3
Tortoise Scat - Class 4
Tortoise Scat - Class 5
Tortoise Carcass - Class 4
Tortoise Bone Fragment (Class 5) - Not Mineralized
Tortoise Bone Fragment (Class 5) - Mineralized
Tortoise Tracks
1 inch = 6,000 feet
0
6,000
12,000
Feet
Map Location
OR
ID
NV
UT
CA
AZ
Legend
Proposed Project Study Area
Project Disturbance Area
1-mile - Project Buffer Transect
3/4-mile - Project Buffer Transect
1000-ft - Project Buffer Transect
Alternative Disturbance Area
Alternative 3/4mile - Buffer Transect
Alternative 1mile - Buffer Transect
Study Area (Surveyed in 2009)
First Solar Study Area
Source: NAIP 2009; AECOM 2010; SolarMillennium 2010
Palen Solar
Power Project
Figure 1
Preliminary Results
Desert Tortoise
Spring 2010 Surveys
N
W
E
S
AECOM
Date: May 2010

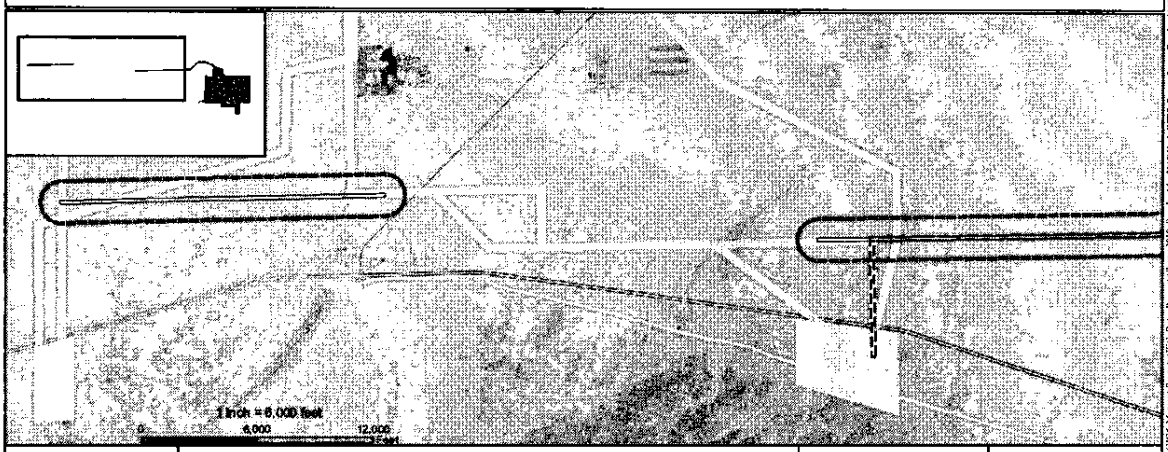


Rare Plant Observations

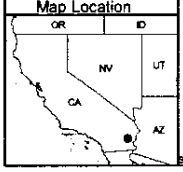
CNPS 1B and 2
- Harwood's milkvetch
- Harwood's woollystar
- four wing saltbush

CNPS List 4
- Utah milkvine
- ribbed cryptantha

BLM-requested Cactus Species
- cottontop cactus



Map Location



Legend

- Project Disturbance Area
- Proposed Project Study Area
- Proposed Project BRSA
- Study Area (Surveyed in 2009)
- First Solar Study Area
- Alternative Disturbance Area
- Reconfigured Alternative BRSA

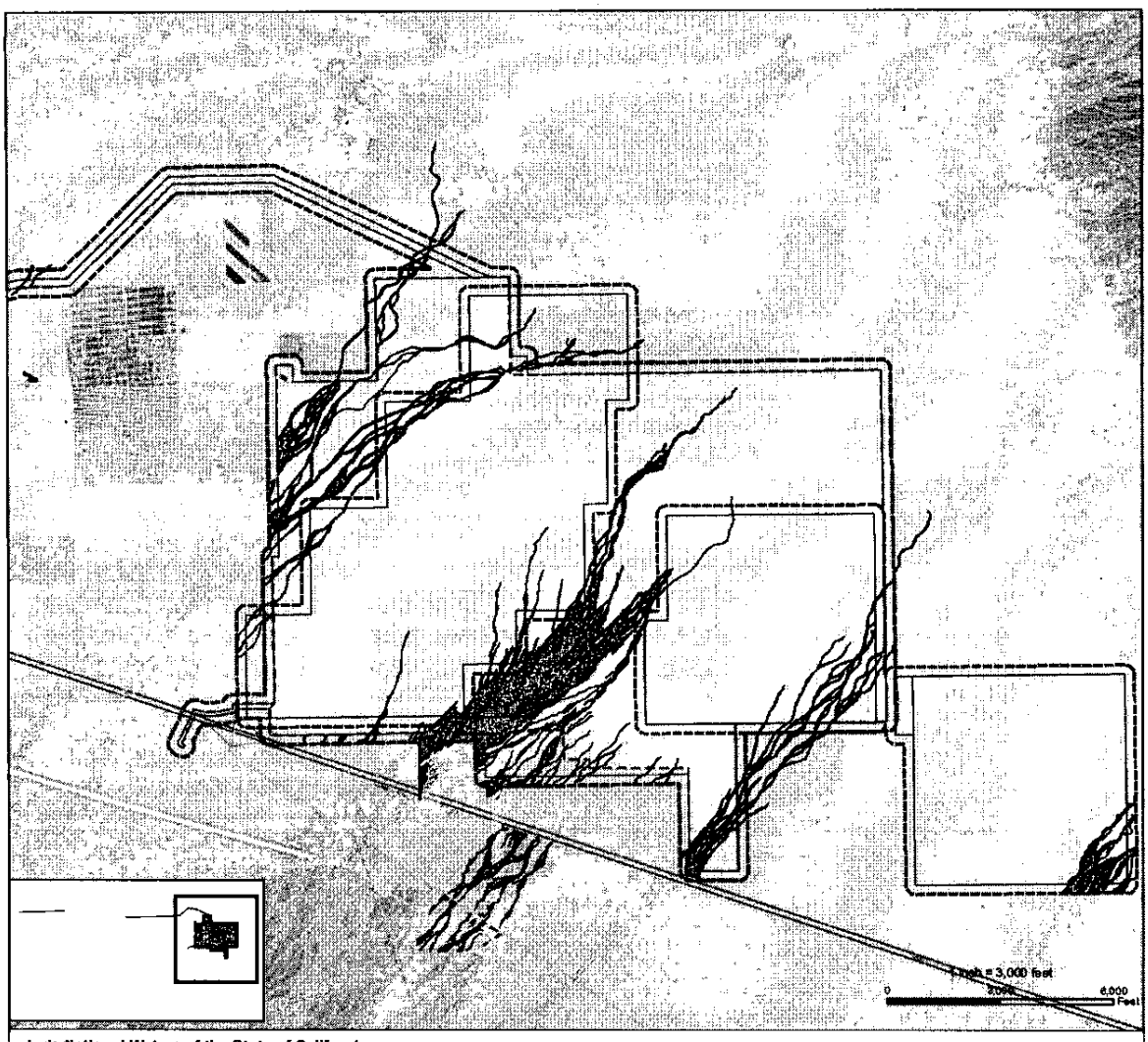
Source: NAIP 2009; AECOM 2010; SolarMillennium 2010

Palen Solar Power Project

Figure 2
Rare Plant Spring 2010 Surveys

AECOM

Date: May 2010



Jurisdictional Waters of the State of California

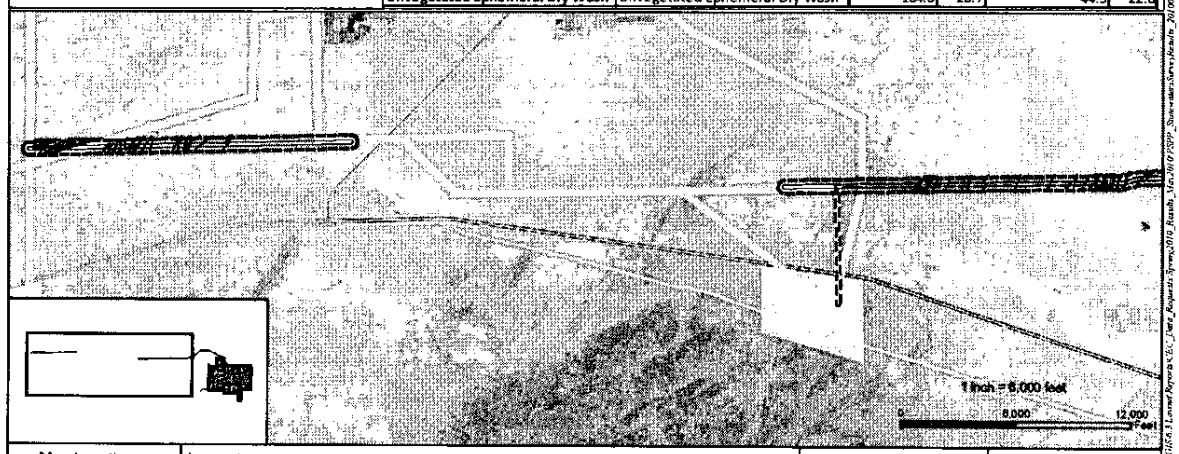
Desert Dry Wash Woodland

- Wash Dependent Vegetation
- Riparian Interfluve
- Vegetated Ephemeral Dry Wash

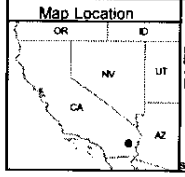
Other Waters

- Unvegetated Ephemeral Dry Wash

Jurisdictional Waters of the State		Project Disturbance Area	Buffer	Reconfigured Alternative Disturbance Area	Buffer
Desert Dry Wash Woodland	Wash Dependent Vegetation	1.3	0.2	0.01	0.1
	Riparian Interfluve	43.5	23.5	6.8	5.3
	Vegetated Ephemeral Dry Wash	99.1	61.1	13.6	11.8
Unvegetated Ephemeral Dry Wash	Unvegetated Ephemeral Dry Wash	164.0	28.7	44.5	22.8



Map Location



Legend

- Proposed Project Study Area
- Proposed Project DARSA
- Project Disturbance Area
- Reconfigured Alternative Disturbance Area
- Reconfigured Alternative DARSA
- Study Area (Surveyed in 2009)
- First Solar Study Area

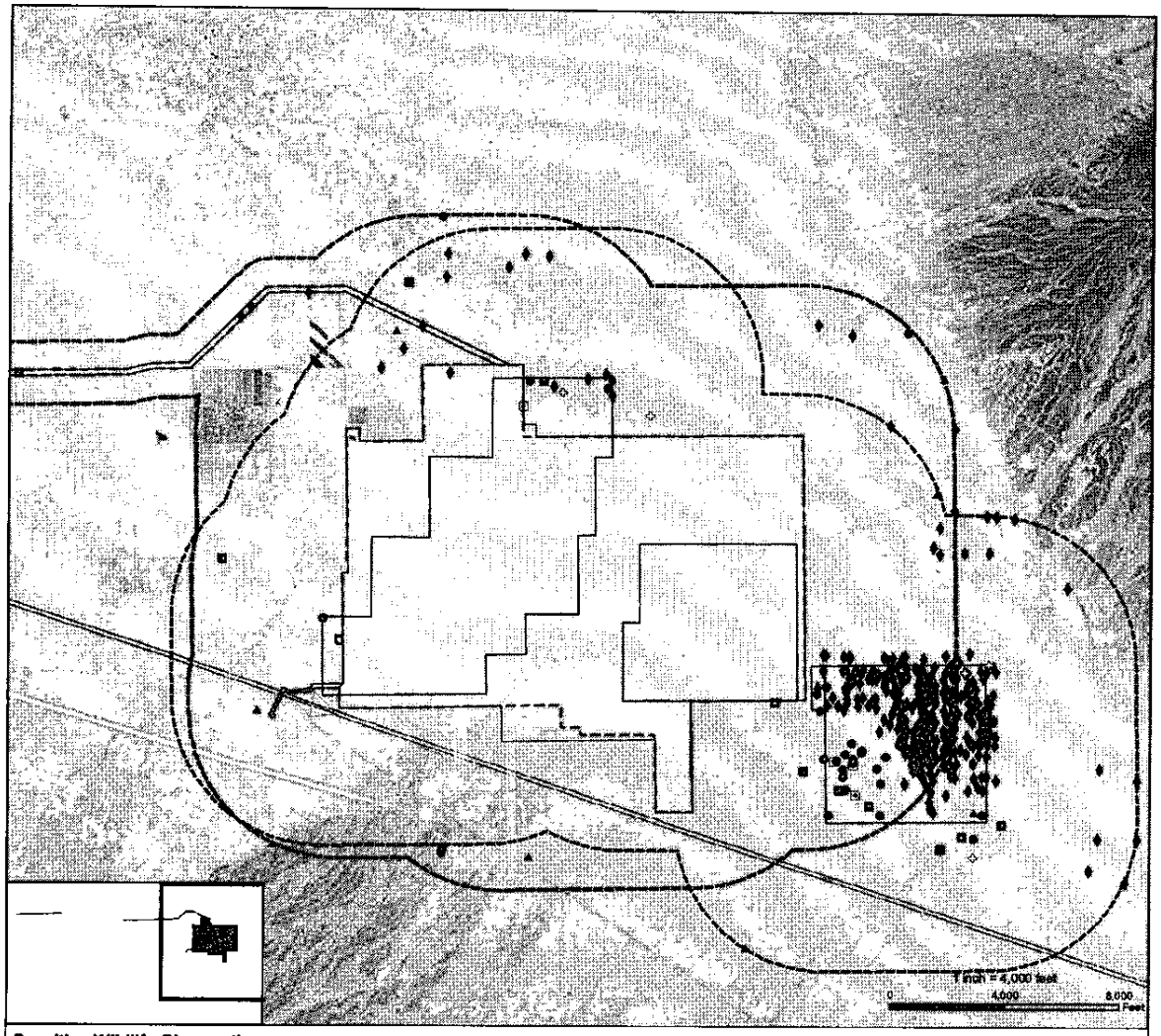
*Note: The Reconfigured Alternative Disturbance Area encompasses the disturbance caused by construction of the solar power blocks only and is not a complete engineering design.

Source: NAIP 2009; AECOM 2010; SolarMillennium 2010

Palen Solar Power Project
Figure 3
Preliminary Results State Waters Spring 2010 Surveys

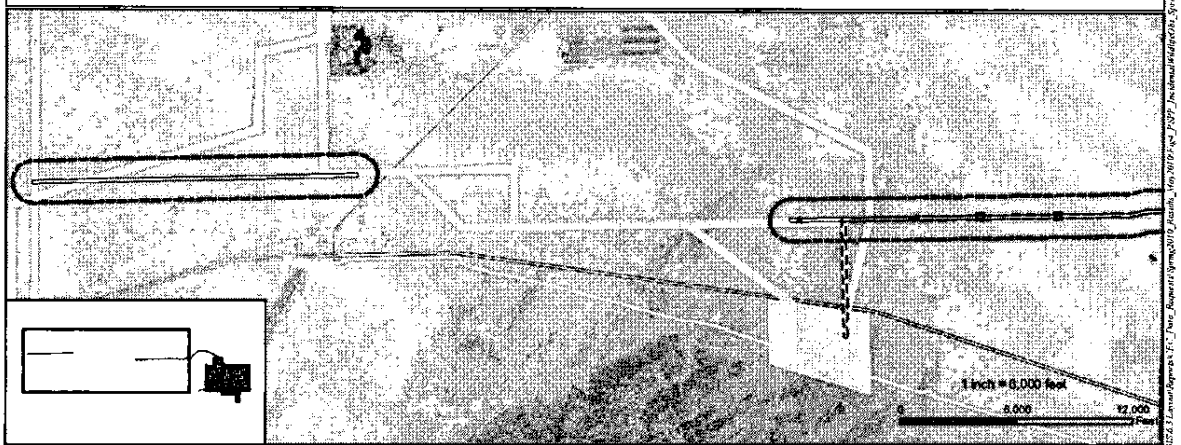
AECOM

Date: May 2010

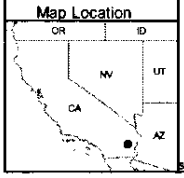


Sensitive Wildlife Observations

- American Badger Den
- Mojave fringe-toed lizard
- American Badger Predation Burrow
- Ferruginous Hawk
- Kit Fox Burrow
- Kit Fox Complex
- Loggerhead Shrike
- Nest Cavity - Unidentified Woodpecker Species
- Northern Harrier
- Swainson's Hawk



Map Location



Legend

- Proposed Project Study Area
- Project Disturbance Area
- Project Disturbance BRSA
- Reconfigured Alternative Disturbance Area
- Reconfigured Alternative BRSA
- Study Area (Surveyed in 2009)
- First Solar Study Area

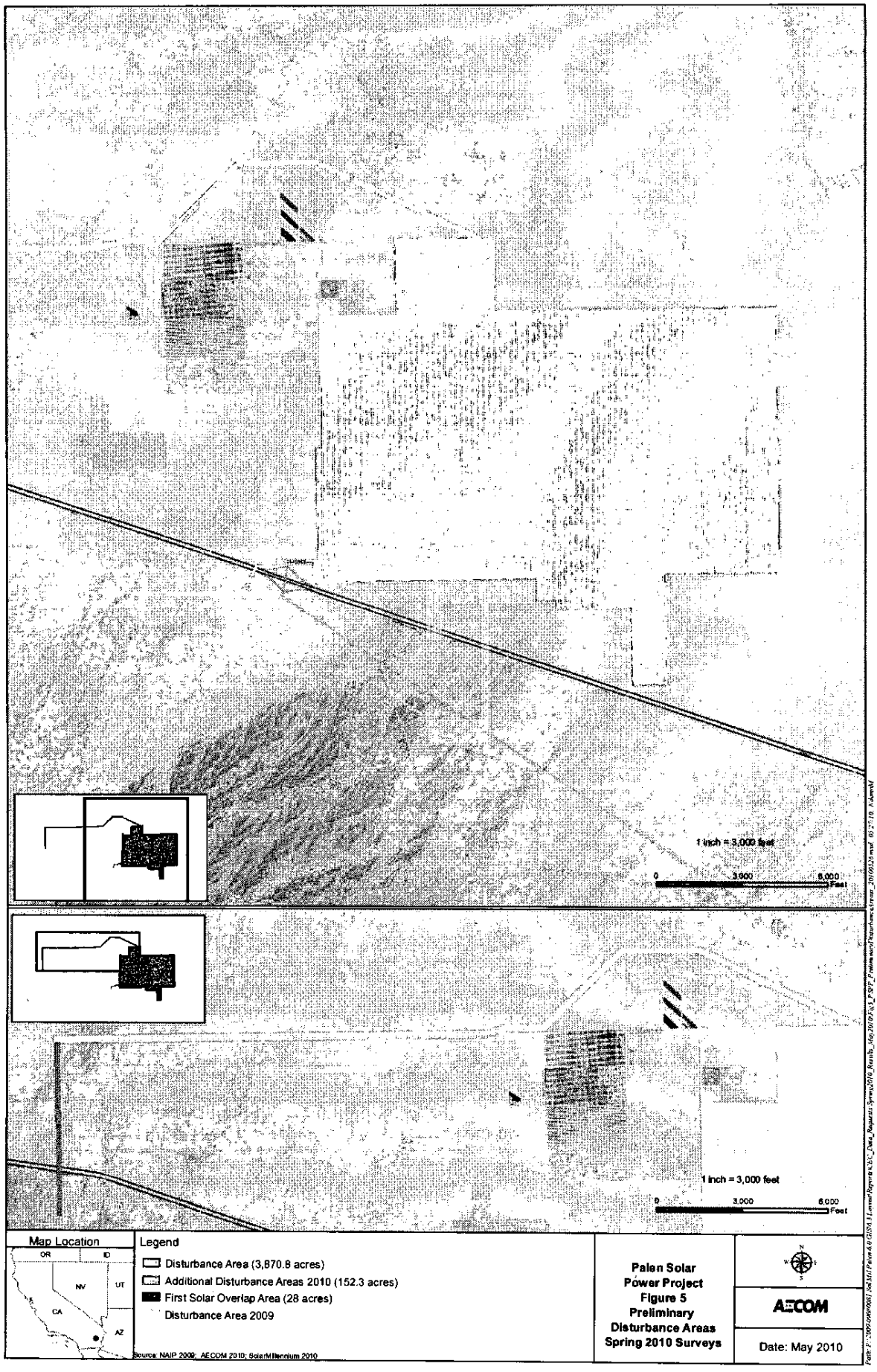
Source: NAIP 2009; AECOM 2010; SolarMillennium 2010

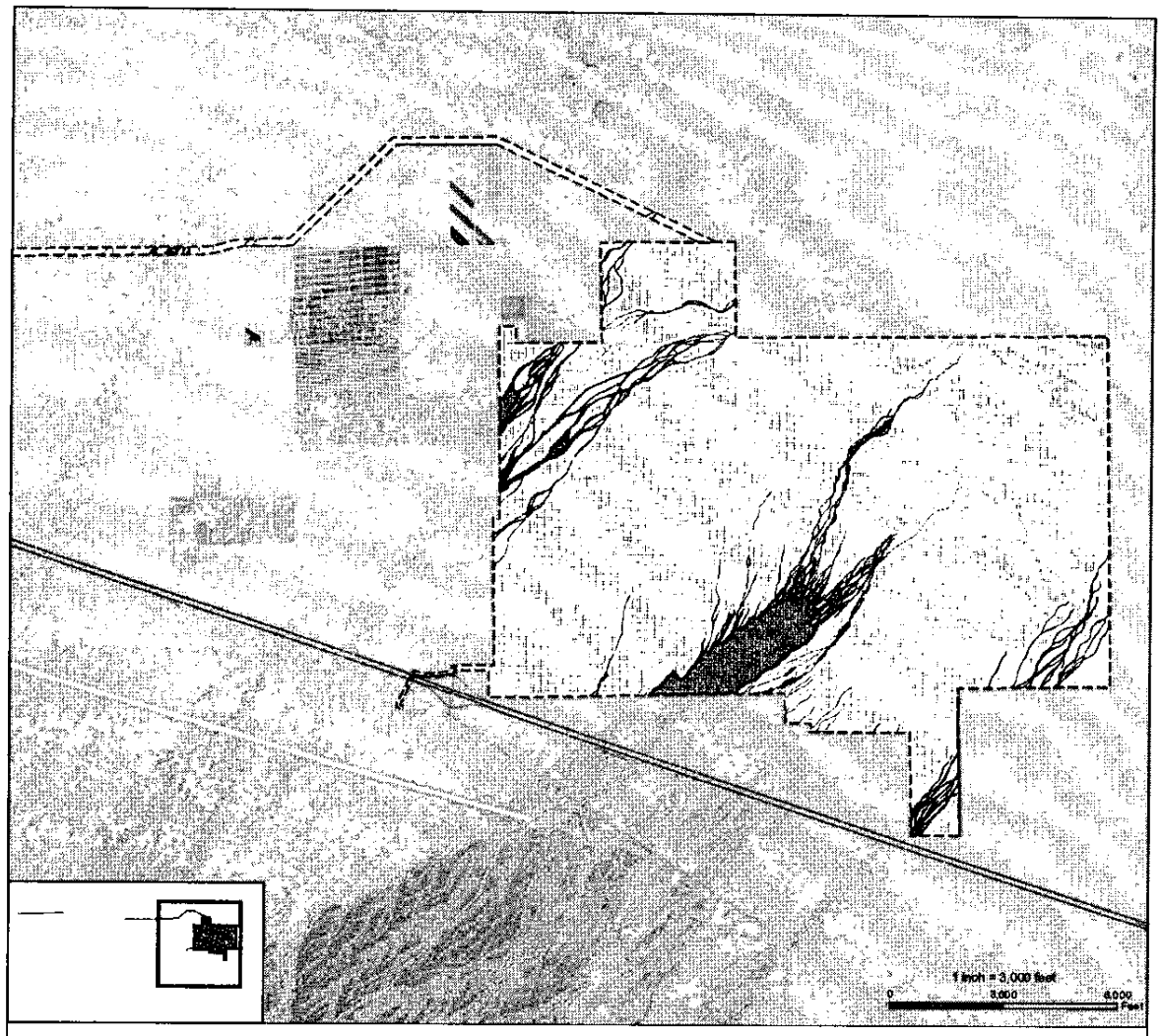
Palen Solar Power Project

Figure 4
Incidental Wildlife Observations Spring 2010 Surveys

AECOM

Date: May 2010


1 inch = 3,000 feet
0
3,000
6,000
Feet
1 inch = 3,000 feet
0
3,000
6,000
Feet
Map Location
OR
ID
NV
UT
CA
AZ
Legend
Disturbance Area (3,870.8 acres)
Additional Disturbance Areas 2010 (152.3 acres)
First Solar Overlap Area (28 acres)
Disturbance Area 2009
Source: NAIP 2009; AECOM 2010; SolarMillennium 2010
Palen Solar Power Project
Figure 5
Preliminary Disturbance Areas Spring 2010 Surveys
AECOM
Date: May 2010



Vegetation Communities

Riparian

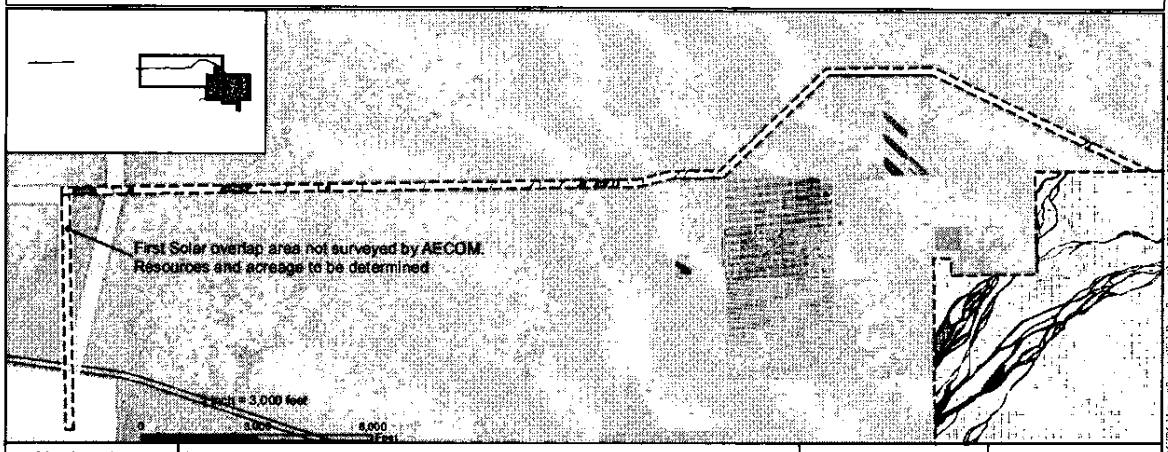
- Desert dry wash woodland (147.5 acres)
- Unvegetated ephemeral dry wash (164.0 acres)

Upland

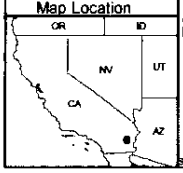
- Sonoran creosote bush scrub (3421.9 acres)
- Stabilized and partially stabilized desert dunes (284.7 acres)

Other

- Agriculture (3.0 acres)
- Developed (1.9 acres)



Map Location



Legend

- Project Disturbance Area
- First Solar Study Area

Source: NAIP 2009; AECOM 2010; SolarMillennium 2010

Palen Solar Power Project
Figure 6
Preliminary Impacts to Cover Types
May 2010

AECOM

Date: May 2010

Attachment J

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

Applications for Certification for the Calico Solar (SES Solar One) Project, Genesis Solar Energy Project, Imperial Valley (SES Solar Two) Project, Solar Millenium Blythe Project, Solar Millenium Palen Project, and Solar Millenium Ridgecrest Project. Consolidated Hearing on Issues Concerning US Bureau of Land Management Cultural Resources Data	Docket Nos. 08-AFC-13, 09-AFC-8, 08-AFC-5, 09-AFC-6, 09-AFC-7, 09-AFC-9, and 10-CRD-1

TESTIMONY OF ALFREDO ACOSTA FIGUEROA ON ISSUES CONCERNING US BUREAU OF LAND MANAGEMENT CULTURAL RESOURCES DATA

May 26, 2010

Tanya A. Gulesserian
Rachael E. Koss
Marc D. Joseph
Adams Broadwell Joseph & Cardozo
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rkoss@adamsbroadwell.com

Attorneys for the CALIFORNIA UNIONS FOR RELIABLE ENERGY

The following is the Declaration of:
Alfredo Acosta Figueroa
424 North Carlton Ave.
Blythe, Ca 92225
Phone: (760) 922-6422
E-mail: lacunadeaztlan@aol.com

Submitted To:
California Energy Commission
Hearing Room B
1516 Ninth Street
Sacramento, Ca 95814

I Alfredo Acosta Figueroa, a native of the Colorado River, born in Blythe, California, Elder/Historian and a Chemehuevi Tribal Sacred Site Monitor hereby declare:

That I for the past 55 years have been studying "The Aztec Place of Origin," Aztlán/Chicomozstoc/Hue-Hue-Tlapallan, here in the surrounding Palo Verde/Parker Valleys. The author of the book "Ancient Footprints of the Colorado River," published in May 2002.

That in 1975 we organized opposition against the Sun Desert Nuclear Power Plant proposed to be built at the base of the Sacred Mule Mountains ("Calli" in Nahuatl & "Hamoc-Avi" in Mojave) stopping the project in 1979.

That in 1992 we organized the Colorado River Anti-Ward Valley Coordinating Committee and after 8-years stopped the proposed Ward Valley Nuclear Toxic Dump located in between the Sacred Turtle and Avi-Kawme (Spirit Mountain located 15 miles west of Laughlin, Nevada) Mountains.

That in 2000 we organized La Cuna de Aztlán Sacred Sites Protection Circle under the auspices of La Escuela de la Raza Unida, said circle is comprised of 15 individuals dedicated to physically protecting the Sacred Sites and that on February 15, 2008 were given a Memorandum of Understanding together with the Southern Low Desert Resource Conservation & Development Council to partnership for protection of cultural resources, that included the Blythe Giant Intaglios, other geoglyphs and several hundred Sacred Sites that are located along the Colorado River from Needles, Ca down to Yuma, Az.

I hereby state:

That we oppose the certification by the California Energy Commission and the issuing of public land by the Bureau of Land Management to the following proposed solar power projects:

1) Genesis Solar Energy Project: 09-AFC-8
2) Solar Millennium Blythe Project: 09-AFC-6
3) Solar Millennium Palen Project: 09-AFC-7

Our investigations concerning the above projects are located in Eastern Riverside County along the I-10 corridor that is the most Sacred area of the North American Continent. It is the area where the Aztec Calendar is geographically outlined and located. The area entails from the Kofa Mountains in Arizona, west to the human head image (Copill-Quetzalli) on the crest of the San Jacinto Mountains above the city of Palm Springs, Ca.

The proposed Blythe Solar Power Project is overlaid on more than 25 large geoglyphs that we have found throughout the area. They include the world known image of Kokopilli, Cicimitl (The Great Spirit that takes human spirits to their final resting place in the Topock Maze, "Mictlan"). Included in the area is the image of Tosco, over 5 large windrow mazes, a 9-level pyramid and over 25 Sacred images (that we have not yet deciphered).

The main East/West & North/South trails all lead to and from the Blythe Giant Intaglios. One trail leads to Kokopilli and Cicimitl which traverses west through the south end of the McCoy Mountains to the McCoy Springs. Here the image of Quetzalcoatl takes a bath then goes to the Palen Mountains "Hue-Hue-Tlapallan" (Reddish Earth), were he is lead to the underworld by Xolotl (The Dog), as shown in the petroglyphs at the Palen Mountain Mural Wash.

The trail comes down from the Palen Mountain Wash and meets with another trail from the McCoy Springs area that is in the Genesis project. The trail then runs west along the plains of the Palen Mountains then crossed southwest towards the Chuckawalla Mountains were it meets the main trail coming west from the Mule Mountains towards Desert Center, Ca. These two trails meet at the proposed Palen Mountain Project and the southwest trail leads towards Corn Springs (Tula) located in the center of the Chuckwalla Mountains.

On February 2009, we took 2 archeologists, Jeffery Adams and Joe that had contacts with the BLM to document all the geoglyphs along the Colorado River which included the Sacred Sites of Kokopilli and Cicimitl.

On March 2, 2010 we took John Kalish, Bureau of Land Management Field Manager and George Kline, archeologist of the Palm Springs, California office to the Blythe Power Project area and took them on an onsite tour which included 5 large geoglyphs and the images of Kokopilli and Cicicmitl. Unfortunately, we have not yet received a report of the investigations.

Please feel free to contact me with any questions regarding the Sacredness of the areas.

Sincerely,

Alfredo Acosta Figueroa

Alfredo Acosta Figueroa

Attachment K

STATE OF CALIFORNIA - THE NATURAL RESOURCES AGENCY ARNOLD SCHWARZENEGGER, Governor

COLORADO RIVER BOARD OF CALIFORNIA
770 FAIRMONT AVENUE, SUITE 100
GLENDALE, CA 91203-1068
(818) 500-1625
(818) 543-4685 FAX

DOCKET
09-AFC-7
DATE MAR 22 2010
RECD. APR 01 2010

March 22, 2010

Mr. Alan H. Solomon
Project Manager
Siting, Transmission and Environmental
Protection Division
California Energy Commission
1516 Ninth Street, MS 15
Sacramento, CA 95814-5512

Dear Mr. Solomon:

The Colorado River Board of California (Board), created in 1937, is the State agency charged with safeguarding and protecting the rights and interests of the State, its agencies and citizens, in the water and power resources of the seven-state Colorado River System.

The Board has received and reviewed the California Energy Commission's (CEC) documents Nos. Docket 09-AFC-6 and 09-AFC-7: Request for Agency Participation in the Review of the Blythe and the Palen Solar Power Projects in Riverside County, California, Distribution of Application for Certification. Both the Blythe and the Palen Solar Power Projects are proposed to be located in the Southern California inland desert. The applicants for both the Blythe and the Palen Projects are seeking a right-of-way grant for approximately 9,400 acres and 5,200 acres, respectively, of Federal lands that are administered by the Bureau of Land Management (BLM). The total water consumption during the operational period for the Blythe and the Palen Projects is estimated to be 628 and 314 acre-feet per year over the 30-year license period, respectively. In addition during construction, the water use is estimated to be 3,164 and 1,560 acre-feet for the two projects, respectively. The water supply for each project will be pumped groundwater from on-site wells.

According to the Consolidated Decree of the Supreme Court of the United States in the case of *Arizona v. California, et al.* entered March 27, 2006, (547 U.S. 150 (2006)), the consumptive use of water means "diversion from the stream less such return flow thereto as is available for consumptive use in the United States or in satisfaction of the Mexican treaty obligation" and consumptive use "includes all consumptive uses of water of the mainstream, including water drawn from the mainstream by underground pumping." Also, pursuant to the 1928 Boulder Canyon Project Act (BCPA) and the Consolidated Decree, no water shall be delivered from storage or used by any water user without a valid contract between the Secretary of the Interior and the water user for such use, i.e., through a BCPA Section 5 contract. Within California, BCPA Section 5 contracts have previously been entered into between users of Colorado River mainstream water and the Secretary of the Interior for water from the Colorado River that exceeds California's basic entitlement to use Colorado River water as set forth in the Consolidated Decree. Thus, no additional Colorado River water is available for use by new

PROOF OF SERVICE (REVISED 4/5/10) FILED WITH
ORIGINAL MAILED FROM SACRAMENTO ON 4/15/10
HA

project proponents along the Colorado River, except through the contract of an existing BCPA Section 5 contract holder, either by direct service or through an exchange of non-Colorado River water for Colorado River water.

The Federal lands proposed for both the Blythe and Palen Projects are located within the "Accounting Surface" area designated by U.S. Geological Survey Water Investigation Report Nos. 94-4005 and 00-4085 (USGS Report). This USGS Report indicates that the aquifer underlying lands located within the "Accounting Surface" is considered hydraulically connected to the Colorado River and groundwater withdrawn from lands underlying the "Accounting Surface" would be replaced by Colorado River water, in total or in part. This means that if it is determined that these wells are, in fact, pumping Colorado River water, a contract with the Secretary of the Interior is required before such a use is deemed to be a legally authorized use of this groundwater.

On November 9, 2009, the Board received applications for Lower Colorado Water Supply Project water for the Blythe and the Palen Solar Power Projects from the projects' consultant/proponent, Mr. Josef Eichhammer of Solar Millennium, LLC. This project, enacted by Congress on November 14, 1986, as the Lower Colorado Water Supply Project Act of 1986 (Act) authorized construction of the Lower Colorado Water Supply Project (LCWSP) and appropriated funds for the U.S. Bureau of Reclamation (Reclamation) to construct Phase I of the Project. The LCWSP consists of well field facilities in the Sand Hills along the All-American Canal in Imperial County. The LCWSP is authorized to provide exchange water up to a total amount of 10,000 acre-feet per year for nonagricultural use to those users of Colorado River water along the Colorado River, who do not have an existing Section 5 BCPA contractual entitlement or whose entitlement to use Colorado River is insufficient to meet their needs. Under a "first come first serve" priority basis, the Board has reviewed applications that it has received and, to date, recommended to Reclamation that applicants for LCWSP water in the amount of about 7,500 acre-feet per year are eligible to receive LCWSP water. At this time, the capacity to pump the fully authorized volume of 10,000 acre-feet of water per year has not been constructed. Furthermore, when the Congress passed the Act authorizing the LCWSP, water for large scale solar power/energy projects was not envisioned. Considering these two factors it does not appear that LCWSP water is a viable option for the Blythe and Palen Projects.

Based upon the applications for LCWSP water that were received from Solar Millennium for the Blythe and the Palen Solar Power Projects, several meetings and telephone conference calls have been held among the solar power projects consultants/proponents, Reclamation, BLM, Board's staff, and others. As a result of discussions in these meetings, the Board's staff has identified a preferred option for obtaining a legally authorized and reliable water supply for both the Blythe and the Palen Solar Power Projects over the life of the project that fits into the timeframe that has been established by Solar Millennium. That option involves obtaining water through an existing Section 5 BCPA contract holder, The Metropolitan Water District of Southern California (MWD). Although other options may be available, they, in the Board's opinion, could not be implemented in a timely manner and address the requirement that water consumptively used

from the Colorado River must be through a Section 5 BCPA contractual entitlement.

If you have any questions or need further information, please contact me at (818) 500-1625.

Sincerely,

Gerald R. Zimmerman
Executive Director

cc: Ms. Lorri Gray-Lee, Regional Director, Lower Colorado Region, U.S. Bureau of Reclamation
Ms. Holly Roberts, Associate Field Manager, Palm Springs-South Coast Field Office, BLM
Ms. Eileen Allen, Manager, Energy Facilities Siting and Dockets Office, CEC
Dr. Jeffrey G. Harvey, Principal & Senior Scientist, Harvey Meyerhoff Consulting Group
Mr. Gavin Berg, Project Manager, Solar Millennium LLC
Mr. William J. Hasencamp, Manager, Colorado River Resources, The Metropolitan Water District of Southern California

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION FOR THE *PALEN SOLAR POWER PLANT PROJECT*

Docket No. 09-AFC-7

PROOF OF SERVICE
(Revised 4/5/10)

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Marc D. Joseph
***Jason W. Holder**
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Jennifer Jennings
Public Adviser's Office
publicadviser@energy.state.ca.us

*indicates change

DECLARATION OF SERVICE

I, Hilarie Anderson, declare that on April 15, 2010, I served and filed a copy of the attached Letter from the Colorado River Board of California. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [http://www.energy.ca.gov/sitingcases/solar_millennium_palen]

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

FOR SERVICE TO ALL OTHER PARTIES:

__x__ sent electronically to all email addresses on the Proof of Service list;

____ by personal delivery;

__x__ by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses **NOT** marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

__x__ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

OR

____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-7
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

Original Signature in Dockets
Hilarie Anderson

RECEIVED
APR 19 2010
ADAMS BROADWELL JOSEPH & CARDOZO

*indicates change

Attachment L

Audubon California * California Wilderness Coalition * Defenders of Wildlife
Desert Protective Council * Mojave Desert Land Trust
Natural Resources Defense Council * Sierra Club * The Nature Conservancy
The Wilderness Society * The Wildlands Conservancy

Renewable Siting Criteria for California Desert Conservation Area

Environmental stakeholders have been asked by land management agencies, elected officials, other decision-makers, and renewable energy proponents to provide criteria for use in identifying potential renewable energy sites in the California Desert Conservation Area (CDCA). Large parts of the California desert ecosystem have survived despite pressures from mining, grazing, ORV, real estate development and military uses over the last century. Now, utility scale renewable energy development presents the challenge of new land consumptive activities on a potentially unprecedented scale. Without careful planning, the surviving desert ecosystems may be further fragmented, degraded and lost.

The criteria below primarily address the siting of solar energy projects and would need to be further refined to address factors that are specific to the siting of wind and geothermal facilities. While the criteria listed below are not ranked, they are intended to inform planning processes and were designed to provide ecosystem level protection to the CDCA (including public, private and military lands) by giving preference to disturbed lands, steering development away from lands with high environmental values, and avoiding the deserts' undeveloped cores. They were developed with input from field scientists, land managers, and conservation professionals and fall into two categories: 1) areas to prioritize for siting and 2) high conflict areas. The criteria are intended to guide solar development to areas with comparatively low potential for conflict and controversy in an effort to help California meet its ambitious renewable energy goals in a timely manner.

Areas to Prioritize for Siting

- Lands that have been mechanically disturbed, i.e., locations that are degraded and disturbed by mechanical disturbance:
  - Lands that have been "type-converted" from native vegetation through plowing, bulldozing or other mechanical impact often in support of agriculture or other land cover change activities (mining, clearance for development, heavy off-road vehicle use).[1]
- Public lands of comparatively low resource value located adjacent to degraded and impacted private lands on the fringes of the CDCA:[2]
  - Allow for the expansion of renewable energy development onto private lands.
  - Private lands development offers tax benefits to local government.
- Brownfields:
  - Revitalize idle or underutilized industrialized sites.
  - Existing transmission capacity and infrastructure are typically in place.
- Locations adjacent to urbanized areas:[3]
  - Provide jobs for local residents often in underserved communities;
  - Minimize growth-inducing impacts;

- Provide homes and services for the workforce that will be required at new energy facilities;
- Minimize workforce commute and associated greenhouse gas emissions.

o Locations that minimize the need to build new roads.
o Locations that could be served by existing substations.
o Areas proximate to sources of municipal wastewater for use in cleaning.
o Locations proximate to load centers.
o Locations adjacent to federally designated corridors with existing major transmission lines.[4]

High Conflict Areas

In an effort to flag areas that will generate significant controversy the environmental community has developed the following list of criteria for areas to avoid in siting renewable projects. These criteria are fairly broad. They are intended to minimize resource conflicts and thereby help California meet its ambitious renewable goals. The criteria are not intended to serve as a substitute for project specific review. They do not include the categories of lands within the California desert that are off limits to all development by statute or policy.[5]

o Locations that support sensitive biological resources, including: federally designated and proposed critical habitat; significant[6] populations of federal or state threatened and endangered species,[7] significant populations of sensitive, rare and special status species,[8] and rare or unique plant communities.[9]
o Areas of Critical Environmental Concern, Wildlife Habitat Management Areas, proposed HCP and NCCP Conservation Reserves.[10]
o Lands purchased for conservation including those conveyed to the BLM.[11]
o Landscape-level biological linkage areas required for the continued functioning of biological and ecological processes.[12]
o Proposed Wilderness Areas, proposed National Monuments, and Citizens' Wilderness Inventory Areas.[13]
o Wetlands and riparian areas, including the upland habitat and groundwater resources required to protect the integrity of seeps, springs, streams or wetlands.[14]
o National Historic Register eligible sites and other known cultural resources.
o Locations directly adjacent to National or State Park units.[15]

EXPLANATIONS

[1] Some of these lands may be currently abandoned from those prior activities, allowing some natural vegetation to be sparsely re-established. However, because the desert is slow to heal, these lands do not support the high level of ecological functioning that undisturbed natural lands do.

[2] Based on currently available data.

[3] Urbanized areas include desert communities that welcome local industrial development but do not include communities that are dependent on tourism for their economic survival.

[4] The term "federally designated corridors" does not include contingent corridors.

[5] Lands where development is prohibited by statute or policy include but are not limited to: National Park Service units; designated Wilderness Areas; Wilderness Study Areas; BLM National Conservation Areas; National Recreation Areas; National Monuments; private preserves and reserves; Inventoried Roadless Areas on USFS lands; National Historic and National Scenic Trails; National Wild, Scenic and Recreational Rivers; HCP and NCCP lands precluded from development; conservation mitigation

banks under conservation easements approved by the state Department of Fish and Game, U.S. Fish and Wildlife Service or Army Corps of Engineers a; California State Wetlands; California State Parks; Department of Fish and Game Wildlife Areas and Ecological Reserves; National Historic Register sites.

[6] Determining "significance" requires consideration of factors that include population size and characteristics, linkage, and feasibility of mitigation.

[7] Some listed species have no designated critical habitat or occupy habitat outside of designated critical habitat. Locations with significant occurrences of federal or state threatened and endangered species should be avoided even if these locations are outside of designated critical habitat or conservation areas in order to minimize take and provide connectivity between critical habitat units.

[8] Significant populations/occurrences of sensitive, rare and special status species including CNPS list 1B and list 2 plants, and federal or state agency species of concern.

[9] Rare plant communities/assemblages include those defined by the California Native Plant Society's Rare Plant Communities Initiative and by federal, state and county agencies.

[10] ACECs include Desert Tortoise Desert Wildlife Management Areas (DWMAs). The CDCA Plan has designated specific Wildlife Habitat Management Areas (HMAs) to conserve habitat for species such as the Mohave ground squirrel and bighorn sheep. Some of these designated areas are subject to development caps which apply to renewable energy projects (as well as other activities).

[11] These lands include compensation lands purchased for mitigation by other parties and transferred to the BLM and compensation lands purchased directly by the BLM.

[12] Landscape-level linkages provide connectivity between species populations, wildlife movement corridors, ecological process corridors (e.g., sand movement corridors), and climate change adaptation corridors. They also provide connections between protected ecological reserves such as National Park units and Wilderness Areas. The long-term viability of existing populations within such reserves may be dependent upon habitat, populations or processes that extend outside of their boundaries. While it is possible to describe current wildlife movement corridors, the problem of forecasting the future locations of such corridors is confounded by the lack of certainty inherent in global climate change. Hence the need to maintain broad, landscape-level connections. To maintain ecological functions and natural history values inherent in parks, wilderness and other biological reserves, trans-boundary ecological processes must be identified and protected. Specific and cumulative impacts that may threaten vital corridors and trans-boundary processes should be avoided.

[13] Proposed Wilderness Areas: lands proposed by a member of Congress to be set aside to preserve wilderness values. The proposal must be: 1) introduced as legislation, or 2) announced by a member of Congress with publicly available maps. Proposed National Monuments: areas proposed by the President or a member of Congress to protect objects of historic or scientific interest. The proposal must be: 1) introduced as legislation or 2) announced by a member of Congress with publicly available maps. Citizens' Wilderness Inventory Areas: lands that have been inventoried by citizens groups, conservationists, and agencies and found to have defined "wilderness characteristics." The proposal has been publicly announced.

[14] The extent of upland habitat that needs to be protected is sensitive to site-specific resources. For example: the NECO Amendment to the CDCA Plan protects streams within a 5-mile radius of Townsend big-eared bat maternity roosts; aquatic and riparian species may be highly sensitive to changes in groundwater levels.

[15] Adjacent: lying contiguous, adjoining or within 2 miles of park or state boundaries. (Note: lands more than 2 miles from a park boundary should be evaluated for importance from a landscape-level linkage perspective, as further defined in footnote 12).

Attachment M

Abandoned Private Farmland - Eastern Riverside County

Legend

- City Boundaries
- Highways
- Abandoned Farmland

Total Abandoned Farmland shown is approximately 9,000 acres

N

CVAG

Map by
Nicholas Peihl,
Coachella Valley
Association of Governments

Background Imagery is
National Agriculture Imagery Program, 2005

Map Document: (F:\npeihl\SDE Projects\AbandonedFarmland_ERivCty.mxd)
10/2/2008 – 12:09:36 PM

0 2.5 5 10 15 20 Miles

Disclaimer: Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. CVAG and the County of Riverside make no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assume no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

Comment Letter 7

"Michael J. Connor" <mjconnor@westernwatersheds.org>
07/01/2010 03:34 PM

To CAPSSolarPalen@blm.gov, Allison Shaffer <Allison_Shaffer@blm.gov>
cc asolomon@energy.state.ca.us
bcc
Subject Comments on Palen Solar Power Plant DEIS

Dear Ms. Shaffer:

Attached please find Western Watersheds Project's comments on the Draft Environmental Impact Statement/Staff Assessment for the Chevron Energy Solutions/Solar Millennium Palen Solar Power Plant (PSPP) and Possible California Desert Conservation Area Plan Amendment.

Could you please respond to this email to confirm that you received and could open the attached file?

Thank you.

Michael Connor

--
****
Michael J. Connor, Ph.D.
California Director
Western Watersheds Project
P.O. Box 2364
Reseda, CA 91337-2364
(818) 345-0425
http://www.westernwatersheds.org
****

07-01-10-WWPCommentsPalenSolarMilleniumDEIS.pdf

Michael J. Connor, Ph.D.
California Director
P.O. Box 2364, Reseda, CA 91337-2364
Tel: (818) 345-0425
Email: mjconnor@westernwatersheds.org
Web site: www.westernwatersheds.org

Working to protect and restore Western Watersheds

July 1, 2010

By Email

Allison Shaffer, Project Manager
Palm Springs South Coast Field Office
Bureau of Land Management
1201 Bird Center Drive
Palm Springs, CA 92262

< CAPSSolarPalen@blm.gov >
< asolomon@energy.state.ca.us >

Re: Draft Environmental Impact Statement/Staff Assessment for the Chevron Energy Solutions/Solar Millennium Palen Solar Power Plant (PSPP) and Possible California Desert Conservation Area Plan Amendment.

Dear Ms. Shaffer:

On behalf of Western Watersheds Project and myself, please accept the following comments on the Draft Environmental Impact Statement/Staff Assessment for the Chevron Energy Solutions/Solar Millennium Palen Solar Power Plant (Palen Solar Power Plant) and Possible California Desert Conservation Area Plan Amendment.

Western Watersheds Project works to protect and conserve the public lands, wildlife and natural resources of the American West through education, scientific study, public policy initiatives, and litigation. Western Watersheds Project and its staff and members use and enjoy the public lands, including the lands at issue here, and its wildlife, cultural and natural resources for health, recreational, scientific, spiritual, educational, aesthetic, and other purposes.

Western Watersheds Project submitted scoping comments for this project on December 23, 2009. We have attached a copy of those comments to this letter. We hereby incorporate by reference the entire contents of that scoping letter into these comments.

The Palen Solar Power Plant is a massive project will have significant direct, indirect and cumulative impacts on some of the desert's most sensitive biological resources and on important cultural resources. Specific issues of concern that we have identified in the DEIS include:

(1) Range of Alternatives.

The NEPA implementing regulations specify that NEPA documents must analyze a full range of alternatives. Based on the information and analysis presented in the sections on the Affected Environment (40 C.F.R. § 1502.15) and the Environmental Consequences (40 C.F.R. § 1502.16), the NEPA document should present the environmental impacts of the proposed action and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public. In order to comply with the spirit and letter of NEPA, the EIS must consider alternatives that meet the project goals and not simply propose "straw man" alternatives that can then be dismissed from further consideration. 7-01

The DEIS should be revised to include alternatives that meet the project need but that avoid the significant impacts to biological resources and to ecological processes that they depend upon such as sand flow.

(2) Desert Tortoise.

The NEPA requires agencies to take a "hard look" at the environmental effects of a project. This requires the BLM to describe, clearly characterize and identify the direct, indirect and cumulative effects.

As we outlined in our scoping comments, the proposed project site is within California's Colorado Desert and within the Eastern Colorado Desert Tortoise Recovery Unit as identified in the 1994 Desert Tortoise (Mojave Population) Recovery Plan. We raised the concern that the Palen project would disrupt connectivity between the Eastern Colorado Recovery Unit and the Northern Colorado Recovery Unit. This could reduce gene flow and impair desert tortoise recovery.

The DEIS takes the position outlined in the draft (i.e. not final) revised recovery plan that California's desert tortoise population be treated as a single recovery unit. This is a scientifically controversial position since there is data indicating that tortoises from the 1994 Northern and Eastern Colorado Recovery Units are discernible using genetic analysis (see Murphy et al, 2007[1]). However, whether or not there is a scientific basis for the 1994 recovery units being combined into a single recovery unit the issue of loss of connectivity remains. This has not been addressed in the DEIS. 7-02

As we stated in our scoping comments:

"The Palen site is a particular concern. This habitat provides crucial connectivity between the desert tortoises in the Eastern Colorado Recovery Unit and those in the Northern Colorado Recovery Unit. The project places connectivity between the two recovery units at risk.

The Project Applicant's application states that,

[1] Murphy, R. W., Berry, K. H., Edwards, T. and Mcluckie, A. M. 2007. A Genetic Assessment of the Recovery Units for the Mojave Population of the Desert Tortoise, *Gopherus agassizii*. Chelonian Conservation and Biology 6(2): 229–251.

> "The PSPP would have less than significant impacts on biological resources with implementation of avoidance, minimizations, and mitigation measures, except for unmitigable significant impacts to desert tortoise (DT) and Mojave fringe-toed lizard (MFTL) movement." (Application at 5.3-1, emphasis added)

7-02 cont.

One of the objectives for desert tortoise recovery in the 2002 Northern and Eastern Colorado Desert Management Plan (NECO) is "e. Mitigate effects on tortoise populations and habitat outside DWMAs to provide connectivity between DWMAs." (NECO at 2-17). Clearly then, use of the Palen project location is incompatible with the biological goals and objectives of the NECO Plan. Construction of a this proposed power plant would thus be incompatible with the CDCA Plan, the governing land use plan.

7-03

Maintaining connectivity is important especially given the threats posed by global climate change. As the USFWS 2008 Draft Revised Recovery Plan notes,

> "Climatic regimes are believed to influence the distribution of plants and animals through species-specific physiological thresholds of temperature and precipitation tolerance. Warming temperatures and altered precipitation patterns may result in distributions shifting northward and/or to higher elevations, depending on resource availability (Walther et al. 2002). We may expect this response in the desert tortoise to reduce the viability of lands currently identified as "refuges" or critical habitat for the species." (USFWS 2008 at 133)"

7-04

In addition, a portion of the Palen project site is designated as desert tortoise critical habitat. The EIS should also consider the status of the tortoises in the affected recovery units. The latest reports from the Desert Tortoise Recovery Office cite a 37% decline in tortoise density between 2005 and 2007.[2]

7-05

The DEIS should be revised to take the requisite "hard look" at all the direct, indirect and cumulative impacts of the proposed project and all associated infrastructure including roads, facilities and transmission lines on the desert tortoise.

7-06

(3) Mojave Fringe-toed lizard.

The DEIS describes the Palen Project has having unmitigable significant impacts to the sand transport corridor. This will have serious impacts on the Mojave fringe-toed lizard. The FLPMA precludes the BLM from authorizing projects that will result in undue degradation and the BLM is also precluding from authorizing actions that could propel the listing of this sensitive species under the Endangered Species Act.

7-07

The DEIS should be revised to take a hard look at impacts to the Mojave fringe-toed lizard and explain the minimization and avoidance measures that will adopted if this project is approved that will reduce impacts to sand transport to less than significant.

7-08

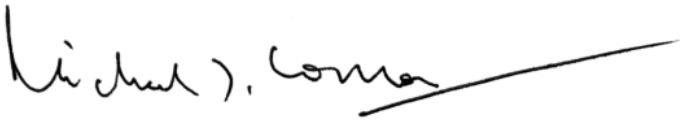
[2] USFWS. 2009. Range-wide Monitoring of the Mojave Population of the Desert Tortoise: 2007 Annual Report. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada.

(4) Streambed Alteration.

Desert washes, drainage systems, and washlets are very important habitats for plants and animals in arid lands. Water concentrates in such places, creating greater cover and diversity of shrubs, bunch grasses, and annual grasses and forbs. The topography is often more varied, as are soil types and rock types and sizes, creating diverse sites for burrows, caves, and other shelters. The resulting "habitats" tend to attract more birds, mammals, reptiles, and invertebrates. For example, desert tortoises spend disproportionately more time in washes than they do on "flat" areas.[3] There must be full mitigation for impacts to streambeds as required under the California Fish and Game Code. 7-09

Western Watersheds Project thanks you for the opportunity to submit comments on the DEIS for the proposed Palen solar power plant project. Please keep Western Watersheds Project on the list of interested public for this project. If we can be of any assistance or provide more information please feel free to contact me by telephone at (818) 345-0425 or by e-mail at <mjconnor@westernwatersheds.org>.

Yours sincerely,



Michael J. Connor, Ph.D.
California Director
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Reseda, CA 91337
(818) 345-0425
<mjconnor@westernwatersheds.org>

Attachment: Western Watersheds Projec t's December 23, 2009 Scoping Comments Re: Intent to Prepare Two Environmental Impact Statements/ Staff Assessments for the Proposed Chevron Energy Solutions/Solar Millennium Palen and Blythe Solar Power Plants, Riverside County, CA and Possible Land Use Plan Amendments. 7 pp.

cc. Alan Solomon, California Energy Commission <asolomon@energy.state.ca.us>

[3] Jennings, B.J. 1997. Habitat Use and Food Preferences of the Desert Tortoise, *Gopherus agassizii*, in the Western Mojave Desert and Impacts of Off-Road Vehicles. Proceedings: Conservation, Restoration, and Management of Tortoises and turtles—An International Conference, pp. 42–45. New York Turtle and Tortoise Society.

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Working to protect and restore Western Watersheds

December 23, 2009

By Email

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Sacramento, CA 95814
Attn: Alan Solomon, Project Manager,
< asolomon@energy.state.ca.us >

BLM California Desert District
Holly L. Roberts, Project Manager
Palm Springs-South Coast Field Office, BLM
1201 Bird Center Drive
Palm Springs, CA 92262
< CAPSSolarPalen@blm.gov >
< CAPSSolarBlythe@blm.gov >

Re: Notice of Intent to Prepare Two Environmental Impact Statements/ Staff Assessments for the Proposed Chevron Energy Solutions/Solar Millennium Palen and Blythe Solar Power Plants, Riverside County, CA and Possible Land Use Plan Amendments.

Dear Ms. Roberts and Mr. Solomon:

On behalf of Western Watersheds Project and myself, please accept the following scoping comments as you embark on the preparation of Environmental Impact Statements ("EIS") for the proposed Proposed Chevron Energy Solutions/Solar Millennium Palen and Blythe Solar Power Plants, Riverside County, CA and Possible Land Use Plan Amendments.

Western Watersheds Project works to protect and conserve the public lands, wildlife and natural resources of the American West through education, scientific study, public policy initiatives, and litigation. Western Watersheds Project and its staff and members use and enjoy the public lands, including the lands at issue here, and its wildlife, cultural and natural resources for health, recreational, scientific, spiritual, educational, aesthetic, and other purposes.

According to the scoping notice, the Bureau of Land Management ("BLM") and the California Energy Commission ("CEC") are developing a PSA, EIS and possible plan amendment for two separate right-of-way (ROW) authorizations filed by Chevron Energy Solutions/Solar Millennium (CESSM) to construct and operate the Palen and Blythe solar thermal power plants in eastern Riverside County, California with an expected combined

capacity of 1,452 megawatts (MW) using solar parabolic trough generating stations. Approximately 10,100 acres of BLM-administered public land are needed to develop the two projects.

These massive projects will have significant direct, indirect and cumulative impacts on some of the desert's most sensitive resources including species listed under the Endangered Species Act such as desert tortoise and on important cultural resources.

Specific issues of concern that should be addressed in the NEPA documents to ensure compliance with NEPA and to ensure that NEPA's requisite "hard look" at the environmental impacts include:

(1) Range of Alternatives.

The NEPA implementing regulations specify that NEPA documents must analyze a full range of alternatives. Based on the information and analysis presented in the sections on the Affected Environment (40 C.F.R. § 1502.15) and the Environmental Consequences (40 C.F.R. § 1502.16), the NEPA document should present the environmental impacts of the proposed action and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public

In order to comply with the spirit and letter of NEPA, the EIS must consider alternatives that meet the project goals and not simply propose "straw man" alternatives that can then be dismissed from further consideration. We suggest that the agencies consider the following reasonable alternatives in addition to any proposed action:

(a) "No Action Alternative" as is required by NEPA.
(b) Alternative sites on public lands with fewer resource conflicts.
(c) Alternative that features technology that requires significantly less water.
(d) A private lands alternative under which the project is built on private lands only.
(e) A distributed energy alternative using "roof top" solar to avoid the need for construction of a power plant.

Full analysis of these alternatives will help clarify the need for the proposed project, provide a baseline for identifying and fully minimizing resource conflicts, facilitate compliance with the BLM's FLPMA requirement to prevent the unnecessary and undue degradation of public lands and its resources, and will help provide a clear basis for making an informed decision.

(2) Desert Tortoise.

The NEPA/CEQA documents must describe, clearly characterize and identify the desert tortoise population that will be impacted by each alternative if the agencies are to take NEPA's requisite "hard look" at the environmental effects.

The proposed project sites are within California's Colorado Desert and both projects lie within the Eastern Colorado Desert Tortoise Recovery Unit.

A portion of the Palen project site is designated as desert tortoise critical habitat. The Project Applicants for both the Palen and the Blythe Projects describe the project sites as having low tortoise densities. Additional surveys should be conducted to confirm this. The EIS should also consider the status of the tortoises in the affected recovery units. The latest reports from the Desert Tortoise Recovery Office cite a 37% in tortoise density between 2005 and 2007.[1]

Both the Palen and Blyth Projects would disrupt connectivity between the Eastern Colorado Recovery Unit and the Northern Colorado Recovery Unit. This could reduce gene flow and impair desert tortoise recovery.

The Palen site is a particular concern. This habitat provides crucial connectivity between the desert tortoises in the Eastern Colorado Recovery Unit and those in the Northern Colorado Recovery Unit. The project places connectivity between the two recovery units at risk.

The Project Applicant's application states that,

> "The PSPP would have less than significant impacts on biological resources with implementation of avoidance, minimizations, and mitigation measures, except for unmitigable significant impacts to desert tortoise (DT) and Mojave fringe-toed lizard (MFTL) movement." (Application at 5.3-1, emphasis added)

One of the objectives for desert tortoise recovery in the 2002 Northern and Eastern Colorado Desert Management Plan (NECO) is "e. Mitigate effects on tortoise populations and habitat outside DWMAs to provide connectivity between DWMAs." (NECO at 2-17). Clearly then, use of the Palen project location is incompatible with the biological goals and objectives of the NECO Plan. Construction of a this proposed power plant would thus be incompatible with the CDCA Plan, the governing land use plan.

Maintaining connectivity is important especially given the threats posed by global climate change. As the USFWS 2008 Draft Revised Recovery Plan notes,

> "Climatic regimes are believed to influence the distribution of plants and animals through species-specific physiological thresholds of temperature and precipitation tolerance. Warming temperatures and altered precipitation patterns may result in distributions shifting northward and/or to higher elevations, depending on resource availability (Walther et al. 2002). We may expect this response in the desert tortoise to reduce the viability of lands currently identified as "refuges" or critical habitat for the species." (USFWS 2008 at 133)

The NEPA/CEQA documents should provide a review of the direct, indirect and cumulative impacts of the proposed project on the tortoise of the Eastern Colorado and Northern

[1] USFWS. 2009. Range-wide Monitoring of the Mojave Population of the Desert Tortoise: 2007 Annual Report. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada.

Colorado Recovery Units, and all associated infrastructure including the roads and transmission lines.

(3) Other Sensitive species and Rare Plants.

A number of sensitive species of wildlife and rare plants occur on the project or in the vicinity including the Mojave fringe-toed lizard and Harwoods' milkvetch.

The Palen Project Applicant's application describes impacts to Mojave fringe-toed lizard movement as significant and unmitigable. The EIS must explain how this project could move forward without the agencies propelling a listing of this species under the Endangered Species Act.

We are unaware of any extent occurrences of Harwoods' milkvetch on private lands. In light of this, the EIS must explain how this project could move forward without the agencies propelling a listing of this species under the Endangered Species Act.

The EIS should carefully consider and an analyze impacts to all State protected species such as burrowing owl, sensitive species, rare plants and Unusual Plant Assemblages (UPA) that would be affected by the project. It should provide detailed vegetation and wildlife maps to facilitate public input into the process.

(4) Invasive Species.

Invasive weeds grow easily wherever the natural vegetation and biological soil crusts are disturbed. The disturbance to the soil and natural vegetation that will occur as a result of the construction and maintenance of this transmission project must not be allowed to establish a "weed corridor" across the landscape. Once established, weeds are almost impossible to remove permanently.

Invasive plants and weeds are threats to native habitat, rare plants, and sensitive species. They pose an immense fire hazard. Using chemicals to kill weeds requires exposing the environment, species, and watershed area to a toxic substance which can be the source of further damage to environmental and human health. Manual weed control requires much human effort, machinery, and can cause even more disturbance, leading to erosion, disturbance, and, in some cases, more weeds. The EIS should carefully consider how invasive plants and weeds will be manages and controlled.

(5) Hazards and Hazardous Materials.

The EIS should disclose any potentially toxic or hazardous wastes that may be associated with these projects during project construction, operation, and maintenance including pesticides and herbicides.

(6) Fire Prevention and Suppression.

The EIS should address the effects that each alternative for each project may have on wildfire risks. Wildfires are becoming increasingly common in the Mojave Desert facilitated by the spread of invasive weeds and climate change. Wildfires can result in type conversion of large expanses of habitat. Wildfires could be caused by construction or operation of the transmission lines. Development of roads and transmission lines could encourage increased motorized vehicle access which increases fire risk especially when coupled with the spread of invasive weeds.

(7) Desert Washes, Ephemeral Streams and Soils.

Desert washes, drainage systems, and washlets are very important habitats for plants and animals in arid lands. Water concentrates in such places, creating greater cover and diversity of shrubs, bunch grasses, and annual grasses and forbs. The topography is often more varied, as are soil types and rock types and sizes, creating diverse sites for burrows, caves, and other shelters. The resulting "habitats" tend to attract more birds, mammals, reptiles, and invertebrates. For example, desert tortoises spend disproportionately more time in washes than they do on "flat" areas.[2] The wash habitat impacted by each alternative should be evaluated and appropriate mitigations made for stream bed alterations.

Soil erosion on low fill slopes and steeply graded areas could result in sedimentation of water bodies. Changes in hydrology and soil movements may impact rare plants and habitats for sensitive species, and may impact burrowing species such as the desert tortoise.

(8) Cultural & Paleontological Resources.

The EIS should discuss and analyze impacts to cultural and paleontological resources. The Mojave Desert is rich in structures and artifacts of significant cultural value that are irreplaceable once lost. The areas around dry lake beds are particularly rich in archaeological sites. Construction of structures and access roads could damage or destroy historic and archaeological sites, traditional cultural properties, or areas containing paleontological resources. Temporary use of staging areas and conductor pull sites could damage or destroy historic and archaeological sites, traditional cultural properties, or areas containing paleontological resources. Building new transmission lines through previously undisturbed areas could cause physical damage to artifacts and sites, expose cultural resources to looters, and could increase fires due to soil disturbance and subsequent weed invasion placing these cultural resources at risk of future damage.

(9) Global Climate Change.

Department of the Interior Order No. 3226 mandates that the BLM must consider the impacts of each proposed alternative with respect to global climate change in its NEPA reviews. The agencies should use the recently released USGS desert tortoise habitat model to determine likely changes in desert tortoise habitat quality in the area and the importance of the desert

[2] Jennings, B.J. 1997. Habitat Use and Food Preferences of the Desert Tortoise, *Gopherus agassizii*, in the Western Mojave Desert and Impacts of Off-Road Vehicles. Proceedings: Conservation, Restoration, and Management of Tortoises and turtles—An International Conference, pp. 42–45. New York Turtle and Tortoise Society.

tortoise habitat. In addition to addressing climate change in the cumulative effects analysis, the EIS should address the carbon footprint of the project and any losses to carbon storage and sequestration it will engender.

(10) Visual Resources.

The public lands provide significant value as visual resources. The EIS should fully review the impacts of each alternative on visual resources.

(11) Water Issues.

The EIS must provide information on the water needs of these power plants both in the construction and operation phases and the source of these waters. The EIS must fully analyze impacts to the local and regional water reserves.

(12) Cumulative Effects.

The EIS must considered the cumulative effects of this project in combination with all the other consumptive uses that are occurring on these public lands including livestock grazing, off road vehicle activity, and mining. New transmission line projects have the potential to open up more lands to energy (or other) development, placing wide swaths of habitat at risk, and greatly increase degradation and fragmentation of habitats and important wild land areas and have lasting and damaging impacts. The project will also facilitate and will act cumulatively with the many other energy developments that are planned for the area including utility-scale solar energy plants. All these activities will impact the same biological, cultural, geologic, and visual resources as the proposed project.

(13) Monitoring Programs.

The NEPA/CEQA documents must explain the monitoring programs that will be in place to monitor the short and long term impacts of the project. This should include the timelines, and estimated costs and sources of funding for the monitoring programs.

(14) Mitigation.

BLM is obligated under FLPMA to "minimize adverse impacts on the natural, environmental, scientific, cultural, and other resources and values (including fish and wildlife habitat) of the public lands involved." [43 U.S.C. §1732(d)(2)(a)] Other laws, including the Endangered Species Act and the California Endangered Species Act also entail the need for mitigations to minimize impacts. BLM is required to consider measures to mitigate potential environmental consequences in its NEPA analysis. [40 C.F.R. § 1502.16] The NEPA implementing regulations define "Mitigation" to include:

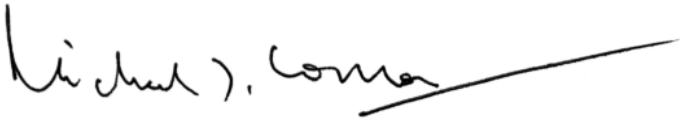
> (a) Avoiding the impact altogether by not taking a certain action or parts of an action.

(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
(c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
(e) Compensating for the impact by replacing or providing substitute resources or environments.
[40 C.F.R. §1508.20]

The EIS should describe the restoration and rehabilitation activities that will be required for habitat disturbed during construction. For example, construction material yards will lose their native vegetation, have their soils compacted, and increase the amount of wind and water erosion while leaving these areas at an increased risk of weed invasion. Transporting materials, labor, and equipment in and out of construction areas will also have their own set of impacts that must be minimized. Construction may also require the use of "temporary" roads that will require extensive rehabilitation if they are not to become permanent intrusions on the landscape. Rehabilitation of desert habitat is a long, slow and uncertain process.

Western Watersheds Project thanks you for the opportunity to submit scoping comments on the proposed solar plant project. Please keep Western Watersheds Project on the list of interested public for this project. If we can be of any assistance or provide more information please feel free to contact me by telephone at (818) 345-0425 or by e-mail at <mjconnor@westernwatersheds.org>.

Yours sincerely,



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Comment Letter 8

"Drezner,Debbie"
<DDrezner@mwdh2o.com>
06/15/2010 02:08 PM

To <CAPSSolarPalen@blm.gov>
cc "Stites,Catherine M" <CStites@mwdh2o.com>
bcc
Subject Transmittal of comment letter regarding DEIS for Chevron Energy Solutions/Solar Millennium Palen Solar Power Plant

Allison Shaffer,

Please find attached, Metropolitan Water District of Southern California's comments regarding the subject DEIS. These comments have been submitted within the commenting deadline for the DEIS posted as July 1, 2010 pursuant to the April 2, 2010 Federal Register Notice (75 FR 16786). The original hardcopy of this letter is being sent to you via Federal Express.

Please feel free to contact me via return e-mail or by phone at (213) 217-5687 if you have any questions regarding our submittal.

Thank you,

Debbie Drezner
Environmental Planning Team
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, California 90054-0153

Palen Solar comment letter.pdf

MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Executive Office

JUNE 15, 2010 **Via Electronic & U.S. Mail**

Alan Solomon,
Siting, Transmission and Environmental
Protection Division
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814

Allison Shaffer
Project Manager
Palm Springs South Coast Field Office
Bureau of Land Management
1201 Bird Center Drive
Palm Springs, California 92262

To Whom it May Concern:

Notice of Availability of the Draft Environmental Impact Statement/Staff Assessment for the Chevron Energy Solutions/Solar Millennium Palen Solar Power Plant and Possible California Desert Conservation Area Plan Amendment; CEC Docket No. 09-AFC-7, BLM Docket No. CACA 48810

The Metropolitan Water District of Southern California (Metropolitan) reviewed the Draft Environmental Impact Statement/Staff Assessment (collectively, "DEIS") for the Chevron Energy Solutions/Solar Millennium Palen Solar Power Plant and Possible California Desert Conservation Area Plan Amendment (Project). The U.S. Bureau of Land Management (BLM) is the lead agency under the National Environmental Policy Act (NEPA) for the DEIS and the California Energy Commission (CEC) is the lead agency (for licensing thermal power plants 50 megawatts and larger) under the California Environmental Quality Act (CEQA) and has a certified regulatory program under CEQA. Under its certified program, CEC is exempt from having to prepare an environmental impact report. Its certified program, however, requires environmental analysis of the project or a "staff assessment," including an analysis of alternatives and mitigation measures to minimize any significant adverse effect the project may have on the environment.

Metropolitan is pleased to submit comments for consideration by BLM and CEC during the public comment period for the DEIS and staff assessment.[1] In sum, Metropolitan provides these comments to ensure that any potential impacts on its facilities in the vicinity of the Project and on the Colorado River water resources are adequately addressed. 8-01

Background

[1] Comments on the DEIS and Revised Staff Assessment are due July 1, 2010 per the Federal Register notice. 75 Fed. Reg. 16786 (April 2, 2010). This comment deadline applies to the CEC's Revised Staff Assessment anticipated to be issued June 18, 2010 regardless of whether it is finalized separately from BLM's DEIS as the relevant comment periods may not be reduced or altered retroactively.

Metropolitan is a public agency and regional water wholesaler. It is comprised of 26 member public agencies serving more than 19 million people in six counties in Southern California. One of Metropolitan's major water supplies is the Colorado River via Metropolitan's Colorado River Aqueduct (CRA). Metropolitan holds an entitlement to water from the Colorado River. The CRA consists of tunnels, open canals and buried pipelines. CRA-related facilities also include above and below ground reservoirs and aquifers, access and patrol roads, communication facilities, and residential housing sites. The CRA, which can deliver up to 1.2 million acre-feet of water annually, extends 242 miles from the Colorado River, through the Mojave Desert and into Lake Mathews. Metropolitan has five pumping plants located along the CRA, which consume approximately 2,400 gigawatt-hours of energy when the CRA is operating at full capacity.

Concurrent with its construction of the CRA in the mid-1930s, Metropolitan constructed 305 miles of 230 kV transmission lines that run from the Mead Substation in Southern Nevada, head south, then branch east to Parker, California, and then west along Metropolitan's CRA. Metropolitan's CRA transmission line easements lie on federally-owned land, managed by BLM. The transmission lines were built for the sole and exclusive purpose of supplying power from the Hoover and Parker projects to the five pumping plants along the CRA.

Metropolitan's ownership and operation of the CRA and its 230 kV transmission system is vital to its mission to provide Metropolitan's 5,200 square mile service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

Project Understanding

Solar Millennium LLC and Chevron Energy Solutions, the joint developers of this project, propose to construct, own, and operate the Palen Solar Power Project. The Project is a concentrated solar thermal electric generating facility with two adjacent, independent, and identical solar plants of 250 megawatt (MW) nominal capacity each for a total capacity of 500 MW nominal.

The Project will utilize solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola. A heat transfer fluid (HTF) is heated to high temperature (750 degrees Fahrenheit) as it circulates through the receiver tubes. The heated HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high-pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced.

The project water needs would be met by use of groundwater pumped from one of two wells on the plant site. Water for domestic uses by project employees would also be provided by onsite groundwater treated to potable water standards. During construction, the Project proponent anticipates using up to 1,500 acre-feet of water. Following construction and for long-term

operations, the average total annual water usage for all four units combined is estimated to be about 300 acre-feet per year (afy).

The project site would be located approximately 10 miles east of Desert Center, along Interstate 10 approximately halfway between the cities of Indio and Blythe, in Riverside County, California. An application has been filed with BLM for a right-of-way (ROW) grant of approximately 5,200 acres.

Land Use Issues: Potential Impacts on Metropolitan Facilities

Although Metropolitan has not yet identified any direct impacts, the Project is in the general vicinity of Metropolitan facilities, perhaps as close as 0.3 miles. As described above, Metropolitan currently has a significant number of facilities, real estate interests, and fee-owned rights-of-way, easements, and other properties (Facilities) located on or near BLM-managed land in southern California that are part of our water distribution system. Metropolitan is concerned with potential direct or indirect impacts that may result from the construction and operation of any proposed solar energy project on or near our Facilities. In order to avoid potential impacts, Metropolitan requests that the final EIS and staff assessment include an assessment of potential impacts to Metropolitan's Facilities with proposed measures to avoid or mitigate significant adverse effects. 8-02

Metropolitan is also concerned that locating solar projects near or across its electrical transmission system could have an adverse impact on Metropolitan's electric transmission-related operations and Facilities. From a reliability and safety aspect, Metropolitan is concerned with development of any proposed projects and supporting transmission systems that would cross or come in close proximity with Metropolitan's transmission system. Metropolitan requests that the final EIS and staff assessment analyze and assess any potential impacts to Metropolitan's transmission system. 8-03

Water Resources: Potential Impacts on Colorado River and Local Water Supplies

Metropolitan is also concerned about the Project's potential direct and cumulative impacts on water supplies, specifically potential impacts on Colorado River and local groundwater supplies. As noted above, Metropolitan holds an entitlement to imported water supplies from the Colorado River. Water from the Colorado River is allocated pursuant to federal law and is managed by the Department of the Interior, Bureau of Reclamation (USBR). In order to lawfully use Colorado River water, a party must have an entitlement to do so. *See* Boulder Canyon Project Act of 1928, 43 U.S.C. §§617, et seq.; Arizona v. California, 547 U.S. 150 (2006). 8-04

As noted above, the Project proposes to use approximately 1,500 af of water during construction and 300 acre-feet per year (afy) for long-term operations, using groundwater from a groundwater basin that is hydrogeologically connected to the Colorado River, within an area referred to as the "accounting surface." The extent of accounting surface area for the Colorado River was determined by the U.S. Geological Survey (USGS) and USBR as part of an on-going rule-making process. *See* Notice of Proposed Rule Regulating the Use of the Lower Colorado River

Without an Entitlement, 73 Fed. Reg. 40916 (July 16, 2008); USGS Scientific Investigation Report No. 2008-5113. To the extent the Project uses Colorado River water, it must have a documented right to do so. 8-04 cont.

Entities in California are using California's full apportionment of Colorado River water, meaning that all water is already contracted and no new water entitlements are available in California. In addition, the California contractors have agreed in the 1931 Seven Party Agreement to prioritize the delivery of California's Colorado River water among themselves. Under this priority agreement, the following alternatives identified in SOIL&WATER-15 are no longer available to Proponents to mitigate impacts to Colorado River water resources:

> The [mitigation] activities shall include the following water conservation projects: payment for irrigation improvements in Palo Verde Irrigation District, payment for irrigation improvements in Imperial Irrigation District, purchase of water rights within the Colorado River Basin that will be held in reserve, and/or BLM's Tamarisk Removal Program.

8-05

Instead, Proponents would have to obtain water from the existing junior priority holder, Metropolitan, which has the authority to sell water for power plant use. Mitigation measure SOIL&WATER-15 should be revised accordingly. Metropolitan is willing to discuss the exchange of a portion of its water entitlement subject to any required approvals by Metropolitan's Board of Directors and so long as the Proponents agree to provide a replacement supply through an agreement with Metropolitan. Proponents must fully address the impacts on Colorado River water resources and provide full mitigation for such impacts, including replacement of supply.

Additionally, CEC and BLM should assess the potential cumulative impacts of the use of the scarce Colorado River and local groundwater supplies in light of other pending renewable energy projects within the Colorado River Basin and the local groundwater regions. Metropolitan requests that the final EIS and staff assessment address the Proponent's water supply and any potential direct or cumulative impacts from this use. 8-06

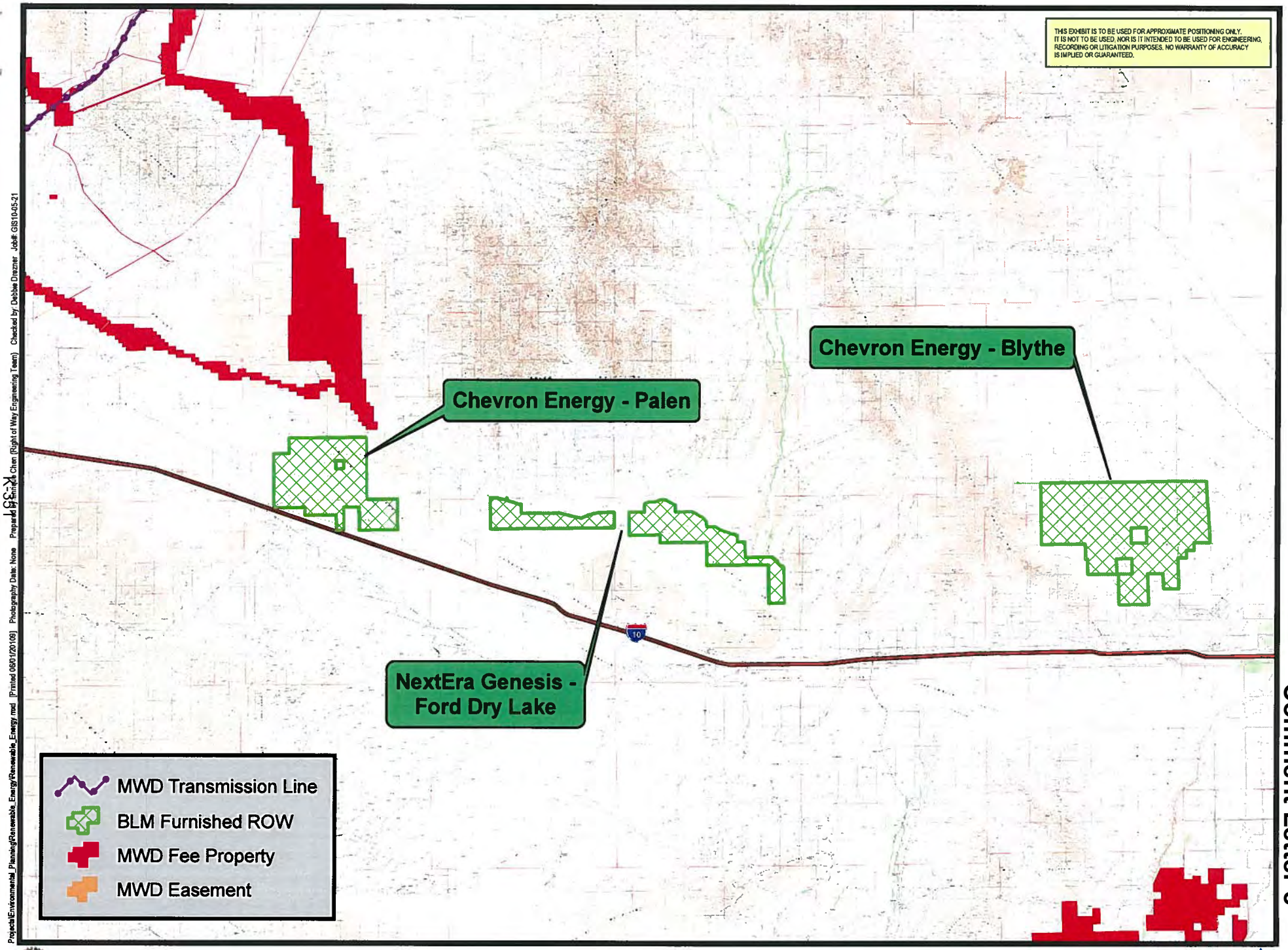
We appreciate the opportunity to provide input to your planning process and we look forward to receiving future environmental and related documentation on this project. If we can be of further assistance, please contact Dr. Debbie Drezner at (213) 217-5687.

Very truly yours,

Delaine W. Shane

Delaine W. Shane
Manager, Environmental Planning Team

DSD/dsd
(Public Folders/EPT/Letters/EPT Final Letter PDF/2010/15-JUN-10B.doc)
Enclosures: Map



The Metropolitan Water District of Southern California
Corporate Resources Group

Renewable Energy Projects
MWD Right of Way

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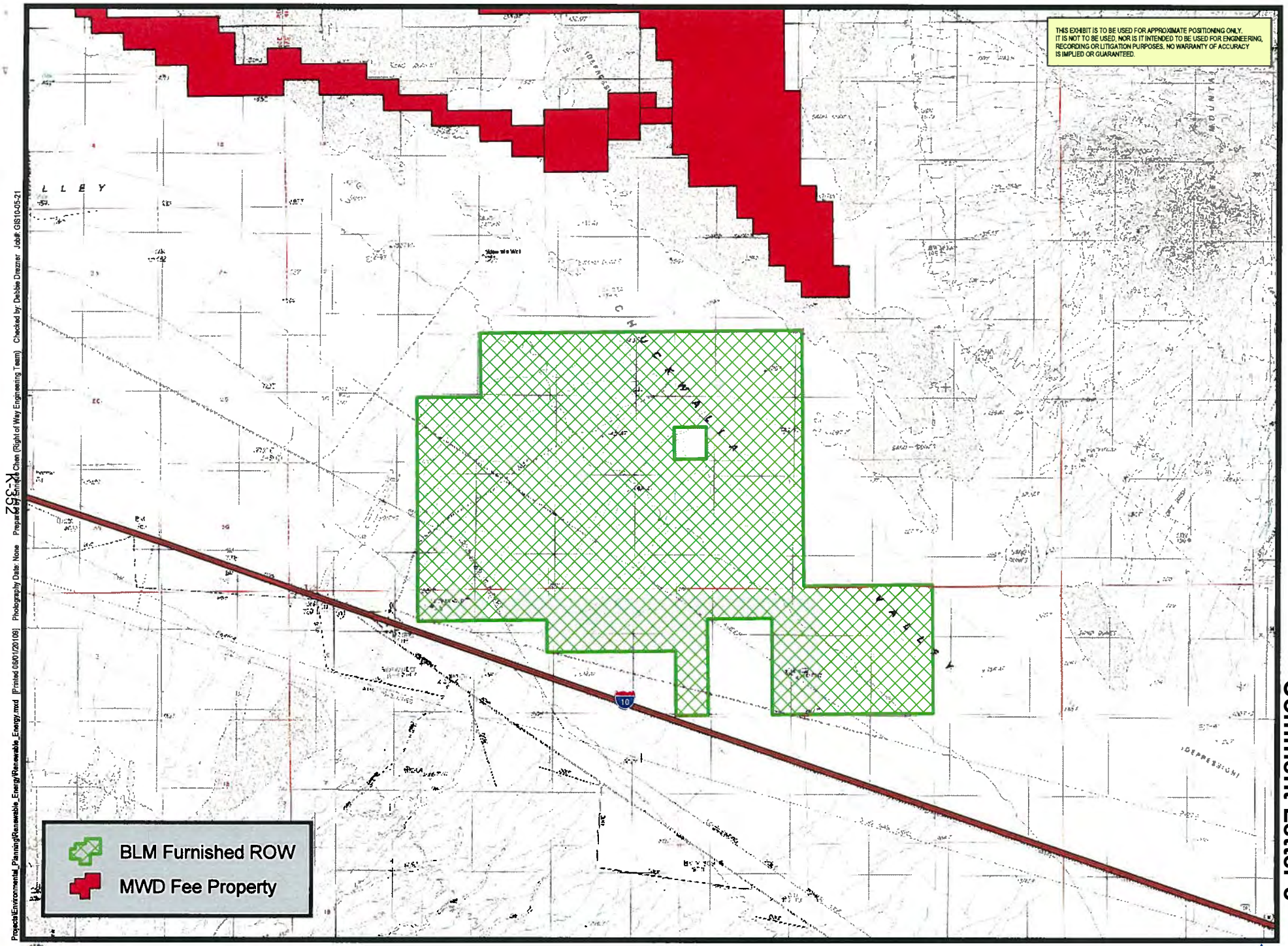

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The Metropolitan Water District of Southern California
Corporate Resources Group

Renewable Energy Projects
Chevron Energy - Palen

Comment Letter 8

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
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San Francisco, CA 94105-3901

JUL 12 2010

John Kalish
Field Manager
BLM Palm Springs-South Coast Field Office
Bureau of Land Management
1201 Bird Center Drive
Palm Springs, CA 92262

Subject: Draft Environmental Impact Statements for the Solar Millennium and Chevron Energy Solutions 1) Blythe Solar Power Project [CEQ#20100085] and 2) Palen Solar Power Project [CEQ#20100102], Riverside County, California

Dear Mr. Kalish:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statements (DEIS) for the Solar Millennium and Chevron Energy Solutions 1) Blythe Solar Power Project and 2) Palen Solar Power Project in Riverside County, California. Our comments are provided pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

EPA supports the development of renewable energy resources in an expeditious and well planned manner. Using renewable energy resources, such as solar power, can assist the nation in meeting its energy requirements while minimizing the generation of greenhouse gases. While renewable energy facilities offer many environmental benefits, appropriate siting and design of such facilities is of paramount importance if the nation is to make optimum use of its renewable energy resources without unnecessarily depleting or degrading its water resources, wildlife habitats, recreational opportunities, and scenic vistas.

The Bureau of Land Management has identified thirty-four proposed renewable energy projects as "fast track" projects that are expected to complete the environmental review process and be ready to break ground by December 2010 in order to be eligible for funding under the American Recovery and Reinvestment Act. We are aware that many more projects that have not been designated "fast-track" are also being considered by BLM. Many, if not all, of these projects, fast track or otherwise, are proposed for previously undeveloped sites on public lands. In making its decisions regarding whether or not to grant rights-of-way for such projects, we recommend that BLM consider a full range of reasonable alternatives to minimize the adverse environmental impacts. Such alternatives could include alternative technologies or altered

10-1

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project footprints at the proposed location, as well as alternate sites, such as closed landfill or other disturbed sites that may offer advantages in terms of availability of infrastructure and less vulnerable habitats. Given the large number of renewable energy project applications currently under consideration, particularly in the Desert Southwest, we encourage BLM to apply its land management authorities in a manner that will promote a long-term sustainable balance between available energy supplies, energy demand, and protection of ecosystems and human health.

10-1 cont.

On December 11, 2009, EPA provided separate scoping comments for the Blythe Solar Power Project and the Palen Solar Power Project which included detailed recommendations regarding purpose and need, range of alternatives, water resources, and other resource areas of concern. On June 15, 2010, we requested and received an extension on the Blythe Solar Power Project so that we could complete our reviews and prepare a single letter to convey our comments on both of these solar trough projects, which are in close proximity to each other. We appreciate your willingness to provide us with additional time to complete our review. We have rated the Blythe and Palen Solar Power Projects and DEISs as *Environmental Concerns – Insufficient Information* (EC-2). Please see the enclosed "Summary of EPA Rating Definitions."

In the enclosed detailed comments, we provide specific recommendations regarding analyses and documentation needed to assess potential significant impacts from the proposed Projects. Specifically, EPA is concerned with the: 1) mitigation for impacts to biological resources and special status species, 2) current justification for the Project purpose and need, 3) facility siting and 4) mitigation for ephemeral wash and groundwater impacts.

In addition, the Blythe and Palen Solar Power Project DEISs evaluate Reconfigured Alternatives and Reduced Acreage Alternatives which would significantly reduce adverse impacts to state waters and higher quality desert tortoise and burrowing owl habitat. The Reduced Acreage Alternative for Blythe would generate 750 megawatts (MW) of power while reducing impacts to habitat by 40% and avoiding 305 acres of state waters which provide valuable hydrologic, biogeochemical, plant and wildlife functions. The Reduced Acreage Alternative for Palen would generate 375 MW of power while avoiding 242 acres of state waters and nearly 1,800 acres of desert tortoise habitat. Fewer direct adverse impacts would significantly reduce required mitigation security payments and adverse cumulative impacts. We encourage BLM to select the Reduced Acreage Alternatives for Blythe and Palen if it chooses to grant right-of-way permits and amend the California Desert Conservation Area Plan for the Projects.

EPA appreciates the opportunity to provide input on these Projects and the multitude of DEISs under preparation for renewable energy projects in our Region. We are available to further discuss all recommendations provided. When the FEISs are released for public review, please send one hard copy and one CD of each to the address above (Mail Code: CED-2). If you

have any questions, please contact me at 415-972-3521, or contact Stephanie Skophammer, the lead reviewer for these Projects. Stephanie can be reached at 415-972-3098 or skophammer.stephanie@epa.gov.

Sincerely,

For Kathleen M. Goforth, Manager
Environmental Review Office (CED-2)
Communities and Ecosystems Division

Enclosures: Summary of EPA Rating Definitions
Detailed Comments

Cc: Jim Abbott, Bureau of Land Management, California State Office
Allison Shaffer, Bureau of Land Management, Palm Springs Field Office
Alan Solomon, California Energy Commission
Shannon Pankratz, US Army Corps of Engineers
Tannika Engelhard, United States Fish and Wildlife Service
Becky Jones, California Department of Fish and Game
Michael Picker, Office of the Governor

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 analysed 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 analysed in the draft EIS, which should be analysed 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.

U.S. EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENTS FOR THE SOLAR MILLENNIUM AND CHEVRON ENERGY SOLUTIONS BLYTHE AND PALEN SOLAR POWER PROJECTS, RIVERSIDE COUNTY, CALIFORNIA, JULY 1, 2010.

Project Description

Palo Verde Solar I and Palen Solar I, wholly owned subsidiaries of Solar Millennium, have submitted right-of-way (ROW) applications to the Bureau of Land Management (BLM) to construct separate concentrated solar thermal parabolic trough power plant facilities with a combined capacity of 1,500 megawatts (MW). Chevron Energy Solutions and Solar Millennium have a joint development agreement. The proposed projects lie in the southwestern deserts of California, approximately 40 miles from one another in Riverside County. Blythe Solar Power Project would consist of two 500 MW dry-cooled facilities that would use 600 acre feet per year (afy) of groundwater from onsite wells and be located on approximately 7,030 acres of public land near the Community of Blythe, CA. Palen Solar Power Project is also a dry-cooled facility, consisting of two 250 MW units on approximately 3,000 acres near Desert Center, CA, and would use 300 afy of groundwater from two onsite wells. Each facility is expected to operate for approximately 30 years.

Except where noted otherwise, all of the comments below apply to both Projects.

Ephemeral Washes and Drainage

Demonstrate that the proposed drainage plans will not disrupt downstream flows, functions, or values. The Blythe DEIS states that surface hydrology in the Project disturbance area is from storm water runoff originating in unnamed ephemeral washes west of the Project site from the McCoy Mountains. These washes are a component of the large alluvial fan that generally comprises the Palo Verde Mesa (p. C.2-16). The applicant's drainage plan proposes to replicate existing flow patterns and volume with five engineered channels adjacent to, through, or across the Project site with diffusers at the end which would restore sheet flow down slope of Project (p. C.2-54).

The Palen DEIS states that 364 acres of state jurisdictional waters will be impacted and that surface hydrology in the Project area is influenced largely by stormwater runoff off the northeastern flank of the Chuckwalla Mountains (p. C.2-20). The drainage plan for the Palen Project includes replicating existing flow patterns and volume of three channels; but channel design has yet to be finalized (p. C.2-67).

Recommendations:

Demonstrate that downstream flows will not be disrupted due to proposed changes to natural washes nor the excavation of large amounts of sediment. 10-2

Discuss the feasibility of utilizing existing drainage channels on site. Discuss the feasibility of utilizing more natural features, such as earthen berms or channels, rather than concrete-lined channels, if proposed. 10-3

Include the finalized drainage plan for each project in its respective Final Environmental Impact Statement (FEIS), to facilitate assessment of impacts and effectiveness of mitigation measures. 10-4

Provide more detailed information about fencing and its potential effects. The DEIS does not provide detailed information about fencing nor the effects of fencing on drainage systems and wildlife. In this region, storms can be sudden and severe, resulting in flash flooding. Fence design must address hydrologic criteria, as well as security performance criteria. The National Park Service recently published an article[1] on the effects of the international boundary pedestrian fence on drainage systems and infrastructure. We recommend that BLM review this article to ensure that such issues are adequately addressed. Fencing should also be designed to effectively preclude wildlife access, injury, and mortality. 10-5

Recommendation:
Provide more detailed information about fencing and its potential effects on drainage systems within the FEIS. Ensure that the fencing proposed for this project will meet appropriate hydrologic, wildlife protection and movement, and security performance standards.

Biological Resources

Describe the final biological resources mitigation commitments and how they will be funded and implemented. The Palen DEIS Biological Resources Table 6 (p. C.2-65) summarizes the recommended mitigation acreage for the proposed project, including 4,740 acres for desert tortoise, 3,011 acres for the Mojave fringe-toed lizard and 585 acres for direct impacts to State waters. The applicant proposes to achieve a 1.5:1 compensation ratio for desert wash woodland and a 0.5:1 ratio for unvegetated ephemeral swales. The Blythe project DEIS proposes to acquire 7,040 acres for desert tortoise (p. C.2-60), and achieve a 1.5:1 compensation ratio for desert wash woodland and a 1:1 ratio for vegetated ephemeral swales (p. C.2-54). For both projects, the costs associated with desert tortoise compensatory mitigation include an acquisition fee of $500 per acre, an initial habitat improvement cost of $330 per acre, and a long-term management endowment of $1,450 per acre (for total of $2,280 per acre security fee). 10-6

Detailed mitigation measures are determined on a project specific basis, and must be contained in each project's environmental analyses and decision documents. Project proponents have a number of options by which they can fulfill their mitigation requirements. The California Renewable Energy Action Team (REAT) recently announced a Memorandum of Agreement (MOA) with the National Fish and Wildlife Foundation for operation of the Renewable Energy Action Team Mitigation Account (REAT Account). The REAT Account is designed to help project proponents and the State and Federal governments more effectively implement biological resources mitigation for renewable energy projects in the Mojave and Colorado Desert region of southern California. It also will aid project proponents in carrying out contracting and construction activities in a timely manner per requirements for American Recovery and

[1] National Park Service, August 2008, Effects of the International Boundary Pedestrian Fence in the Vicinity of Lukeville, Arizona, on Drainage Systems and Infrastructure, Organ Pipe Cactus National Monument, Arizona,

Reinvestment Act (ARRA) funding eligibility. Use of the REAT Account is only one of several options available to the proponent, and participation is voluntary.

Recommendations:
The FEISs should describe the final biological resources mitigation commitments for both projects and how they would be funded and implemented. They should state whether and how the Project applicant would utilize the REAT account or other mechanism.

10-6 cont.

Include, in the FEISs, mitigation plans for unavoidable impacts to waters of the State and biological resources such as desert tortoise, desert kit fox, burrowing owls, Nelson's bighorn sheep, golden and bald eagles, and their habitats. Such mitigation plans are described briefly in the sections BIO-1 to 24 in the Palen and Blythe DEISs; further details should be provided in the FEISs. Specifically, if the applicant is to acquire compensation lands, the location(s) and management plans for these lands should be fully disclosed.

10-7

All mitigation commitments should be included in the Record of Decision (ROD).

Groundwater

Further describe groundwater mitigation and detail its effectiveness in minimizing groundwater withdrawal. Both the Palen and Blythe proposed projects could impact water resources, and BLM and CEC staff have proposed mitigation measures to reduce identified groundwater impacts to levels that are less than significant (p. C.9-1). The Soil and Water Resources section C.9 of the Palen and Blythe DEISs references these mitigation measures, but a discussion of the effectiveness and the impacts of the mitigation is not included.

10-8

The Palen DEIS acknowledges that, due to the high volume of projects in the region, cumulative impacts to groundwater could be significant and may place the Palen project's Chuckawalla basin in overdraft condition. Overdraft is described as the amount of water withdrawn exceeding the amount of water that recharges the basin (p. C.9-38). Although the amount of water in basin storage greatly exceeds the potential overdraft, the Palen DEIS notes that a drop in groundwater levels could impact basin wells and lower the water table (C.9-40). Such basin balance analyses for the Palo Verde Mesa Basin are not provided in the Blythe DEIS.

10-9

Recommendation:
The Blythe FEIS should include a basin balance analysis for the Palo Verde Mesa Groundwater Basin.

Impacts to groundwater in the Chuckawalla Valley Groundwater Basin (Palen) and the Palo Verde Mesa Groundwater Basin (Blythe) should be minimized as much as possible. This may involve altering project design, implementing recycled water techniques, as well as considering reduced acreage alternatives. The FEISs should describe the effectiveness of, and commitments to, the mitigation and monitoring plans described in

10-10

the Mitigation Measures C.9.12 Soil&Water-1 to 11 (Palen) and C.9.10 Soil&Water-1 to 17 (Blythe). 10-10 cont.

The Blythe FEIS should also further describe the estimation of the impacts from withdrawing groundwater that is recharged by the Colorado River (p. C.9-108) and the effectiveness of the mitigation proposed. The expected effectiveness of the mitigation must be documented and committed to, and the FEIS should clarify whether or not an entitlement to water from the Colorado River aquifer would be needed. This information should be made available in the FEIS and the ROD. 10-11, 10-12

Purpose and Need

Update the discussion regarding the need for the proposed project. In the last three years, there has been tremendous growth in renewable energy, and decline in the more traditional sectors, including the postponement/indefinite delay and modification of large coal-fired power plants. Many factors have triggered this shift, including concerns about global warming and climate change. These events have spawned an unprecedented increase in the number of applications submitted to BLM for large-scale renewable energy projects on public lands in the desert southwest. BLM has received over 470 renewable energy project applications, to date, with a projected capacity of 97,000 MW of electricity[2].

EPA believes the discussion in the Blythe and Palen DEISs regarding the purpose and need for the proposed Project should be expanded to include more robust information regarding the *need* for the proposed project. As indicated in our scoping comments dated December 11, 2009, the DEIS should briefly discuss the proposed project in the context of the larger energy market that this project would serve; identify potential purchasers of the power produced; and discuss how the project will assist the State and nation in meeting renewable energy portfolio standards and goals. 10-13

Recommendation:
Update the discussion regarding the *need* for the individual proposed projects, utilizing more accurate, robust, and up-to-date references.

Re-state the Purpose and Need to allow analysis of all reasonable alternatives. The DEISs for Blythe and Palen present separately the purpose and need statements for BLM, Department of Energy (DOE), CEC, and project applicant. The BLM defines its purpose and need narrowly as approval or disapproval of the application for a ROW grant to construct, operate and decommission a solar power generation facility and associated infrastructure. Thus, BLM states that all site alternatives proposed to be located on lands not under the jurisdiction of BLM are considered unreasonable because none would accomplish the need to respond to Palo Verde Solar I ROW request (p. B.2-1) or Palen Solar I ROW request (p. B.2-2). The DOE's purpose and need would be to comply with its mandate under the Energy Policy Act (EPAct) to select eligible projects that meet the goals of the EPAct, and is contingent upon the decision to 10-14

[2] "Secretary Salazar, Senator Reid Announce 'Fast-Track' Initiatives for Solar Energy Development on Western Lands", U.S. Department of Interior, News Release, June 29, 2009. http://www.blm.gov/wo/st/en/info/newsroom/2009/june/NR_0629_2009.html

enter into negotiation of a loan guarantee. CEC's purpose and need is to certify the construction, modification, and operation of thermal electric power plants 50 MW or larger (p. A-3).

The Purpose and Need for each project should be stated broadly enough to allow for the analysis of a full scope of alternatives, including off-site locations, environmentally preferable on-site alternatives, or other modes of renewable energy generation. The Purpose and Need should focus on the underlying problem(s) to be addressed, such as a lack of capacity to serve an increasing demand for energy, or the need to develop sufficient renewable energy to meet State renewable portfolio standards. Council on Environmental Quality (CEQ) regulations and guidance state that an environmental impact analysis shall include reasonable alternatives not within the jurisdiction of the agency (1502.14c) and "reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant" (NEPA's 40 Most Asked Questions 2a)[3]. 10-14 cont.

Recommendations:
We recommend that the Purpose and Need be stated, in each FEIS, in a manner that is broad enough for analysis and consideration of a full range of reasonable alternatives for addressing the underlying need. Reasonable alternatives may include off-site locations, environmentally preferable on-site alternatives, or other modes of renewable energy generation.

Each FEIS should describe BLM's options for acting upon an application for a right-of-way grant. For instance, describe the extent of BLM's authority to require the adoption of a "modified" project design or alternate site on BLM land, to deny an application, or to select another ROW application submitted by the same applicant or its corporate owner. 10-15

Describe the number of total renewable energy applications that are likely to proceed, any utility purchase agreements, and how generated power will be bought, sold, and used. The DEISs for Blythe and Palen state that the need for the proposed action has its basis in State and Federal orders and laws regarding renewable energy generation. The cumulative scenario describes the large number of renewable energy projects proposed on BLM land in California, Nevada, and Arizona, which are in various stages of environmental review or under construction. Presumably, some of these or other renewable energy facilities will be constructed pursuant to the joint Department of Energy (DOE)/BLM Programmatic Solar DEIS (PEIS) effort as well as the Desert Renewable Energy Conservation Plan (DRECP) process. 10-16

Recommendations:
To the extent practicable, each FEIS should discuss how many of the total renewable energy applications received by BLM are likely to proceed pursuant to the joint Department of Energy (DOE)/BLM Programmatic Solar DEIS effort and the Desert Renewable Energy Conservation Plan (DRECP) process, and the level of energy production those applications represent.

[3] http://ceq.hss.doe.gov/nepa/regs/40/1-10.HTM#2

We recommend that each FEIS include additional information on the utility purchase agreements for the proposed power, and provide a description of how the power would be bought, sold, and used so that the reader can better evaluate the tradeoffs between resource protection and power generation. 10-17

Project Siting

Describe the criteria used to identify and compare siting locations. Provide a comparison of life-cycle costs and other regional projects. EPA continues to recommend the identification of potential project site locations that have been previously disturbed or contaminated. For example, the EPA's Re-Powering America initiative works to identify disturbed and contaminated lands appropriate for renewable energy development. For more information on this initiative visit http://www.epa.gov/oswerepa/. EPA strongly encourages BLM to promote the siting of renewable energy projects on disturbed, degraded, and contaminated sites before considering siting on large tracts of undisturbed public lands. We also recommend consideration of each proposed renewable energy project in comparison with others proposed in the desert southwest region and their adverse effects on waters of the State, jurisdictional waters of the United States, biological resources, air quality, and visual and cultural resource impacts. 10-18

Recommendations:

Each FEIS should describe the criteria used to identify and compare siting locations for renewable energy facilities, and to ascertain whether or not any disturbed sites are available that would be suitable for the proposed project. 10-19

We recommend reconsideration of alternatives such as the Private Land and Reduced Acreage Alternatives (for the Blythe and Palen projects) that would avoid and minimize adverse effects on biological, cultural, and visual resources. Fewer adverse impacts would significantly reduce required mitigation security payments and adverse cumulative impacts. 10-20

Each FEIS should include a table comparing the life-cycle costs of the different alternatives. Include information on the cost of the land, different project design criteria that would be required, acquisition effort, scheduling effects, and cost of mitigation. 10-21

Each FEIS should demonstrate that the approved project site is consistent with the Desert Renewable Energy Conservation Plan for the Mojave and Colorado Desert Regions. At a minimum, the FEIS should describe and commit to a process to ensure approved projects are consistent with the Desert Renewable Energy Conservation Plan. 10-22

Climate Change

The DEISs present a brief discussion on climate change but do not include measures to avoid, minimize, or mitigate the effects of climate change on the proposed projects (Appendix Air-1). Scientific evidence supports the concern that continued increases in greenhouse gas emissions 10-23

resulting from human activities will contribute to climate change. Effects on weather patterns, sea level, ocean acidification, chemical reaction rates, and precipitation rates can be expected. 10-23 cont.

Recommendations:
Consider how climate change could affect each proposed project, specifically within sensitive areas, and assess how the impacts of the proposed project could be exacerbated by climate change. 10-24

Identify strategies to more effectively monitor for climate change impacts in the surrounding area, such as monitoring groundwater change or special status species. 10-25

Briefly discuss the climate change *benefits* of solar energy. We suggest quantifying the greenhouse gas emissions that would be produced by other types of electric generating facilities (solar, geothermal, natural gas, coal-burning, and nuclear) generating comparable amounts of electricity, and compiling and comparing these values. 10-26

General Comments

Commit to compliance with LORS and mitigation requirements prior to Project approval. The Palen and Blythe DEISs state that there are technical areas currently undetermined with respect to mitigation of potential impacts and/or conformance with applicable laws, ordinances, regulations and standards (LORS) (Executive Summary, p. 15). These undetermined technical areas include biological resources, cultural resources, land use, soil and water resources, traffic and transportation, and transmission system engineering (Blythe) and air quality, cultural resources, soil and water resources, and transmission system engineering (Palen). Since neither project is already identified in the California Desert Conservation Area Plan, a Plan amendment is required. The amendment process includes a determination that the proposed amendment is in accordance with applicable laws and regulations. 10-27

Recommendation:
We recommend the FEISs include a firm commitment to the determination of compliance with LORS and mitigation requirements prior to final decisions on the projects and finalization of the CEC Conditions of Certification.

Complete all surveys and analyses to ascertain impacts to Cultural Resources. Include this information in each FEIS. The DEISs for the Palen and Blythe Projects state that current data have been analyzed; but, due to a lack of data, the impacts to cultural resources are indeterminate. 10-28

Recommendation:
EPA recommends that all surveys be completed and all impacts to cultural resources be assessed for the Blythe and Palen projects and that this information be made available in the FEISs.

Describe the reasonably foreseeable development and population growth as a result of proposed projects. The Blythe and Palen projects are located within approximately 40 miles of one another and the region anticipates an influx of hundreds of workers. Blythe Project construction will require an average of 604 workers over the 5 year construction period with a peak at approximately 1,004 workers in spring 2012 (Executive Summary p. 3). The Palen Project construction will demand an average of 566 employees over the 3 year construction period and peak at approximately 1,140 workers, also in spring 2012 (Executive Summary p. 3). The DEISs for both projects state that construction workers would be from the local counties of La Paz, AZ, Riverside, CA, and San Bernardino, CA.

Recommendation:
We recommend that the FEISs for both projects contain analyses of the impacts of workers to the areas of Desert Center and Blythe, CA. The documents should provide an estimate of the amount of growth, likely location(s), the impacts on municipal services, and the biological and environmental resources at risk. The documents should also include a discussion of potential transit options (including formal Rideshare, Carpooling, and Bussing) to transport workers from the nearest population centers to the remote project sites as well as other measures to facilitate accessibility to the job sites and reduce greenhouse gas emissions resulting from worker transportation.

10-29

APPENDIX C

Applicant Proposed Measures

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APPLICANT PROPOSED MEASURES

The Applicant has adopted, with minor revision to reflect changes in technology, many of the BLM-identified mitigation measures and CEC-approved Conditions of Certification and Compliance Verifications for the PSPP. Most of these measures originally appeared in the CEC's Revised Staff Assessment, Commission Decision, and the BLM's PSPP PA/FEIS. Such measures are identified in the Draft SEIS as Applicant Proposed Measures (APMs) for the PSEGS. These APMs have been proposed to reduce or avoid potential impacts that could result from the PSEGS. The APMs would be implemented like other elements of the PSEGS.

The table below presents the specific APMs, the method of verification, and the governmental agency charged with oversight. The Applicant has chosen to present these measures in the style of the documents from which they first appeared. As such, some of the measures reference tables and figures associated with the original documents. Whenever possible, the BLM has added clarifying references. The full text of the documents identified in these references is available online, as an Appendix to this Draft SEIS, or upon request, as specified below.

- **CEC Palen Solar Power Project Commission Decision (2010)**

  http://www.energy.ca.gov/2010publications/CEC-800-2010-010/CEC-800-2010-010-CMF.PDF

- **CEC Revised Staff Assessment (2010)**

  Part I: http://www.energy.ca.gov/2010publications/CEC-700-2010-007/CEC-700-2010-007-REV-PT1.PDF

  Part II: http://www.energy.ca.gov/2010publications/CEC-700-2010-007/CEC-700-2010-007-REV-PT2.PDF

- **BLM Palen Solar Power Project PA/FEIS (2011)**

  See PSEGS Draft SEIS Appendix B

- **PSIII Revised Plan of Development (2013)**

  Available from the BLM upon request. Please contact Frank McMenimen, Project Manager, by mail: 1201 Bird Center Drive, Palm Springs, California 92262; phone: (760) 833-7150; or email: fmcmenimen@blm.gov.

APPLICANT PROPOSED MEASURES

Applicant Proposed Measures	Verification	Responsible Agency
GENERAL CONDITIONS		
COMPLIANCE-1, Unrestricted Access: BLM's AO, responsible BLM staff, the CPM, responsible Energy Commission staff, and delegated agencies or consultants shall be guaranteed and granted unrestricted access to the power plant site, related facilities, project-related staff, and the records maintained on-site, for the purpose of conducting audits, surveys, inspections, or general site visits. Although BLM's AO and the CPM will normally schedule site visits on dates and times agreeable to the project owner, BLM's AO and the CPM reserve the right to make unannounced visits at any time.		CEC
COMPLIANCE-2, Compliance Record: The project owner shall maintain project files on-site or at an alternative site approved by BLM's AO and the CPM for the life of the project, unless a lesser period of time is specified by the conditions of certification. The files shall contain copies of all "as-built" drawings, documents submitted as verification for conditions, and other project-related documents. As-built drawings of all facilities including linear facilities shall be provided to the BLM AO for inclusion in the BLM administrative record within 90 days of completion of that portion of the facility or project. BLM and Energy Commission staff and delegate agencies shall, upon request to the project owner, be given unrestricted access to the files maintained pursuant to this condition.		CEC
COMPLIANCE-3, Compliance Verification Submittals: Each condition of certification is followed by a means of verification. The verification describes the Energy Commission's procedure(s) to ensure post-certification compliance with adopted conditions. The verification procedures, unlike the conditions, may be modified as necessary by BLM's AO and the CPM. Verification of compliance with the conditions of certification can be accomplished by the following: 1. Monthly and/or annual compliance reports filed by the project owner or authorized agent, reporting on work done and providing pertinent documentation, as required by the specific conditions of certification; 2. Appropriate letters from delegate agencies verifying compliance; 3. BLM and Energy Commission staff audits of project records; and/or 4. BLM and Energy Commission staff inspections of work, or other evidence that the requirements are satisfied. Verification lead times associated with start of construction may require the project owner to file submittals during the certification process, particularly if construction is planned to commence shortly after certification. A cover letter from the project owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. The cover letter subject line shall identify the project by AFC and BLM case file numbers, the appropriate condition(s) of certification by condition number(s), and a brief description of the subject of the submittal. The project owner shall also identify those submittals not required by a condition of certification with a statement such as: "This submittal is for information only and is not required by a specific condition of certification." When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal and BLM/CEC submittal number. The project owner is responsible for the delivery and content of all verification submittals to the BLM's AO and CPM, whether such condition was satisfied by work performed by the project owner or an agent of the project owner.		CEC

APPLICANT PROPOSED MEASURES

Applicant Proposed Measures	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
All hardcopy submittals shall be addressed to each of the following: John Kalish, Field Manager Dale Rundquist, CPM (CACA-48810) (09 AFC 7C) U.S. Bureau of Land Management California Energy Commission Palm Springs-South Coast Field Office 1516 Ninth Street, MS 2000 1201 Bird Center Drive Palm Springs, CA 92262 Sacramento, CA 95814 Those submittals shall be accompanied by a searchable electronic copy, on a CD or by e-mail, as agreed upon by BLM's AO and the CPM. If the project owner desires BLM and/or Energy Commission staff action by a specific date, that request shall be made in the submittal cover letter and shall include a detailed explanation of the effects on the project if that date is not met.		
COMPLIANCE-4, Pre-Construction Matrix and Tasks Prior to Start of Construction: Prior to commencing construction, a compliance matrix addressing only those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to BLM's AO and the CPM. This matrix will be included with the project owner's first compliance submittal or prior to the first pre-construction meeting, whichever comes first. It will be submitted in the same format as the compliance matrix described below. In order to begin any on-site mobilization or surface disturbing activities on public land, the BLM AO must approve a written Notice to Proceed (NTP). NTPs will be phased as appropriate to facilitate timely implementation of construction. Construction shall not commence until the pre-construction matrix is submitted, all pre-construction conditions have been complied with, and BLM's AO and the CPM have issued a letter and BLM has issued a NTP to the project owner authorizing construction. Various lead times for submittal of compliance verification documents to BLM's AO and the CPM for conditions of certification are established to allow sufficient BLM and Energy Commission staff time to review and comment and, if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule. Failure to submit compliance documents within the specified lead-time may result in delays in authorization to commence various stages of project development. If the project owner anticipates commencing project construction as soon as the project is certified, it may be necessary for the project owner to file compliance submittals prior to project certification. Compliance submittals should be completed in advance where the necessary lead time for a required compliance event extends beyond the date anticipated for start of construction. The project owner must understand that the submittal of compliance documents prior to project certification is at the owner's own risk. Any approval by Energy Commission staff is subject to change, based upon BLM's ROW Grant and the Energy Commission Decision.		CEC

APPLICANT PROPOSED MEASURES

Applicant Proposed Measures	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
Compliance Reporting There are two different compliance reports that the project owner must submit to assist BLM's AO and the CPM in tracking activities and monitoring compliance with the terms and conditions of BLM's ROW Grant and the Energy Commission Decision. During construction, the project owner or authorized agent will submit monthly compliance reports. During operation, an annual compliance report must be submitted. These reports, and the requirement for an accompanying compliance matrix, are described below. The majority of the conditions of certification require that compliance submittals be submitted to BLM's AO and the CPM in the monthly or annual compliance reports.		
COMPLIANCE-5, Compliance Matrix: A compliance matrix shall be submitted by the project owner to BLM's AO and the CPM along with each monthly and annual compliance report. The compliance matrix is intended to provide BLM's AO and the CPM with the current status of all conditions of certification in a spreadsheet format. The compliance matrix must identify: 1. the technical area; 2. the condition number; 3. a brief description of the verification action or submittal required by the condition; 4. the date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.); 5. the expected or actual submittal date; 6. the date a submittal or action was approved by the Chief Building Official (CBO), BLM's AO, CPM, or delegate agency, if applicable; and 7. the compliance status of each condition, e.g., "not started," "in progress" or "completed" (include the date). 8. if the condition was amended, the date of the amendment. Satisfied conditions shall be placed at the end of the matrix.		CEC
COMPLIANCE-6, Monthly Compliance Report: The first monthly compliance report is due one month following the Energy Commission business meeting date upon which the project was approved, unless otherwise agreed to by BLM's AO and the CPM. The first monthly compliance report shall include the AFC and BLM case file numbers and an initial list of dates for each of the events identified on the Key Events List. The Key Events List Form is found at the end of this section. During pre-construction and construction of each power plant, the project owner or authorized agent shall submit an original and an electronic searchable version of the monthly compliance report within 10 working days after the end of each reporting month or other period of time agreed to by BLM's AO and the CPM. Monthly compliance reports shall be clearly identified for the month being reported. The reports shall contain, at a minimum: 1. A summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;		CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
2. Documents required by specific conditions to be submitted along with the monthly compliance report. Each of these items must be identified in the transmittal letter, as well as the conditions they satisfy and submitted as attachments to the monthly compliance report; 3. An initial, and thereafter updated, compliance matrix showing the status of all conditions of certification (fully satisfied conditions do not need to be included in the matrix after they have been reported as completed); 4. A list of conditions that have been satisfied during the reporting period, and a description or reference to the actions that satisfied the condition; 5. A list of any submittal deadlines that were missed, accompanied by an explanation and an estimate of when the information will be provided; 6. A cumulative listing of any approved changes to conditions of certification; 7. A listing of any filings submitted to, or permits issued by, other governmental agencies during the month; 8. A projection of project compliance activities scheduled during the next two months. The project owner shall notify BLM's AO and the CPM as soon as any changes are made to the project construction schedule that would affect compliance with conditions of certification; 9. A listing of the month's additions to the on-site compliance file; and 10. A listing of complaints, notices of violation, official warnings, and citations received during the month, a description of the resolution of the resolved actions, and the status of any unresolved actions. All sections, exhibits, or addendums shall be separated by tabbed dividers or as acceptable by BLM's AO and the CPM.		
COMPLIANCE-7: Annual Compliance Report: After construction of each power plant is complete or when a power plant goes into commercial operations, the project owner shall submit annual compliance reports instead of monthly compliance reports. The reports are for each year of commercial operation and are due to BLM's AO and the CPM each year at a date agreed to by BLM's AO and the CPM. Annual compliance reports shall be submitted over the life of the project unless otherwise specified by BLM's AO and the CPM. Each annual compliance report shall include the AFC and BLM case file numbers, identify the reporting period and shall contain the following: 1. An updated compliance matrix showing the status of all conditions of certification (fully satisfied conditions do not need to be included in the matrix after they have been reported as completed); 2. A summary of the current project operating status and an explanation of any significant changes to facility operations during the year; 3. Documents required by specific conditions to be submitted along with the annual compliance report. Each of these items must be identified in the transmittal letter, with the condition it satisfies, and submitted as attachments to the annual compliance report;		CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
4. A cumulative listing of all post-certification changes by the Energy Commission or changes to the BLM ROW grant or approved POD by BLM, or cleared by BLM's AO and the CPM; 5. An explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided; 6. A listing of filings submitted to, or permits issued by, other governmental agencies during the year; 7. A projection of project compliance activities scheduled during the next year; 8. A listing of the year's additions to the on-site compliance file; 9. An evaluation of the on-site contingency plan for unplanned facility closure, including any suggestions necessary for bringing the plan up to date [see Compliance Conditions for Facility Closure addressed later in this section]; and 10. A listing of complaints, notices of violation, official warnings, and citations received during the year, a description of the resolution of any resolved matters, and the status of any unresolved matters.		
COMPLIANCE-8: Confidential Information: Any information that the project owner deems confidential shall be submitted to the Energy Commission's executive director with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information that is determined to be confidential shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501 et. seq. Any information the ROW holder deems confidential shall be submitted to the BLM AO with a written request for said confidentiality along with a justification for the request in accordance with 43 CFR 2804.13. All confidential submissions to BLM should be clearly stamped "proprietary information" by the holder when submitted.		CEC
COMPLIANCE-9, Reporting of Complaints, Notices, and Citations: Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering with date and time stamp recording. All recorded complaints shall be responded to within 24 hours. The telephone number shall be posted at the project site and made easily visible to passersby during construction and operation. The telephone number shall be provided to BLM's AO and the CPM who will post it on the Energy Commission's web page at: http://www.energy.ca.gov/sitingcases/power_plants_contacts.html. Any changes to the telephone number shall be submitted immediately to BLM's AO and the CPM, who will update the web page. In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies to BLM's AO and the CPM of all complaint forms, including noise and lighting complaints, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the NOISE conditions of certification. All other complaints shall be recorded on the complaint form (Attachment A).		CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
COMPLIANCE-10, Planned Closure: In order to ensure that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure, will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a revision or update to the approved Closure, Revegetation and Rehabilitation Plan to BLM and the Energy Commission for review and approval at least 12 months (or other period of time agreed to by BLM's AO and the CPM) prior to commencement of closure activities. The project owner shall file 50 copies and 50 CDs with the Energy Commission and 10 copies and 10 CDs with BLM (or other number of copies agreed upon by BLM's AO and the CPM) of a proposed facility closure plan/Closure, Revegetation and Rehabilitation Plan. The plan shall: 1. identify and discuss any impacts and mitigation to address significant adverse impacts associated with proposed closure activities and to address facilities, equipment, or other project related materials that must be removed from the site; 2. identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project; 3. address conformance of the plan with all applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of facility closure, and applicable conditions of certification; and. 4. Address any changes to the site revegetation, rehabilitation, monitoring and long-term maintenance specified in the existing plan that are needed for site revegetation and rehabilitation to be successful. Prior to submittal of an amended or revised Closure, Revegetation and Restoration Plan, a meeting shall be held between the project owner, BLM's AO and the Energy Commission CPM for the purpose of discussing the specific contents of the plan. In the event that there are significant issues associated with the proposed facility Closure, Revegetation and Restoration plan's approval, or the desires of local officials or interested parties are inconsistent with the plan, BLM's AO the CPM shall hold one or more workshops and/or BLM and the Energy Commission may hold public hearings as part of its approval procedure. As necessary, prior to or during the closure process, the project owner shall take appropriate steps to eliminate any immediate threats to public health and safety and the environment, but shall not commence any other closure activities until BLM and the Energy Commission approve the facility Closure, Revegetation and Restoration plan.		CEC
COMPLIANCE-11, Unplanned Temporary Closure: In order to ensure that public health and safety and the environment are protected in the event of an unplanned temporary facility closure, it is essential to have an On-Site Contingency Plan in place. The On-Site Contingency Plan will help to ensure that all necessary steps to mitigate public health and safety impacts and environmental impacts are taken in a timely manner. The project owner shall submit an On-Site Contingency Plan for BLM's AO and CPM review and approval. The plan shall be submitted no less than 60 days (or other time agreed to by BLM's AO and the CPM) after approval of any NTP or letter		CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
granting approval to commence construction for each phase of construction. A copy of the approved plan must be in place during commercial operation of the facility and shall be kept at the site at all times. The project owner, in consultation with BLM's AO and the CPM, will update the On-Site Contingency Plan as necessary. BLM's AO and the CPM may require revisions to the On-Site Contingency Plan over the life of the project. In the annual compliance reports submitted to the Energy Commission, the project owner will review the On-Site Contingency Plan, and recommend changes to bring the plan up to date. Any changes to the plan must be approved by BLM's AO and the CPM. The On-Site Contingency Plan shall provide for taking immediate steps to secure the facility from trespassing or encroachment. In addition, for closures of more than 90 days, unless other arrangements are agreed to by BLM's AO and the CPM, the plan shall provide for removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment, and the safe shutdown of all equipment. (Also see specific conditions of certification for the technical areas of Hazardous Materials Management and Waste Management.) In addition, consistent with requirements under unplanned permanent closure addressed below, the nature and extent of insurance coverage, and major equipment warranties must also be included in the On-Site Contingency Plan. In addition, the status of the insurance coverage and major equipment warranties must be updated in the annual compliance reports. In the event of an unplanned temporary closure, the project owner shall notify BLM's AO and the CPM, as well as other responsible agencies, by telephone, fax, or e-mail, within 24 hours and shall take all necessary steps to implement the On-Site Contingency Plan. The project owner shall keep BLM's AO and the CPM informed of the circumstances and expected duration of the closure. If BLM's AO and the CPM determine that an unplanned temporary closure is likely to be permanent, or for a duration of more than six months, a Closure Plan consistent with the requirements for a planned closure shall be developed and submitted to BLM's AO and the CPM within 90 days of BLM's AO and the CPM's determination (or other period of time agreed to by BLM's AO and the CPM).		
COMPLIANCE-12, Unplanned Permanent Closure: The On-Site Contingency Plan required for unplanned temporary closure shall also cover unplanned permanent facility closure. All of the requirements specified for unplanned temporary closure shall also apply to unplanned permanent closure. In addition, the On-Site Contingency Plan shall address how the project owner will ensure that all required closure steps will be successfully undertaken in the event of abandonment. In the event of an unplanned permanent closure, the project owner shall notify BLM's AO and the CPM, as well as other responsible agencies, by telephone, fax, or e-mail, within 24 hours and shall take all necessary steps to implement the On-Site Contingency Plan. The project owner shall keep BLM's AO and the CPM informed of the status of all closure activities. To ensure that public health and safety and the environment are protected in the event of an unplanned permanent closure, the project owner shall submit an On-Site Contingency Plan no less than 60 days after a NTP is issued for each phase of development.		CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
COMPLIANCE 13, Post-Certification Changes to the Decision: Amendments, ownership Changes, Staff Approved Project Modifications and Verification Changes: The project owner must petition the Energy Commission pursuant to Title 20, California Code of Regulations, section 1769, in order to modify the project (including linear facilities) design, operation or performance requirements, and to transfer ownership or operational control of the facility. The BLM ROW holder must file a written request in the form of an application to the BLM AO in order to change the terms and conditions of their ROW grant or POD. Written requests will be in a manner prescribed by the BLM AO. Implementation of a project modification without first securing BLM approval may result in financial and other liabilities in accordance with 43 CFR 2808. It is the responsibility of the project owner to contact BLM's AO and the CPM to determine if a proposed project change should be considered a project modification pursuant to section 1769. Implementation of a project modification without first securing Energy Commission staff approval may result in enforcement action that could result in civil penalties in accordance with section 25534 of the Public Resources Code. A petition is required for amendments and for staff approved project modifications as specified below. Both shall be filed as a "Petition to Amend." Staff will determine if the change is significant or insignificant. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to BLM's AO and the CPM, who will file it with the Energy Commission's Dockets Unit in accordance with Title 20, California Code of Regulations, section 1209. The criteria that determine which type of approval and the process that applies are explained below. They reflect the provisions of Section 1769 at the time this condition was drafted. If the Commission's rules regarding amendments are amended, the rules in effect at the time an amendment is requested shall apply. ***Amendment*** The project owner shall petition the Energy Commission, pursuant to Title 20, California Code of Regulations, Section 1769(a), when proposing modifications to the project (including linear facilities) design, operation, or performance requirements. If a proposed modification results in deletion or change of a condition of certification, or makes changes that would cause the project not to comply with any applicable laws, ordinances, regulations or standards, the petition will be processed as a formal amendment to the Energy Commission's final decision, which requires public notice and review of the BLM-Energy Commission staff analysis, and approval by the full Energy Commission. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(a). Upon request, the CPM will provide you with a sample petition to use as a template. The ROW holder shall file an application to amend the BLM ROW grant for any substantial deviation or change in use in accordance with the regulations at 43 CFR 2807.20. The requirements to amend a ROW grant are the same as when filing a new application including paying processing and monitoring fees and rent. ***Staff Approved Project Modification*** Modifications that do not result in deletions or changes to conditions of certification, and that are compliant with laws, ordinances, regulations and standards, may be authorized by BLM's AO and the CPM as a staff approved project modification (SAPM) pursuant to section 1769(a) (2). Once staff files an intention to approve the proposed project		CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
GENERAL CONDITIONS (cont.)		
modifications, any person may file an objection to staff's determination within 14 days of service on the grounds that the modification does not meet the criteria of section 1769 (a)(2). If a person objects to staff's determination, the petition must be processed as a formal amendment to the decision and must be approved by the full commission at a noticed business meeting or hearing. BLM and the Energy Commission intend to integrate a process to jointly approve SAPMs to avoid duplication of approval processes and ensure appropriate documentation for the public record. ***Change of Ownership*** Change of ownership or operational control also requires that the project owner file a petition pursuant to section 1769(b). This process requires public notice and approval by the full Commission and BLM. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(b). Upon request, the CPM will provide you with a sample petition to use as a template. The transfer of ownership of a BLM ROW grant must be through the filing of an application for assignment of the grant in accordance with 43 CFR 2807.21. ***Verification Change*** A verification may be modified by BLM's AO and the CPM without requesting an amendment to the ROW Grant or Energy Commission decision if the change does not require modifying any conditions of certification and provides an effective alternate means of verification.		
FACILITY DESIGN		
GEN-1, California Building Standards Code: The project owner shall design, construct, and inspect the project in accordance with the 2007 California Building Standards Code (CBSC), also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval (the CBSC in effect is the edition that has been adopted by the California Building Standards Commission and published at least 180 days previously). The project owner shall ensure that all the provisions of the above applicable codes are enforced during the construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility. All transmission facilities (lines, switchyards, switching stations and substations) are covered in the conditions of certification in the Transmission System Engineering section of this document. In the event that the initial engineering designs are submitted to the CBO when the successor to the 2007 CBSC is in effect, the 2007 CBSC provisions shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. The project owner shall ensure that all contracts with contractors, subcontractors, and suppliers clearly specify that all work performed and materials supplied comply with the codes listed above.	Within 30 days following receipt of the certificate of occupancy, the project owner shall submit to the CPM a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation, and inspection requirements of the applicable LORS and the Energy Commission's decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the certificate of occupancy within 30 days of receipt from the CBO. Once the certificate of occupancy has been issued, the project owner shall inform the CPM at least 30 days prior to any construction, addition, alteration, moving, demolition, repair, or maintenance to be performed on any portion(s) of the completed facility that requires CBO approval for compliance with the above codes. The CPM will then determine if the CBO needs to approve the work.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
GEN-2, Schedule of Facility Design Submittals: Before submitting the initial engineering designs for CBO review, the project owner shall furnish the CPM and the CBO with a schedule of facility design submittals, and master drawing and master specifications lists. The schedule shall contain a list of proposed submittal packages of designs, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide specific packages to the CPM upon request.	At least 60 days (or a project owner and CBO approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO and to the CPM the schedule, the master drawings, and master specifications list of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures, systems, and equipment defined above in Condition of Certification **GEN-2**. Major structures and equipment may be added to or deleted from the list only with CPM approval. The project owner shall provide schedule updates in the monthly compliance report.	CEC
GEN-3, Payments to the CBO: The project owner shall make payments to the CBO for design review, plan checks, and construction inspections, based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. These fees may be consistent with the fees listed in the 2007 CBC, adjusted for inflation and other appropriate adjustments; may be based on the value of the facilities reviewed; may be based on hourly rates; or may be otherwise agreed upon by the project owner and the CBO.	The project owner shall make the required payments to the CBO in accordance with the agreement between the project owner and the CBO. The project owner shall send a copy of the CBO's receipt of payment to the CPM in the next monthly compliance report indicating that applicable fees have been paid.	CEC
GEN-4, Resident Engineer: Prior to the start of rough grading, the project owner shall assign a California- registered architect, or a structural or civil engineer, as the resident engineer (RE) in charge of the project. All transmission facilities (lines, switchyards, switching stations, and substations) are addressed in the conditions of certification in the Transmission System Engineering section of this document. The RE may delegate responsibility for portions of the project to other registered engineers. Registered mechanical and electrical engineers may be delegated responsibility for mechanical and electrical portions of the project, respectively. A project may be divided into parts, provided that each part is clearly defined as a distinct unit. Separate assignments of general responsibility may be made for each designated part. The RE shall: 1. Monitor progress of construction work requiring CBO design review and inspection to ensure compliance with LORS; 2. Ensure that construction of all facilities subject to CBO design review and inspection conforms in every material respect to applicable LORS, these conditions of certification, approved plans, and specifications; 3. Prepare documents to initiate changes in approved drawings and specifications when either directed by the project owner or as required by the conditions of the project; 4. Be responsible for providing project inspectors and testing agencies with complete and up-to-date sets of stamped drawings, plans, specifications, and any other required documents; 5. Be responsible for the timely submittal of construction progress reports to the CBO from the project inspectors, the contractor, and other engineers who have been delegated responsibility for portions of the project; and	At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the resume and registration number of the RE and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within 5 days of the approval. If the RE or the delegated engineer(s) is subsequently reassigned or replaced, the project owner has 5 days to submit the resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within 5 days of the approval.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
6. Be responsible for notifying the CBO of corrective action or the disposition of items noted on laboratory reports or other tests when they do not conform to approved plans and specifications. The resident engineer (or his delegate) must be located at the project site, or be available at the project site within a reasonable period of time, during any hours in which construction takes place. The RE shall have the authority to halt construction and to require changes or remedial work if the work does not meet requirements. If the RE or the delegated engineers are reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.		
GEN-5, California Registered Engineer Assignments: Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: a civil engineer; a soils, geotechnical, or civil engineer experienced and knowledgeable in the practice of soils engineering; and an engineering geologist. Prior to the start of construction, the project owner shall assign at least one of each of the following California registered engineers to the project: a design engineer who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; a mechanical engineer; and an electrical engineer. (California Business and Professions Code section 6704 et seq., and sections 6730, 6731 and 6736 require state registration to practice as a civil engineer or structural engineer in California). All transmission facilities (lines, switchyards, switching stations, and substations) are handled in the conditions of certification in the Transmission System Engineering section of this document. The tasks performed by the civil, mechanical, electrical, or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project (for example, proposed earthwork, civil structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer. The project owner shall submit, to the CBO for review and approval, the names, qualifications, and registration numbers of all responsible engineers assigned to the project. If any one of the designated responsible engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned responsible engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer. A. The civil engineer shall: 1. Review the foundation investigations, geotechnical, or soils reports prepared by the soils engineer, the geotechnical engineer, or by a civil engineer experienced and knowledgeable in the practice of soils engineering; 2. Design (or be responsible for the design of), stamp, and sign all plans, calculations, and specifications for proposed site work, civil works, and related facilities requiring design review and inspection by the CBO. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads and sanitary sewer systems; and	At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible civil engineer, soils (geotechnical) engineer and engineering geologist assigned to the project. At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of construction, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible design engineer, mechanical engineer, and electrical engineer assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the responsible engineers within 5 days of the approval. If the designated responsible engineer is subsequently reassigned or replaced, the project owner has 5 days in which to submit the resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within 5 days of the approval.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
3. Provide consultation to the RE during the construction phase of the project and recommend changes in the design of the civil works facilities and changes to the construction procedures. B. The soils engineer, geotechnical engineer, or civil engineer experienced and knowledgeable in the practice of soils engineering, shall: 1. Review all the engineering geology reports; 2. Prepare the foundation investigations, geotechnical, or soils reports containing field exploration reports, laboratory tests, and engineering analysis detailing the nature and extent of the soils that could be susceptible to liquefaction, rapid settlement or collapse when saturated under load; 3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with requirements set forth in the 2007 CBC (depending on the site conditions, this may be the responsibility of either the soils engineer, the engineering geologist, or both); and 4. Recommend field changes to the civil engineer and RE. This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform to the predicted conditions used as the basis for design of earthwork or foundations. C. The engineering geologist shall: 1. Review all the engineering geology reports and prepare a final soils grading report; and 2. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 2007 CBC (depending on the site conditions, this may be the responsibility of either the soils engineer, the engineering geologist, or both). D. The design engineer shall: 1. Be directly responsible for the design of the proposed structures and equipment supports; 2. Provide consultation to the RE during design and construction of the project; 3. Monitor construction progress to ensure compliance with engineering LORS; 4. Evaluate and recommend necessary changes in design; and 5. Prepare and sign all major building plans, specifications, and calculations. E. The mechanical engineer shall be responsible for, and sign and stamp a statement with, each mechanical submittal to the CBO, stating that the proposed final design plans, specifications, and calculations conform to all of the mechanical engineering design requirements set forth in the Energy Commission's decision. F. The electrical engineer shall: 1. Be responsible for the electrical design of the project; and 2. Sign and stamp electrical design drawings, plans, specifications, and calculations.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
GEN-6, Certified Special Inspector: Prior to the start of an activity requiring special inspection, including prefabricated assemblies, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 2007 CBC. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in the Transmission System Engineering section of this document. A certified weld inspector, certified by the American Welding Society (AWS), and/or American Society of Mechanical Engineers (ASME) as applicable, shall inspect welding performed on-site requiring special inspection (including structural, piping, tanks and pressure vessels). The special inspector shall: 1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection; 2. Inspect the work assigned for conformance with the approved design drawings and specifications; 3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action; and 4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans, specifications, and other provisions of the applicable edition of the CBC.	At least 15 days (or project owner- and CBO-approved alternative time frame) prior to the start of an activity requiring special inspection, the project owner shall submit to the CBO for review and approval, with a copy to the CPM, the name(s) and qualifications of the certified weld inspector(s), or other certified special inspector(s) assigned to the project to perform one or more of the duties set forth above. The project owner shall also submit to the CPM a copy of the CBO's approval of the qualifications of all special inspectors in the next monthly compliance report. If the special inspector is subsequently reassigned or replaced, the project owner has 5 days in which to submit the name and qualifications of the newly assigned special inspector to the CBO for approval. The project owner shall notify the CPM of the CBO's approval of the newly assigned inspector within 5 days of the approval.	CEC
GEN-7, Design and/or Construction Discrepancy: If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend required corrective actions. The discrepancy documentation shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this condition of certification and, if appropriate, applicable sections of the CBC and/or other LORS.	The project owner shall transmit a copy of the CBO's approval of any corrective action taken to resolve a discrepancy to the CPM in the next monthly compliance report. If any corrective action is disapproved, the project owner shall advise the CPM, within 5 days, of the reason for disapproval and the revised corrective action to obtain CBO's approval.	CEC
GEN-8, CBO Final Approval: The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. The project owner shall notify the CPM after obtaining the CBO's final approval. The project owner shall retain one set of approved engineering plans, specifications, and calculations (including all approved changes) at the project site or at another accessible location during the operating life of the project. Electronic copies of the approved plans, specifications, calculations, and marked-up as-builts shall be provided to the CBO for retention by the CPM.	Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM, in the next monthly compliance report, (a) a written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans. After storing the final approved engineering plans, specifications, and calculations described above, the project owner shall submit to the CPM a letter stating both that the above documents have been stored and the storage location of those documents. Within 90 days of the completion of construction, the project owner shall provide to the CBO three sets of electronic copies of the above documents at the project owner's expense. These are to be provided in the form of "read only" (Adobe .pdf 6.0) files, with restricted (password-protected) printing privileges, on archive quality compact discs.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
CIVIL-1, Submittals to the CBO: The project owner shall submit to the CBO for review and approval the following: 1. Design of the proposed drainage structures and the grading plan; 2. An erosion and sedimentation control plan; 3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and 4. Soils, geotechnical, or foundation investigations reports required by the 2007 CBC.	At least 15 days (or project owner- and CBO-approved alternative time frame) prior to the start of site grading the project owner shall submit the documents described above to the CBO for design review and approval. In the next monthly compliance report following the CBO's approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.	CEC
CIVIL-2, Unforeseen adverse soil or geologic conditions: The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible soils engineer, geotechnical engineer, or the civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications, and calculations to the CBO based on these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area.	The project owner shall notify the CPM within 24 hours, when earthwork and construction is stopped as a result of unforeseen adverse geologic/soil conditions. Within 24 hours of the CBO's approval to resume earthwork and construction in the affected areas, the project owner shall provide to the CPM a copy of the CBO's approval.	CEC
CIVIL-3, Inspections and Discrepancy Reports: The project owner shall perform inspections in accordance with the 2007 CBC. All plant site-grading operations, for which a grading permit is required, shall be subject to inspection by the CBO. If, in the course of inspection, it is discovered that the work is not being performed in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO, and the CPM. The project owner shall prepare a written report, with copies to the CBO and the CPM, detailing all discrepancies, non-compliance items, and the proposed corrective action.	Within five days of the discovery of any discrepancies, the resident engineer shall transmit to the CBO and the CPM a non-conformance report (NCR), and the proposed corrective action for review and approval. Within five days of resolution of the NCR, the project owner shall submit the details of the corrective action to the CBO and the CPM. A list of NCRs, for the reporting month, shall also be included in the following monthly compliance report.	CEC
CIVIL-4, Final Grading Plan Approval: After completion of finished grading and erosion and sedimentation control and drainage work, the project owner shall obtain the CBO's approval of the final grading plans (including final changes) for the erosion and sedimentation control work. The civil engineer shall state that the work within his/her area of responsibility was done in accordance with the final approved plans.	Within 30 days (or project owner- and CBO-approved alternative time frame) of the completion of the erosion and sediment control mitigation and drainage work, the project owner shall submit to the CBO, for review and approval, the final grading plans (including final changes) and the responsible civil engineer's signed statement that the installation of the facilities and all erosion control measures were completed in accordance with the final approved combined grading plans, and that the facilities are adequate for their intended purposes, along with a copy of the transmittal letter to the CPM. The project owner shall submit a copy of the CBO's approval to the CPM in the next monthly compliance report.	CEC
STRUC-1, Structure Approval: Prior to the start of any increment of construction of any major structure or component listed in Facility Design Table 2 of condition of certification GEN 2, above, the project owner shall submit to the CBO for design review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force procedures, designs, plans and drawings shall be those for the following items (from Table 2, above):	At least 60 days (or project owner- and CBO-approved alternative time frame) prior to the start of any increment of construction of any structure or component listed in Facility Design Table 2 of condition of certification GEN 2,above, the project owner shall submit to the CBO the above final	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
1. Major project structures; 2. Major foundations, equipment supports, and anchorage; and 3. Large field-fabricated tanks. Construction of any structure or component shall not begin until the CBO has approved the lateral force procedures to be employed in designing that structure or component. The project owner shall: 1. Obtain approval from the CBO of lateral force procedures proposed for project structures; 2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (for example, highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications; 3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation; 4. Ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. The final designs, plans, calculations, and specifications shall be signed and stamped by the responsible design engineer; and 5. Submit to the CBO the responsible design engineer's signed statement that the final design plans conform to applicable LORS.	design plans, specifications and calculations, with a copy of the transmittal letter to the CPM. The project owner shall submit to the CPM, in the next monthly compliance report, a copy of a statement from the CBO that the proposed structural plans, specifications, and calculations have been approved and comply with the requirements set forth in applicable engineering LORS.	
STRUC-2, Structure Document Submittal: The project owner shall submit to the CBO the required number of sets of the following documents related to work that has undergone CBO design review and approval: 1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters); 2. Concrete pour sign-off sheets; 3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques); 4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and 5. Reports covering other structural activities requiring special inspections shall be in accordance with the 2007 CBC.	If a discrepancy is discovered in any of the above data, the project owner shall, within 5 days, prepare and submit an NCR describing the nature of the discrepancies and the proposed corrective action to the CBO, with a copy of the transmittal letter to the CPM. The NCR shall reference the condition(s) of certification and the applicable CBC chapter and section. Within 5 days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM. The project owner shall transmit a copy of the CBO's approval or disapproval of the corrective action to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within 5 days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
STRUC-3, Design Change Submittals: The project owner shall submit to the CBO design changes to the final plans required by the 2007 CBC, including the revised drawings, specifications, calculations, and a complete description of, and supporting rationale for, the proposed changes, and shall give to the CBO prior notice of the intended filing.	On a schedule suitable to the CBO, the project owner shall notify the CBO of the intended filing of design changes, and shall submit the required number of sets of revised drawings and the required number of copies of the other above-mentioned documents to the CBO, with a copy of the transmittal letter to the CPM. The project owner shall notify the CPM, via the monthly compliance report, when the CBO has approved the revised plans.	CEC
STRUC-4, Hazardous Materials Transport: Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in the 2007 CBC shall, at a minimum, be designed to comply with the requirements of that chapter.	At least 30 days (or project owner- and CBO-approved alternate time frame) prior to the start of installation of the tanks or vessels containing the above specified quantities of toxic or hazardous materials, the project owner shall submit to the CBO for design review and approval final design plans, specifications, and calculations, including a copy of the signed and stamped engineer's certification. The project owner shall send copies of the CBO approvals of plan checks to the CPM in the following monthly compliance report. The project owner shall also transmit a copy of the CBO's inspection approvals to the CPM in the monthly compliance report following completion of any inspection.	CEC
MECH-1, Proposed Final Design Submittal: The project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations for each plant major piping and plumbing system listed in Facility Design Table 2, condition of certification GEN 2, above. Physical layout drawings and drawings not related to code compliance and life safety need not be submitted. The submittal shall also include the applicable QA/QC procedures. Upon completion of construction of any such major piping or plumbing system, the project owner shall request the CBO's inspection approval of that construction. The responsible mechanical engineer shall stamp and sign all plans, drawings, and calculations for the major piping and plumbing systems, subject to CBO design review and approval, and submit a signed statement to the CBO when the proposed piping and plumbing systems have been designed, fabricated, and installed in accordance with all of the applicable laws, ordinances, regulations and industry standards, which may include, but are not limited to: 1. American National Standards Institute (ANSI) B31.1 (Power Piping Code); 2. ANSI B31.2 (Fuel Gas Piping Code); 3. ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code); 4. ANSI B31.8 (Gas Transmission and Distribution Piping Code); 5. Title 24, California Code of Regulations, Part 5 (California Plumbing Code);	At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of any increment of major piping or plumbing construction listed in Facility Design Table 2, condition of certification GEN 2, above, the project owner shall submit to the CBO for design review and approval the final plans, specifications, and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with applicable LORS, and shall send the CPM a copy of the transmittal letter in the next monthly compliance report. The project owner shall transmit to the CPM, in the monthly compliance report following completion of any inspection, a copy of the transmittal letter conveying the CBO's inspection approvals.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
6. Title 24, California Code of Regulations, Part 6 (California Energy Code, for building energy conservation systems and temperature control and ventilation systems); 7. Title 24, California Code of Regulations, Part 2 (California Building Code); and 8. Riverside County codes. The CBO may deputize inspectors to carry out the functions of the code enforcement agency.		
MECH-2, Pressure Vessels: For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by applicable LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of that installation. The project owner shall: 1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated, and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and 2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications, and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.	At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for design review and approval, the above listed documents, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM. The project owner shall transmit to the CPM, in the monthly compliance report following completion of any inspection, a copy of the transmittal letter conveying the CBO's and/or Cal-OSHA inspection approvals.	CEC
MECH-3, HVAC and Refrigeration Systems: The project owner shall submit to the CBO for design review and approval the design plans, specifications, calculations, and quality control procedures for any heating, ventilating, air conditioning (HVAC) or refrigeration system. Packaged HVAC systems, where used, shall be identified with the appropriate manufacturer's data sheets. The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the CBC and other applicable codes. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of that construction. The final plans, specifications and calculations shall include approved criteria, assumptions, and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with the applicable LORS.	At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the CBO the required HVAC and refrigeration calculations, plans, and specifications, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the CBC and other applicable codes, with a copy of the transmittal letter to the CPM.	CEC
ELEC-1, Electrical Construction: Prior to the start of any increment of electrical construction for all electrical equipment and systems 480 Volts or higher (see a representative list, below), with the exception of underground duct work and any physical layout drawings and drawings not related to code compliance and life safety, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications, and calculations. Upon approval, the above listed plans, together with design changes and design change notices, shall remain on the site or at another accessible location for the operating life of the project. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in the Transmission System Engineering section of this document.	At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for design review and approval the above listed documents. The project owner shall include in this submittal a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next monthly compliance report.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
FACILITY DESIGN (cont.)		
A. Final plant design plans shall include: 1. one-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems; and 2. system grounding drawings. B. Final plant calculations must establish: 1. short-circuit ratings of plant equipment; 2. ampacity of feeder cables; 3. voltage drop in feeder cables; 4. system grounding requirements; 5. coordination study calculations for fuses, circuit breakers and protective relay settings for the 13.8 kV, 4.16 kV and 480 V systems; 6. system grounding requirements; and 7. lighting energy calculations. C. The following activities shall be reported to the CPM in the monthly compliance report: 1. Receipt or delay of major electrical equipment; 2. Testing or energization of major electrical equipment; and 3. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications conform to requirements set forth in the Energy Commission decision.		
TRANSMISSION SYSTEM ENGINEERING		
TSE-1, Schedule of Transmission Facility Design Submittals: The project owner shall furnish to the CPM and to the CBO a schedule of transmission facility design submittals, a Master Drawing List, a Master Specifications List, and a Major Equipment and Structure List. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested.	Prior to the start of construction, the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major equipment below). Additions and deletions shall be made to the table only with CPM and CBO approval. The project owner shall provide schedule updates in the Monthly Compliance Report. **List of Major Equipment Components**: Breakers Step-up transformer Switchyard Busses Surge arrestors Disconnects Take-off facilities Electrical control building Switchyard control building Transmission pole/tower Grounding system	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
TRANSMISSION SYSTEM ENGINEERING (cont.)		
TSE-2, Engineer Assignments: Before the start of construction, the project owner shall assign to the project an electrical engineer and at least one of each of the following: a) a civil engineer; b) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; c) a design engineer who is either a structural engineer or a civil engineer and fully competent and proficient in the design of power plant structures and equipment supports; or d) a mechanical engineer (Business and Professions Code Sections 6704 et seq. require state registration to practice as either a civil engineer or a structural engineer in California). The tasks performed by the civil, mechanical, electrical, or design engineers may be divided between two or more engineers as long as each engineer is responsible for a particular segment of the project, e.g., proposed earthwork, civil structures, power plant structures, or equipment support. No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer. The civil, geotechnical, or civil and design engineer, assigned as required by Facility Design Condition GEN 5, may be responsible for design and review of the TSE facilities. The project owner shall submit to the CBO, for review and approval, the names, qualifications, and registration numbers of all engineers assigned to the project. If any one of the designated engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer. This engineer shall be authorized to halt earth work and require changes; if site conditions are unsafe or do not conform to the predicted conditions used as the basis for design of earth work or foundations. The electrical engineer shall: 1. be responsible for the electrical design of the power plant switchyard, outlet, and termination facilities; and 2. sign and stamp electrical design drawings, plans, specifications, and calculations.	Prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the names, qualifications, and registration numbers of all the responsible engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval. If the designated responsible engineer is subsequently reassigned or replaced, the project owner has 5 days in which to submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within 5 days of the approval.	CEC
TSE-3, Design and/or Construction Discrepancies: If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend corrective action (2001 California Building Code, Chapter 1, section 108.4, approval required; Chapter 17, section 1701.3, Duties and Responsibilities of the Special Inspector; Appendix Chapter 33, section 3317.7, Notification of Noncompliance). The discrepancy documentation shall become a controlled document and shall be submitted to the CBO for review and approval and refer to this condition of certification.	The project owner shall submit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days of receipt. If disapproved, the project owner shall advise the CPM, within 5 days, the reason for the disapproval, along with the revised corrective action required to obtain the CBO's approval.	CEC
TSE-4, Power Plan Switchyard/Outlet Line and Termination Plans: For the power plant switchyard, outlet line and termination, the project owner shall not begin any construction until plans for that increment of construction have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. The following activities shall be reported in the monthly compliance report:	Prior to the start of each increment of construction, the project owner shall submit to the CBO for review and approval the final design plans, specifications and calculations for equipment and systems of the power plant switchyard, and outlet line and termination, including a copy of the signed and stamped statement from the responsible	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
TRANSMISSION SYSTEM ENGINEERING (cont.)		
a) receipt or delay of major electrical equipment; b) testing or energization of major electrical equipment; and c) the number of electrical drawings approved, submitted for approval, and still to be submitted.	electrical engineer verifying compliance with all applicable LORS, and send the CPM a copy of the transmittal letter in the next monthly compliance report.	
TSE-5, LORS and Requirements for Transmission Facilities: The project owner shall ensure that the design, construction, and operation of the proposed transmission facilities will conform to all applicable LORS, and the requirements listed below. The project owner shall submit the required number of copies of the design drawings and calculations, as determined by the CBO. Once approved, the project owner shall inform the CPM and CBO of any anticipated changes to the design, and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval. a) The power plant outlet line shall meet or exceed the electrical, mechanical, civil, and structural requirements of CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the High Voltage Electric Safety Orders, California ISO standards, National Electric Code (NEC) and related industry standards. b) Breakers and busses in the power plant switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis. c) Outlet line crossings and line parallels with transmission and distribution facilities shall be coordinated with the transmission line owner and comply with the owner's standards. d) The project conductors shall be sized to accommodate the full output of the project. e) Termination facilities shall comply with applicable SCE interconnection standards. f) The project owner shall provide to the CPM: i) The Special Protection System (SPS) sequencing and timing if applicable, ii) A letter stating that the mitigation measures or projects selected by the transmission owners for each reliability criteria violation, for which the project is responsible, are acceptable, and iv) A copy of the executed LGIA signed by the California ISO and the project owner.	Prior to the start of construction or start of modification of transmission facilities, the project owner shall submit to the CBO for approval: 1. Design drawings, specifications, and calculations conforming with CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the High Voltage Electric Safety Orders, CA ISO standards, National Electric Code (NEC) and related industry standards, for the poles/towers, foundations, anchor bolts, conductors, grounding systems, and major switchyard equipment; 2. For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on "worst case conditions" and a statement signed and sealed by the registered engineer in responsible charge, or other acceptable alternative verification, that the transmission element(s) will conform with CPUC General Order 95 or National Electric Safety Code (NESC); Title 8 of the California Code and Regulations (Title 8); Articles 35, 36 and 37 of the High Voltage Electric Safety Orders, California ISO standards, National Electric Code (NEC), and related industry standards; 3. Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in charge, a route map, and an engineering description of the equipment and configurations covered by requirements TSE 5 a) through g); 4. The Special Protection System (SPS) sequencing and timing if applicable shall be provided concurrently to the CPM. 5. A letter stating that the mitigation measures or projects selected by the transmission owners for each reliability criteria violation, for which the project is responsible, are acceptable, and	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
TRANSMISSION SYSTEM ENGINEERING (cont.)		
	6. A copy of the executed LGIA signed by the California ISO and the project owner. Prior to the start of construction of or modification of transmission facilities, the project owner shall inform the CBO and the CPM of any anticipated changes to the design that are different from the design previously submitted and approved and shall submit a detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change to the CPM and CBO for review and approval.	
TSE-6, Notice to the California Independent Systems Officer: The project owner shall provide the following Notice to the California Independent System Operator (California ISO) prior to synchronizing the facility with the California Transmission system: 1. At least one week prior to synchronizing the facility with the grid for testing, provide the California ISO a letter stating the proposed date of synchronization; and 2. At least one business day prior to synchronizing the facility with the grid for testing, provide telephone notification to the California ISO Outage Coordination Department.	The project owner shall provide copies of the California ISO letter to the CPM when it is sent to the California ISO one week prior to initial synchronization with the grid. The project owner shall contact the California ISO Outage Coordination Department, Monday through Friday, between the hours of 0700 and 1530 at (916) 351 2300 at least one business day prior to synchronizing the facility with the grid for testing. A report of conversation with the California ISO shall be provided electronically to the CPM one day before synchronizing the facility with the California transmission system for the first time.	CEC
TSE-7, Transmission Facility Inspection: The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM and CBO approved changes thereto, to ensure conformance with CPUC GO 95 or NESC, Title 8, CCR, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", applicable interconnection standards, NEC and related industry standards. In case of non-conformance, the project owner shall inform the CPM and CBO in writing, within 10 days of discovering such non-conformance and describe the corrective actions to be taken.	Within 60 days after first synchronization of the project, the project owner shall transmit to the CPM and CBO: 1 "As built" engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO 95 or NESC, Title 8, California Code of Regulations, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders", and applicable interconnection standards, NEC, related industry standards. 2. An "as built" engineering description of the mechanical, structural, and civil portion of the transmission facilities signed and sealed by the registered engineer in responsible charge or acceptable alternative verification. "As built" drawings of the electrical, mechanical, structural, and civil portion of the transmission facilities shall be maintained at the power plant and made available, if requested, for CPM audit as set forth in the "Compliance Monitoring Plan".	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
TRANSMISSION SYSTEM ENGINEERING (cont.)		
	3. A summary of inspections of the completed transmission facilities, and identification of any nonconforming work and corrective actions taken, signed and sealed by the registered engineer in charge.	
AIR QUALITY		
AQ-SC-1, Air Quality Construction Mitigation Manager (AQCMM): The project owner shall designate and retain an on-site AQCMM who shall be responsible for directing and documenting compliance with Conditions of Certification AQ SC3, AQ SC4 and AQ SC5 for the entire project site and linear facility construction. The on-site AQCMM may delegate responsibilities to one or more AQCMM Delegates. The AQCMM and AQCMM Delegates shall have full access to all areas of construction on the project site and linear facilities, and shall have the authority to stop any or all construction activities as warranted by applicable construction mitigation conditions. The AQCMM and AQCMM Delegates may have other responsibilities in addition to those described in this condition. The AQCMM shall not be terminated without written consent of the Compliance Project Manager (CPM).	At least 60 days prior to the start of ground disturbance, the project owner shall submit to the BLM's Authorized Officer and CPM for approval, the name, resume, qualifications, and contact information for the on-site AQCMM and all AQCMM Delegates.	CEC
AQ-SC-2, Air Quality Construction Mitigation Plan (AQCMP): The project owner shall provide an AQCMP, for approval, which details the steps that will be taken and the reporting requirements necessary to ensure compliance with Conditions of Certification AQ SC3, AQ SC4, and AQ SC5.	At least 30 days prior to the start of any ground disturbance, the project owner shall submit the AQCMP to the BLM's Authorized Officer and CPM for approval. The AQCMP shall include effectiveness and environmental data for the proposed soil stabilizer. The BLM's Authorized Officer or CPM will notify the project owner of any necessary modifications to the plan within 15 days from the date of receipt.	CEC
AQ-SC-3, Construction Fugitive Dust Control: The AQCMM shall submit documentation to the BLM's Authorized Officer and CPM in each Monthly Compliance Report that demonstrates compliance with the Air Quality Construction Mitigation Plan (AQCMP) mitigation measures for the purposes of minimizing fugitive dust emission creation from construction activities and preventing all fugitive dust plumes from leaving the project. Any deviation from the AQCMP mitigation measures shall require prior BLM Authorized Officer and CPM notification and approval. a. The main access roads through the facility to the power block areas will be either paved or stabilized using soil binders, or equivalent methods, to provide a stabilized surface that is similar for the purposes of dust control to paving, that may or may not include a crushed rock (gravel or similar material with fines removed) top layer, prior to initiating construction in the main power block area, and delivery areas for operations materials (chemicals, replacement parts, etc.) will be paved or treated prior to taking initial deliveries. b. All unpaved construction roads and unpaved operation and maintenance site roads, as they are being constructed, shall be stabilized with a non-toxic soil stabilizer or soil weighting agent that can be determined to be both as efficient or more efficient for fugitive dust control as ARB approved soil stabilizers, and shall not increase any other environmental impacts, including loss of vegetation to areas beyond where the soil stabilizers are being applied for dust control. All other disturbed areas in the project and linear construction sites shall be watered as frequently as necessary during grading (consistent with **Biology** Conditions of Certification that address the minimization of standing water); and after	The AQCMM shall provide the CPM a Monthly Compliance Report to include the following to demonstrate control of fugitive dust emissions: A. a summary of all actions taken to maintain compliance with this Condition; B. copies of any complaints filed with the District in relation to project construction; and C. any other documentation deemed necessary by the CPM or AQCMM to verify compliance with this Condition. Such information may be provided via electronic format or disk at the project owner's discretion.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
active construction activities shall be stabilized with a non-toxic soil stabilizer or soil weighting agent, or alternative approved soil stabilizing methods, in order to comply with the dust mitigation objectives of Condition of Certification **AQ-SC4**. The frequency of watering can be reduced or eliminated during periods of precipitation. c. No vehicle shall exceed 10 miles per hour on unpaved areas within the construction site, with the exception that vehicles may travel up to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions. d. Visible speed limit signs shall be posted at the construction site entrances. e. All construction equipment vehicle tires shall be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways. f. Gravel ramps of at least 20 feet in length must be provided at the tire washing/cleaning station. g. All unpaved exits from the construction site shall be graveled or treated to prevent track-out to public roadways. h. All construction vehicles shall enter the construction site through the treated entrance roadways, unless an alternative route has been submitted to and approved by the CPM. i. Construction areas adjacent to any paved roadway below the grade of the surrounding construction area or otherwise directly impacted by sediment from site drainage shall be provided with sandbags or other equivalently effective measures to prevent run-off to roadways, or other similar run-off control measures as specified in the Storm Water Pollution Prevention Plan (SWPPP), only when such SWPPP measures are necessary so that this Condition does not conflict with the requirements of the SWPPP. j. All paved roads within the construction site shall be swept daily or as needed (less during periods of precipitation) on days when construction activity occurs to prevent the accumulation of dirt and debris. k. At least the first 500 feet of any paved public roadway exiting the construction site or exiting other unpaved roads en route from the construction site or construction staging areas shall be swept as needed (less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff resulting from the construction site activities is visible on the public paved roadways. l. All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered, or shall be treated with appropriate dust suppressant compounds. m. All vehicles that are used to transport solid bulk material on public roadways and that have potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least one foot of freeboard. n. Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) shall be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this Condition shall remain in place until the soil is stabilized or permanently covered with vegetation.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
AQ-SC-4, Dust Plume Response Requirement: The AQCMM or an AQCMM Delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be transported (A) off the project site and within 400 feet upwind of any regularly occupied structures not owned by the project owner or (B) 200 feet beyond the centerline of the construction of linear facilities indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMP shall include a section detailing how the additional mitigation measures will be accomplished within the time limits specified. The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed: Step 1: The AQCMM or Delegate shall direct more intensive application of the existing mitigation methods within 15 minutes of making such a determination. Step 2: The AQCMM or Delegate shall direct implementation of additional methods of dust suppression if Step 1, specified above, fails to result in adequate mitigation within 30 minutes of the original determination. Step 3: The AQCMM or Delegate shall direct a temporary shutdown of the activity causing the emissions if Step 2, specified above, fails to result in effective mitigation within one hour of the original determination. The activity shall not restart until the AQCMM or Delegate is satisfied that appropriate additional mitigation or other site conditions have changed so that visual dust plumes will not result upon restarting the shutdown source. The owner/operator may appeal to the CPM or BLM Authorized Officer any directive from the AQCMM or Delegate to shut down an activity, if the shutdown shall go into effect within one hour of the original determination, unless overruled by the CPM or BLM Authorized Officer before that time.	The AQCMM shall provide the BLM's Authorized Officer and the CPM a Monthly Compliance Report (**COMPLIANCE-6**) to include: A. a summary of all actions taken to maintain compliance with this condition; B. copies of any complaints filed with the District in relation to project construction; and C. any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.	CEC
AQ-SC-5, Diesel-Fueled Engine Control: The AQCMM shall submit to the CPM, in the Monthly Compliance Report, a construction mitigation report that demonstrates compliance with the AQCMP mitigation measures for purposes of controlling diesel construction-related emissions. Any deviation from the AQCMP mitigation measures shall require prior and CPM notification and approval. a. All diesel-fueled engines used in the construction of the facility shall have clearly visible tags issued by the on-site AQCMM showing that the engine meets the Conditions set forth herein. b. All construction diesel engines with a rating of 50 hp or higher shall meet, at a minimum, the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines, as specified in California Code of Regulations, Title 13, section 2423(b)(1), unless a good faith effort to the satisfaction of the CPM that is certified by the on-site AQCMM demonstrates that such engine is not available for a particular item of equipment. In the event that a Tier 3 engine is not available for any off-road equipment larger than 100 hp, that equipment shall be equipped with a Tier 2 engine, or an engine that is equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides (NOx) and diesel particulate matter (DPM) to no more than Tier 2 levels unless certified by engine manufacturers or the on-site AQCMM that the use of such devices is not practical for specific engine types. For purposes of this Condition, the use of such devices is "not practical" for the following, as well as other, reasons. 1. There is no available retrofit control device that has been verified by either the California Air Resources Board or U.S. Environmental Protection Agency to control the engine in question to Tier 2 equivalent emission levels and the highest level of available control using retrofit or Tier 1 engines is being used for the engine in question; or 2. The construction equipment is intended to be on site for 10 days or less. 3. The CPM may grant relief from this requirement if the AQCMM can demonstrate a good faith effort to comply with this requirement and that compliance is not practical.	The AQCMM shall include in the Monthly Compliance Report the following to demonstrate control of diesel construction-related emissions: A. A summary of all actions taken to control diesel construction related emissions; B. A list of all heavy equipment used on site during that month, including the owner of that equipment and a letter from each owner indicating that equipment has been properly maintained; and heavy earth-moving equipment and heavy duty construction- C. Any other documentation deemed necessary by the CPM, and the AQCMM to verify compliance with this Condition. Such information may be provided via electronic format or disk at the project owner's discretion.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
c. The use of a retrofit control device may be terminated immediately, provided that the CPM is informed within 10 working days of the termination and that a replacement for the equipment item in question meeting the controls required in item "b" occurs within 10 days of termination of the use, if the equipment would be needed to continue working at this site for more than 15 days after the use of the retrofit control device is terminated, if one of the following Conditions exists: 1. The use of the retrofit control device is excessively reducing the normal availability of the construction equipment due to increased down time for maintenance, and/or reduced power output due to an excessive increase in back pressure. 2. The retrofit control device is causing or is reasonably expected to cause engine damage. 3. The retrofit control device is causing or is reasonably expected to cause a substantial risk to workers or the public. 4. Any other seriously detrimental cause which has the approval of the CPM prior to implementation of the termination. d. All related trucks with engines meeting the requirements of (b) above shall be properly maintained and the engines tuned to the engine manufacturer's specifications. e. All diesel heavy construction equipment shall not idle for more than five minutes. Vehicles that need to idle as part of their normal operation (such as concrete trucks) are exempted from this requirement. f. Construction equipment will employ electric motors when feasible.		
AQ-SC-6, Emission Standards Vehicles: The project owner, when obtaining dedicated on-road or off-road vehicles for mirror washing activities and other facility maintenance activities, shall only obtain new model year vehicles that meet California on-road vehicle emission standards or appropriate U.S.EPA/California off-road engine emission standards for the model year when obtained.	At least 30 days prior to the start commercial operation, the project owner shall submit to the CPM a copy of the plan that identifies the size and type of the on-site vehicle and equipment fleet and the vehicle and equipment purchase orders and contracts and/or purchase schedule. The plan shall be updated every other year and submitted in the Annual Compliance Report.	CEC
AQ-SC-7, Operation Dust Control Plan: The project owner shall provide a site Operations Dust Control Plan, including all applicable fugitive dust control measures identified in the verification of AQ SC3 that would be applicable to minimizing fugitive dust emission creation from operation and maintenance activities and preventing all fugitive dust plumes from leaving the project site that: A. describes the active operations and wind erosion control techniques such as windbreaks and chemical dust suppressants, including their ongoing maintenance procedures, that shall be used on areas that could be disturbed by vehicles or wind anywhere within the project boundaries; and B. identifies the location of signs throughout the facility that will limit traveling on unpaved portion of roadways to solar equipment maintenance vehicles only. In addition, vehicle speed shall be limited to no more than 10 miles per hour on these unpaved roadways, with the exception that vehicles may travel up to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions.	At least 30 days prior to start of commercial operation, the project owner shall submit to the CPM for review and approval a copy of the site Operations Dust Control Plan that identifies the dust and erosion control procedures, including effectiveness and environmental data for the proposed soil stabilizer, that will be used during operation of the project and that identifies all locations of the speed limit signs. Within 60 days after commercial operation, the project owner shall provide to the CPM a report identifying the locations of all speed limit signs, and a copy of the project employee and contractor training manual that clearly identifies that project employees and contractors are required to comply with the dust and erosion control procedures and on-site speed limits.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
The site operations fugitive dust control plan shall include the use of durable non-toxic soil stabilizers on all regularly used unpaved roads and disturbed off-road areas, or alternative methods for stabilizing disturbed off-road areas, within the project boundaries, and shall include the inspection and maintenance procedures that will be undertaken to ensure that the unpaved roads remain stabilized. The soil stabilizer used shall be a non-toxic soil stabilizer or soil weighting agent that can be determined to be as efficient as or more efficient for fugitive dust control than ARB approved soil stabilizers, and that shall not increase any other environmental impacts including loss of vegetation to areas beyond where the soil stabilizers are being applied for dust control. The performance and application of the fugitive dust controls shall also be measured against and meet the performance requirements of condition AQ-SC4. The measures and performance requirements of AQ-SC4 shall also be included in the operations dust control plan.		
AQ-SC-8, CPM Copies of Documents: The project owner shall provide the CPM copies of all District issued Authority-to-Construct (ATC) and Permit-to-Operate (PTO) documents for the facility. The project owner shall submit to the CPM for review and approval any modification proposed by the project owner to any project air permit. The project owner shall submit to the CPM any modification to any permit proposed by the District or U.S. Environmental Protection Agency (U.S. EPA), and any revised permit issued by the District or U.S. EPA, for the project.	The project owner shall submit any ATC, PTO, and proposed air permit modifications to the CPM within 5five working days of its submittal either by 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt.	CEC
AQ-SC-9, VOC Emission Reduction Credit (ERC) Sources: The project owner shall provide a list of the proposed VOC emission reduction credit (ERC) sources that total at least 68 pounds per day, shall submit requests to modify this list, and shall submit documentation confirming that the ERCs have been surrendered as required by South Coast Air Quality Management District rules.	The project owner shall provide to the CPM the following: A. The list of proposed emission reduction credit sources, with the amount of reduction, the location of reduction, the method of reduction and date of reduction prior to initiating construction. B. Documentation prior to the start of operation that demonstrates the emission reduction credits have been surrendered in a manner and timeframe that complies with district rules. C. Any requests to modify the list of emission reduction credits shall be provided no later than at least 30 days prior to their surrender.	CEC
AQ-SC-10, Water Quality and Annual Emissions: The project owner shall operate the cooling towers with high efficiency mist eliminators and shall determine and report water quality and annual emissions.	The project owner shall provide the following at least 30 days prior to installation of the cooling tower to the CPM for review and approval: A. The manufacturer specifications for the cooling tower, that provides the number of cells and design recirculating water flow rate for the two cooling towers. B. The manufacturer specifications for the mist eliminators that provide a manufacturer guarantee that the mist eliminators will reduce drift to no more than 0.0005% of recirculating water flow.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
AIR QUALITY (cont.)		
	The project owner shall provide the following in the Annual Compliance Reports: C. The sampling data for the recirculating water TDS concentration, performed at least quarterly, that demonstrates that the annual average TDS concentration was no more than 2,000 milligrams per liter (ppmw). D. The estimated annual particulate emissions from the cooling tower using the following equation: (annual gallons of water recirculated) x (0.000005 fraction mist) x (average annual TDS concentration in mg/l) / (1,000,000) x (8.34 lbs/gallon).	
AQ-SC-11, Assurance that Engine Operation will not Cause Exceedance of Ambient Air Quality Standards: The project owner shall use one of the following four options to assure that the operation of the emergency engines will not cause an exceedance of the state or federal 1-hour NO2 ambient air quality standards: 1) The project owner shall provide an air dispersion modeling analysis that demonstrates to Staff's satisfaction that the currently proposed or officially revised worst-case operating emissions would not have the potential to cause exceedances of the state or federal 1-hour NO2 ambient air quality standards, or 2) The project owner shall procure emergency generator engines that meet ARB Tier 4 standards for NOx emissions (0.5 grams per brake horsepower), or 3) In the event that Tier 4 engines are not available at the time of engine purchase, the project owner shall; a) provide documentation from engine manufacturers that Tier 4 engines are not available; and b) procure emergency engines that have a NOx emissions guarantee of no more than 2.6 grams per brake horsepower, or 4) The project owner shall agree to limit the emergency generator engine testing duration to no more than 30 minutes per event and a testing frequency limited to the minimum required by engine manufacturer. In no event shall the project owner propose the use of an emergency engine that does not meet the most strict applicable federal or state engine emission limit regulation without a signed waiver from U.S. EPA or ARB as appropriate. The project owner shall justify the date of engine purchase.	The project owner shall provide to the CPM the air dispersion modeling analysis, if performed, that demonstrates compliance with Part 1) of this Condition at least 30 days prior to purchasing the emergency engine generators for this project, or shall provide documentation to the CPM at least five days prior to purchasing the engine generators that demonstrates how they would comply with Part 2), or Part 3), or Part 4) of this Condition.	CEC
BIOLOGICAL RESOURCES		
BIO-1, Designated Biologist Selection and Qualifications: The Project owner shall assign at least one Designated Biologist to the Project. The Project owner shall submit the resume of the proposed Designated Biologist(s), with at least three references and contact information, to the Energy Commission Compliance Project Manager (CPM) and BLM's Authorized Officer for approval in consultation with CDFG and USFWS. The Designated Biologist must meet the following minimum qualifications: 1. Bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field; 2. Three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society;	At least 30 days prior to construction-related ground disturbance, the Project owner shall submit the resumes of the Designated Biologists(s) along with the completed USFWS Desert Tortoise Authorized Biologist Request Form (www.fws.gov/ventura/speciesinfo/protocols_guidelines) and submit it to the USFWS and the CPM for review and final approval. No construction-related ground disturbance, grading, boring, or trenching shall commence until an approved Designated Biologist is available to be on site.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
3. Have at least one year of field experience with biological resources found in or near the Project area; 4. Meet the current USFWS Authorized Biologist qualifications criteria (www.fws.gov/ventura/speciesinfo/protocols_guidelines), demonstrate familiarity with protocols and guidelines for the desert tortoise, and be approved by the USFWS; and 5. Possess a California ESA Memorandum of Understanding pursuant to Section 2081(a) for desert tortoise. In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the CPM, in consultation with CDFG and USFWS, that the proposed Designated Biologist or alternate has the appropriate training and background to effectively implement the conditions of certification.	If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM at least 10 working days prior to the termination or release of the preceding Designated Biologist. In an emergency, the Project owner shall immediately notify the CPM to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to the CPM for consideration.	
BIO-2, Designated Biologist Duties: The Project owner shall ensure that the Designated Biologist performs the activities described below during any site mobilization activities, construction-related ground disturbance, grading, boring or trenching activities. The Designated Biologist may be assisted by the approved Biological Monitor(s) but remains the contact for the Project owner, BLM's Authorized Officer and the CPM. The Designated Biologist Duties shall include the following: 1. Advise the Project owner's Construction and Operation Managers on the implementation of the biological resources conditions of certification; 2. Consult on the preparation of the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) to be submitted by the Project owner; 3. Be available to supervise, conduct and coordinate mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as special-status species or their habitat; 4. Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions; 5. Inspect active construction areas where animals may have become trapped prior to construction commencing each day. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (e.g., parking lots) for animals in harm's way; 6. Notify the Project owner and BLM's Authorized Officer and the CPM of any non-compliance with any biological resources condition of certification; 7. Respond directly to inquiries of BLM's Authorized Officer and the CPM regarding biological resource issues; 8. Maintain written records of the tasks specified above and those included in the BRMIMP. Summaries of these records shall be submitted in the Monthly Compliance Report and the Annual Compliance Report; 9. Train the Biological Monitors as appropriate, and ensure their familiarity with the BRMIMP, Worker Environmental Awareness Program (WEAP) training, and USFWS guidelines on desert tortoise surveys and handling procedures <www.fws.gov/ventura/speciesinfo/protocols_guidelines>; and 10. Maintain the ability to be in regular, direct communication with representatives of CDFG, USFWS, BLM's Authorized Officer and the CPM, including notifying these agencies of dead or injured listed species and reporting special-status species observations to the California Natural Diversity Data Base.	The Designated Biologist shall provide copies of all written reports and summaries that document biological resources compliance activities in the Monthly Compliance Reports submitted to the CPM. If actions may affect biological resources during operation a Designated Biologist shall be available for monitoring and reporting. During Project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report unless his or her duties cease, as approved by the CPM.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-3, Biological Monitor Selection and Qualification: The Designated Biologist shall submit the resume, at least three references, and contact information of the proposed Biological Monitors to BLM's Authorized Officer and the CPM. The resume shall demonstrate, to the satisfaction of the CPM, the appropriate education and experience to accomplish the assigned biological resource tasks. The Biological Monitor is the equivalent of the USFWS designated Desert Tortoise Monitor (USFWS 2008). Biological Monitor(s) training by the Designated Biologist shall include familiarity with the conditions of certification, BRMIMP, WEAP, and USFWS guidelines on desert tortoise surveys and handling procedures <www.fws.gov/ventura/speciesinfo/protocols_guidelines>.	The Project owner shall submit the specified information to the CPM for approval at least 30 days prior to the start of any site mobilization or construction-related ground disturbance, grading, boring, and trenching. The Designated Biologist shall submit a written statement to the CPM confirming that individual Biological Monitor(s) has been trained including the date when training was completed. If additional biological monitors are needed during construction the specified information shall be submitted to the CPM for approval at least 10 days prior to their first day of monitoring activities.	CEC
BIO-4, Biological Monitor Duties: The Biological Monitors shall assist the Designated Biologist in conducting surveys and in monitoring of site mobilization activities, construction-related ground disturbance, fencing, grading, boring, trenching, or reporting. The Designated Biologist shall remain the contact for the Project owner and the CPM.	The Designated Biologist shall submit in the Monthly Compliance Report to the CPM copies of all written reports and summaries that document biological resources compliance activities, including those conducted by Biological Monitors. If actions may affect biological resources during operation a Biological Monitor, under the supervision of the Designated Biologist, shall be available for monitoring and reporting.	CEC
BIO-5, Designated Biologist and Biological Monitor Authority: The Project owner's construction/operation manager shall act on the advice of the Designated Biologist and Biological Monitor(s) to ensure conformance with the biological resources conditions of certification. The Designated Biologist shall have the authority to immediately stop any activity that is not in compliance with these conditions and/or order any reasonable measure to avoid take of an individual of a listed species. If required by the Designated Biologist and Biological Monitor(s) the Project owner's construction/operation manager shall halt all site mobilization, ground disturbance, grading, boring, trenching and operation activities in areas specified by the Designated Biologist. The Designated Biologist shall: 1. Require a halt to all activities in any area when determined that there would be an unauthorized adverse impact to biological resources if the activities continued; 2. Inform the Project owner and the construction/operation manager when to resume activities; and 3. Notify BLM's Authorized Officer and the CPM if there is a halt of any activities and advise them of any corrective actions that have been taken or would be instituted as a result of the work stoppage. If the Designated Biologist is unavailable for direct consultation, the Biological Monitor shall act on behalf of the Designated Biologist.	The Project owner shall ensure that the Designated Biologist or Biological Monitor notifies the CPM and BLM immediately (and no later than the morning following the incident, or Monday morning in the case of a weekend) of any non-compliance or a halt of any site mobilization, ground disturbance, grading, construction, or operation activities. If the non-compliance or halt to construction or operation relates to desert tortoise or any other federal- or state- listed species, the Project owner shall also notify Carlsbad Office of the USFWS and the Ontario Office of the CDFG at the same time. The Project owner shall notify the CPM of the circumstances and actions being taken to resolve the problem. Whenever corrective action is taken by the Project owner, a determination of success or failure will be made by the CPM in consultation with BLM, USFWS and CDFG within 5 working days after receipt of notice that corrective action is completed, or the Project owner would be notified by the CPM that coordination with other agencies would require additional time before a determination can be made.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-6, Worker Environmental Awareness Program (WEAP): The Project owner shall develop and implement a Project-specific Worker Environmental Awareness Program (WEAP) and shall secure approval for the WEAP from BLM's Authorized Officer and the CPM. The WEAP shall be administered to all onsite personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, subcontractors, and delivery personnel. The WEAP shall be implemented during site preconstruction, construction, operation, and closure. The WEAP shall: 1. Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting written material and electronic media, including photographs of protected species, is made available to all participants; 2. Discuss the locations and types of sensitive biological resources on the Project site and adjacent areas, and explain the reasons for protecting these resources; provide information to participants that no snakes, reptiles, or other wildlife shall be harmed; 3. Place special emphasis on desert tortoise, including information on physical characteristics, distribution, behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures; 4. Include a discussion of fire prevention measures to be implemented by workers during Project activities; request workers dispose of cigarettes and cigars appropriately and not leave them on the ground or buried; 5. Describe the temporary and permanent habitat protection measures to be implemented at the Project site; 6. Identify whom to contact if there are further comments and questions about the material discussed in the program; and 7. Include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines. The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.	At least 30 days prior to start of construction-related ground disturbance, the Project owner shall provide to the CPM for review and approval and to BLM, USFWS and CDFG a copy of the final WEAP and all supporting written materials and electronic media prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program. The Project owner shall provide in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. At least 10 days prior to construction-related ground disturbance activities the Project owner shall submit two copies of the approved final WEAP. Training acknowledgement forms signed during construction shall be kept on file by the Project owner for at least 6 months after the start of commercial operation. Throughout the life of the Project, the WEAP shall be repeated annually for permanent employees, and shall be routinely administered within 1 week of arrival to any new construction personnel, foremen, contractors, subcontractors, and other personnel potentially working within the Project area. Upon completion of the orientation, employees shall sign a form stating that they attended the program and understand all protection measures. These forms shall be maintained by the Project owner and shall be made available to the CPM, BLM, USFWS and CDFG and upon request. Workers shall receive and be required to visibly display a hardhat sticker or certificate that they have completed the training. During Project operation, signed statements for operational personnel shall be kept on file for 6 months following the termination of an individual's employment.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-7, Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP): The Project owner shall develop a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), and shall submit two copies of the proposed BRMIMP to the BLM-Authorized Officer and the CPM for review and approval. The Project owner shall implement the measures identified in the approved BRMIMP. The BRMIMP shall incorporate avoidance and minimization measures described in final versions of the Desert Tortoise Relocation Translocation Plan, the Raven Management Plan, the Closure, Conceptual Restoration Plan, the Burrowing Owl Mitigation and Monitoring Plan, and the Weed Management Plan. The BRMIMP shall be prepared in consultation with the Designated Biologist and shall include accurate and up-to-date maps depicting the location of sensitive biological resources that require temporary or permanent protection during construction and operation. The BRMIMP shall include complete and detailed descriptions of the following: 1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the Project owner; 2 All biological resources conditions of certification identified as necessary to avoid or mitigate impacts; 3. All biological resource mitigation, monitoring and compliance measures required in federal agency terms and conditions, such as those provided in the USFWS Biological Opinion; 4. All sensitive biological resources to be impacted, avoided, or mitigated by Project construction, operation, and closure; 5. All required mitigation measures for each sensitive biological resource; 6. All measures that shall be taken to avoid or mitigate temporary disturbances from construction activities; 7. Duration for each type of monitoring and a description of monitoring methodologies and frequency; 8. Performance standards to be used to help decide if/when proposed mitigation is or is not successful; 9. All performance standards and remedial measures to be implemented if performance standards are not met; 10. Biological resources-related facility closure measures including a description of funding mechanism(s); 11. A process for proposing plan modifications to BLM's Authorized Officer and the CPM and appropriate agencies for review and approval; and 12. A requirement to submit any sightings of any special-status species that are observed on or in proximity to the Project site, or during Project surveys, to the California Natural Diversity Data Base (CNDDB) per CDFG requirements.	The Project owner shall submit the draft BRMIMP to the CPM and BLM at least 30 days prior to start of any preconstruction site mobilization and construction-related ground disturbance, grading, boring, and trenching. At the same time the Project owner shall provide to CDFG and USFWS a copy of all portions of the draft BRMIMP relating to desert tortoise and any other federal or state-listed species. The Project owner shall provide final BRMIMP to the CPM, BLM, CDFG and USFWS at least 7 days prior to start of any construction-related ground disturbance, grading, boring, and trenching. The BRMIMP shall contain all of the required measures included in all biological conditions of certification. No construction-related ground disturbance, grading, boring, or trenching may occur prior to approval of the final BRMIMP by the CPM and BLM. If any permits have not yet been received when the final BRMIMP is submitted, these permits shall be submitted to the CPM within 5 days of their receipt, and the BRMIMP shall be revised or supplemented to reflect the permit condition(s). The Project owner shall submit to the CPM and BLM the revised or supplemented BRMIMP within 10 days following the Project owner's receipt of any additional permits. Under no circumstances shall ground disturbance proceed without implementation of all permit conditions. To verify that the extent of construction disturbance does not exceed that described in these conditions, the Project owner shall submit aerial photographs, at an approved scale, taken before and after construction to the CPM, BLM, USFWS and CDFG. The first set of aerial photographs shall reflect site conditions prior to any preconstruction site mobilization and construction-related ground disturbance, grading, boring, and trenching, and shall be submitted prior to initiation of such activities. The second set of aerial photographs shall be taken subsequent to completion of construction, and shall be submitted to the CPM, BLM, USFWS and CDFG no later than 90 days after completion of construction. The Project owner shall also provide a final accounting in whole acres of vegetation communities/cover types present before and after construction. Construction acreages shall be rounded to the nearest acre.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
	Any changes to the approved BRMIMP must be approved by the CPM and BLM in consultation with CDFG and USFWS. Implementation of BRMIMP measures (for example, construction activities that were monitored, species observed) shall be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of Project construction, the Project owner shall provide to the CPM, for review and approval, a written construction termination report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the Project's preconstruction site mobilization and construction-related ground disturbance, grading, boring, and trenching, and which mitigation and monitoring items are still outstanding.	
Bio-8, Impact Avoidance and Minimization Measures: The Project owner shall undertake the following measures to manage the Project site and related facilities during construction, operation and maintenance in a manner to avoid or minimize impacts to biological resources: 1. Limit Disturbance Areas. Minimize soil disturbance by locating staging areas, laydowns, and temporary parking or storage for linears in existing disturbed areas. Equipment maintenance and refueling shall not be conducted within 100 feet of any sensitive resource (for example, waters of the state, desert dry wash woodland, dune habitats and rare plant populations). Limit the width of the work area near sensitive resources. Avoid blading temporary access roads where feasible and instead drive over and crush the vegetation to preserve the seed bank and biotic soil crusts. The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) shall be delineated with stakes and flagging prior to construction activities in consultation with the Designated Biologist. Spoils and topsoil shall be stockpiled in disturbed areas lacking native vegetation and which do not provide habitat for special-status species. Parking areas, staging and disposal site locations shall similarly be located in areas without native vegetation or special-status species habitat. All disturbances, Project vehicles and equipment shall be confined to the flagged areas. 2. Minimize Road Impacts. New and existing roads that are planned for construction, widening, or other improvements shall not extend beyond the flagged impact area as described above. All vehicles passing or turning around would do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads or the construction zone, the route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction. 3. Minimize Traffic Impacts. Vehicular traffic during Project construction and operation shall be confined to existing routes of travel to and from the Project site, and cross country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit shall not exceed 25 miles per hour within the Project area, on maintenance roads for linear facilities, or on access roads to the Project site.	All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Implementation of the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of Project construction, the Project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how measures have been completed. As part of the Annual Compliance Report, each year following construction the Designated Biologist shall provide a report to the CPM that describes compliance with avoidance and minimization measures to be implemented during operation (for example, a summary of the incidence of roadkilled animals during the year, implementation of measures to avoid toxic spills, erosion and sedimentation, efforts to enforce worker guidelines, etc.). No less than 30 days prior to construction-related ground disturbance the Project owner shall provide the CPM, USFWS and CDFG with plans showing the design of a culvert under the Project Site Access Road that would provide access for desert tortoise and other wildlife. No less than 30 days after of completion of construction of the Project site access road the Project owner shall provide as-built drawings of the culvert.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
4. Monitor During Construction. In areas that have not been fenced with desert tortoise exclusion fencing and cleared, the Designated Biologist shall be present at the construction site during all Project activities that have potential to disturb soil, vegetation, and wildlife. The Designated Biologist or Biological Monitor shall clear ahead of equipment during brushing and grading activities. If desert tortoises are found during construction monitoring, procedures outlined in **BIO-9** shall be implemented. 5. Minimize Impacts of Transmission/Pipeline Alignments, Roads, and Staging Areas. Staging areas for construction on the plant site shall be within the area that has been fenced with desert tortoise exclusion fencing and cleared. For construction activities outside of the plant site (transmission line, pipeline alignments) access roads, pulling sites, and storage and parking areas shall be designed, installed, and maintained with the goal of minimizing impacts to native plant communities and sensitive biological resources. Transmission lines and all electrical components shall be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee's (APLIC's) S*uggested Practices for Avian Protection on Power Lines* (APLIC 2006) and *Mitigating Bird Collisions with Power Lines* (APLIC 1994) to reduce the likelihood of large bird electrocutions and collisions. Where feasible avoid impacts to desert washes and special-status plants by adjusting the locations of poles and laydown areas, and the alignment of the roads and pipelines. Construction drawings and grading plans shall depict the locations of sensitive resources and demonstrate where temporary impacts to sensitive resources can be avoided and where they cannot. 6. Avoid Use of Toxic Substances. Soil bonding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants. 7. Minimize Lighting Impacts. Facility lighting shall be designed, installed, and maintained to prevent side casting of light towards wildlife habitat. 8. Minimize Noise Impacts. A continuous low-pressure technique shall be used for steam blows, to the extent possible, in order to reduce noise levels in sensitive habitat proximate to the Project site. Loud construction activities (e.g., unsilenced high pressure steam blowing, pile driving, or other) shall be avoided from February 15 to April 15, when it would result in noise levels over 65 dBA in nesting habitat (excluding noise from passing vehicles). Loud construction activities may be permitted from February 15 to April 15 only if: a. The Designated Biologist provides documentation (i.e., nesting bird data collected using methods described in **BIO-15** and maps depicting location of the nest survey area in relation to noisy construction) to the CPM indicating that no active nests would be subject to 65 dBA noise, OR b. The Designated Biologist or Biological Monitor monitors active nests within the range of construction-related noise exceeding 65 dBA. The monitoring shall be conducted in accordance with Nesting Bird Monitoring and Management Plan approved by the CPM. The Plan shall include adaptive management measures to prevent disturbance to nesting birds from construction related noise. Triggers for adaptive management shall be evidence of Project-related disturbance to nesting birds such as: agitation behavior (displacement, avoidance, and defense); increased vigilance behavior at nest sites; changes in foraging and feeding behavior, or nest site abandonment. The Nesting Bird Monitoring and Management Plan shall include a description of adaptive management actions, which shall include, but not be limited to, cessation of construction activities that are deemed by the Designated Biologist to be the source of disturbance to the nesting bird.	If loud construction activities are proposed between February 15 to April 15 which would result in noise levels over 65 dBA in nesting habitat, the Project owner shall submit nest survey results (as described in 8a) to the CPM no more than 7 days before initiating such construction. If an active nest is detected within this survey area the Project owner shall submit a Nesting Bird Monitoring and Management Plan to the CPM for review and approval no more than 7 days before initiating noisy construction.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
9. Avoid Vehicle Impacts to Desert Tortoise. Parking and storage shall occur within the area enclosed by desert tortoise exclusion fencing to the extent feasible. No vehicles or construction equipment parked outside the fenced area shall be moved prior to an inspection of the ground beneath the vehicle for the presence of desert tortoise. If a desert tortoise is observed outside the areas fenced with desert tortoise exclusion fencing it shall be left to move on its own. If it does not move within 15 minutes, a Designated Biologist or Biological Monitor under the Designated Biologist's direct supervision may move it out of harms way as described in the USFWS Desert Tortoise Field Manual (USFWS 2009a) 10. Install Box Culvert. To provide for connectivity for desert tortoise and other wildlife, the Project owner shall install a box culvert suitable for passage by desert tortoise and other wildlife under the Project Site Access Road. The box culvert shall be a concrete structure no less than 4 feet high and 6 feet wide with 3:1 side slopes and shall maintain a minimum of 18 inches of native material on the floor of the culvert at all times to facilitate tortoise movement. 11. Avoid Wildlife Pitfalls. To avoid trapping desert tortoise and other wildlife in trenches, pipes or culverts, the following measures shall be implemented: a. Backfill Trenches. At the end of each work day, the Designated Biologist shall ensure that all potential wildlife pitfalls (trenches, bores, and other excavations) outside the area fenced with desert tortoise exclusion fencing have been backfilled. If backfilling is not feasible, all trenches, bores, and other excavations shall be sloped at a 3:1 ratio at the ends to provide wildlife escape ramps, or covered completely to prevent wildlife access, or fully enclosed with desert tortoise-exclusion fencing. All trenches, bores, and other excavations outside the areas permanently fenced with desert tortoise exclusion fencing shall be inspected periodically throughout the day, at the end of each workday, and at the beginning of each day by the Designated Biologist or a Biological Monitor. Should a tortoise or other wildlife become trapped, the Designated Biologist or Biological Monitor shall move the tortoise out of harm's way as described in the USFWS Desert Tortoise Field Manual (USFWS 2009a). Any wildlife encountered during the course of construction shall be allowed to leave the construction area unharmed. b. Avoid Entrapment of Desert Tortoise. Any construction pipe, culvert, or similar structure with a diameter greater than 3 inches, stored less than 8 inches aboveground and within desert tortoise habitat (i.e., outside the permanently fenced area) for one or more nights, shall be inspected for tortoises before the material is moved, buried or capped. As an alternative, all such structures may be capped before being stored outside the fenced area, or placed on elevated pipe racks. These materials would not need to be inspected or capped if they are stored within the permanently fenced area after the clearance surveys have been completed. 12. Minimize Standing Water. Water applied to dirt roads and construction areas (trenches or spoil piles) for dust abatement shall use the minimal amount needed to meet safety and air quality standards in an effort to prevent the formation of puddles, which could attract desert tortoises and common ravens to construction sites. A Biological Monitor shall patrol these areas to ensure water does not puddle and shall take appropriate action to reduce water application where necessary. 13. Dispose of Road-killed Animals. Road killed animals or other carcasses detected by personnel on roads associated with the Project area will be reported immediately to a Biological Monitor or Designated Biologist (or Project Environmental Compliance Monitor, during Project operations), who will promptly remove the roadkill. For special-status species road-kill, the Biological Monitor or Designated Biologist (or Project Environmental Compliance Monitor, during Project operations) shall contact CDFG and USFWS within 1 working day of detection of the carcass for guidance on disposal or storage of the carcass; all other road kill shall be disposed of promptly. The Biological Monitor shall provide the special-status species record as described in **BIO-11** below.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
14. Minimize Spills of Hazardous Materials. All vehicles and equipment shall be maintained in proper working condition to minimize the potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The Designated Biologist shall be informed of any hazardous spills immediately as directed in the Project Hazardous Materials Plan. Hazardous spills shall be immediately cleaned up and the contaminated soil properly disposed of at a licensed facility. Servicing of construction equipment shall take place only at a designated area. Service/maintenance vehicles shall carry a bucket and pads to absorb leaks or spills.		
15. Worker Guidelines. During construction all trash and food-related waste shall be placed in self-closing containers and removed daily from the site. Workers shall not feed wildlife or bring pets to the Project site. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons. Vehicular traffic shall be confined to existing routes of travel to and from the Project site, and cross country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit when traveling on dirt access routes within desert tortoise habitat shall not exceed 25 miles per hour.		
16. Implement Sediment Control Measures Near Desert Washes. Standard erosion control measures shall be implemented for all phases of construction and operation where sediment run-off from exposed slopes threatens to enter waters of the state. Sediment and other flow-restricting materials shall be moved to a location where they shall not be washed back into the stream. Areas of disturbed soils (access and staging areas) which slope toward drainages shall be stabilized to reduce erosion potential.		
17. Monitor Ground Disturbing Activities Prior to Pre-Construction Site Mobilization. If pre-construction site mobilization requires ground- disturbing activities such as for geotechnical borings or hazardous waste evaluations, a Designated Biologist or Biological Monitor shall be present to monitor any actions that could disturb soil, vegetation, or wildlife.		
18. Control Unauthorized Use of the Project Access Roads. The secondary access road shall be gated at both ends and restricted to emergency response personnel as per proposed **COC WORKER SAFETY-6**. The Project owner shall also monitor and control any unauthorized use of the Project roads with gates, signage, and fencing as necessary to minimize traffic-related roadkills and ORV disturbance off-roads.		
19. Implement Erosion Control Measures. All disturbed soils and roads within the Project site shall be stabilized to reduce erosion potential, both during and following construction. All areas subject to temporary disturbance shall be restored to pre-project grade and stabilized to prevent erosion and promote natural revegetation. Temporarily disturbed areas within the Project area include, but are not limited to: linear facilities, temporary access roads, temporary lay-down and staging areas. If erosion control measures include the use of seed, only locally native plant species from a local seed source shall be used. Local seed includes seeds from plants within the Chuckwalla Valley or Colorado River Hydrologic Units.		
20. Avoid Spreading Weeds. Prior to the start of construction, flag and avoid dense populations of highly invasive noxious weeds. If these areas cannot be avoided, they shall be pre-treated by the methods described in **BIO-14** (Weed Management Plan). Noxious weeds and other invasive non-native plants in the temporarily disturbed areas shall be managed according to the requirements in BIO-14.		
21. Salvage Topsoil. Topsoil from the Project site shall be salvaged, preserved and re-used for restoration of temporarily disturbed areas. Salvaged topsoil shall be collected, stored and applied in a way that maintains the viability of seed and soil crusts. The Project owner shall excavate and collect the upper soil layer (the top 1 to 2 inches that includes the seed bank and biotic soil crust) as well as the lower soil layer up to a depth of 6 to 8 inches. The upper and lower soil layers shall be stockpiled separately in areas that will not be impacted by other grading, flooding, erosion, or pollutants. If the soil is to be stored more than 2 weeks it shall be spread out to a depth of no more than 6 inches to		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
maintain the seed and soil crust viability. The Project owner shall install temporary construction fencing around stockpiled topsoil, and signage that indicates whether the pile is the upper layer seed bank, or the lower layer, and clearly indicates that the piles are for use only in erosion control. After construction, the Project owner shall replace the topsoil in the temporarily disturbed areas in the reverse order of stockpiling, starting with the 6-8 inch layer of subsoil, and then the seed-containing upper layer using a harrow or similar equipment to thinly distribute the layer to depths no greater than 1 to 2 inches. 22. Decommission Temporary Access Roads with Vertical Mulching. Discourage ORV use of temporary construction roads by installing vertical mulching at the head of the road to a distance necessary to obscure the road from view. Boulder barricades and gates shall not be used unless the remainder of the site is fenced to prevent driving around the gate or barricade. Designated ORV routes and roads shall not be closed.		
BIO-9, Desert Tortoise Protection: The Project owner shall undertake appropriate measures to manage the construction site and related facilities in a manner to avoid or minimize impacts to desert tortoise. Methods for clearance surveys, fence specification and installation, tortoise handling, artificial burrow construction, egg handling and other procedures shall be consistent with those described in the USFWS' 2009 Desert Tortoise Field Manual <http://www.fws.gov/ventura/speciesinfo/protocols_guidelines> or more current guidance provided by CDFG and USFWS. The Project owner shall also implement all terms and conditions described in the Biological Opinion prepared by USFWS. These measures include, but are not limited to, the following: 1. Desert Tortoise Fencing along Interstate 10. To avoid increases in vehicular-related mortality from disruption of local movement patterns along the existing ephemeral wash systems, desert tortoise-proof fencing shall be installed along the existing freeway right-of-way fencing, on both sides of I 10, for the entire east-west dimension of the Project configuration. The tortoise fencing shall be designed to direct tortoises to existing undercrossing to provide safe passage under the freeway, and shall be regularly inspected and maintained for the life of the Project. 2. Desert Tortoise Exclusion Fence Installation. To avoid impacts to desert tortoises, permanent desert tortoise exclusion fencing shall be installed along the permanent perimeter security fence and temporarily installed along the utility corridors. The proposed alignments for the permanent perimeter fence and utility rights-of-way fencing shall be flagged and surveyed within 24 hours prior to the initiation of fence construction. Clearance surveys of the perimeter fence and utility rights-of-way alignments shall be conducted by the Designated Biologist(s) using techniques outlined in the USFWS' 2009 Desert Tortoise Field Manual. and may be conducted in any season with USFWS and CDFG approval. Biological Monitors may assist the Designated Biologist under his or her supervision. These fence clearance surveys shall provide 100 percent coverage of all areas to be disturbed and an additional transect along both sides of the fence line. This fence line transect shall cover an area approximately 90 feet wide centered on the fence alignment. Transects shall be no greater than 15 feet apart. All desert tortoise burrows, and burrows constructed by other species that might be used by desert tortoises, shall be examined to assess occupancy of each burrow by desert tortoises and handled in accordance with the USFWS' 2009 Desert Tortoise Field Manual. Any desert tortoise located during fence clearance surveys shall be handled by the Designated Biologist(s) in accordance with the USFWS' 2009 Desert Tortoise Field Manual. a. Timing, Supervision of Fence Installation. The exclusion fencing shall be installed prior to the onset of site clearing and grubbing. The fence installation shall be supervised by the Designated Biologist and monitored by the Biological Monitors to ensure the safety of any tortoise present. b. Fence Material and Installation. The permanent tortoise exclusionary fencing shall be constructed in accordance with the USFWS' 2009 Desert Tortoise Field Manual (Chapter 8 – Desert Tortoise Exclusion Fence).	All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Implementation of the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of desert tortoise clearance surveys the Designated Biologist shall submit a report to BLM, the CPM, USFWS, and CDFG describing implementation of each of the mitigation measures listed above. The report shall include the desert tortoise survey results, capture and release locations of any relocated desert tortoises, and any other information needed to demonstrate compliance with the measures described above. Within 6 months of completion of desert tortoise exclusion fence for Phase 1, I-10 desert tortoise exclusion fencing shall be installed. Within 3 months of completion of I-10 desert tortoise exclusion fence construction, the Project owner shall provide the CPM, BLM, USFWS, and CDFG with maps as well as photographic documentation showing the design and location of the fencing on both sides of I-10 south of the Project site. The Project Owner shall provide evidence of approval from Caltrans for installation of desert tortoise fencing along I-10 within their right-of-way at least 30-days prior to construction of the fencing.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
c. Security Gates. Security gates shall be designed with minimal ground clearance to deter ingress by tortoises. The gates may be electronically activated to open and close immediately after the vehicle(s) have entered or exited to prevent the gates from being kept open for long periods of time. Cattle grating designed to safely exclude desert tortoise shall be installed at the gated entries to discourage tortoises from gaining entry d. Fence Inspections. Following installation of the desert tortoise exclusion fencing for both the permanent site fencing and temporary fencing in the utility corridors, the fencing shall be regularly inspected. If tortoise were moved out of harm's way during fence construction, permanent and temporary fencing shall be inspected at least two times a day for the first 7 days to ensure a recently moved tortoise has not been trapped within the fence. Thereafter, permanent fencing shall be inspected monthly and during and within 24 hours following all major rainfall events. A major rainfall event is defined as one for which flow is detectable within the fenced drainage. Any damage to the fencing shall be temporarily repaired immediately to keep tortoises out of the site, and permanently repaired within 48 hours of observing damage. Inspections of permanent site fencing shall occur for the life of the project. Temporary fencing shall be inspected weekly and, where drainages intersect the fencing, during and within 24 hours following major rainfall events. All temporary fencing shall be repaired immediately upon discovery and, if the fence may have permitted tortoise entry while damaged, the Designated Biologist shall inspect the area for tortoise. 3. Desert Tortoise Clearance Surveys within the Plant Site. Clearance surveys shall be conducted in accordance with the USFWS Desert Tortoise Field Manual (USFWS 2009) (Chapter 6 – Clearance Survey Protocol for the Desert Tortoise – Mojave Population) and shall consist of two surveys covering 100 percent the project area by walking transects no more than 15-feet apart. If a desert tortoise is located on the second survey, a third survey shall be conducted. Each separate survey shall be walked in a different direction to allow opposing angles of observation. Clearance surveys of the plant site may only be conducted when tortoises are most active (April through May or September through October) unless the project receives approval from CDFG and USFWS. Clearance surveys of linear features may be conducted during anytime of the year. Any tortoise located during clearance surveys of the power plant site and linear features shall be translocated or relocated and monitored in accordance with the Desert Tortoise Relocation/Translocation Plan: a. Burrow Searches. During clearance surveys all desert tortoise burrows, and burrows constructed by other species that might be used by desert tortoises, shall be examined by the Designated Biologist, who may be assisted by the Biological Monitors, to assess occupancy of each burrow by desert tortoises and handled in accordance with the USFWS Desert Tortoise Field Manual (USFWS 2009). To prevent reentry by a tortoise or other wildlife, all burrows shall be collapsed once absence has been determined in accordance with the Desert Tortoise Relocation/Translocation Plan. Tortoises taken from burrows and from elsewhere on the power plant site shall be relocated or translocated as described in the Desert Tortoise Relocation/Translocation Plan. b. Burrow Excavation/Handling. All potential desert tortoise burrows located during clearance surveys would be excavated by hand, tortoises removed, and collapsed or blocked to prevent occupation by desert tortoises in accordance with the Desert Tortoise Relocation/Translocation Plan. All desert tortoise handling, and removal, and burrow excavations, including nests, would be conducted by the Designated Biologist, who may be assisted by a Biological Monitor in accordance with the USFWS Desert Tortoise Field Manual (USFWS 2009). 4. Monitoring Following Clearing. Following the desert tortoise. clearance and removal from the power plant site and utility corridors, workers and heavy equipment shall be allowed to enter the project site to perform clearing, grubbing, leveling, and trenching activities. A Designated Biologist or Biological Monitor shall be onsite for clearing and grading activities to move tortoises missed during the initial tortoise clearance survey. Should a tortoise be discovered, it shall be relocated or translocated as described in the Desert Tortoise Relocation/Translocation Plan.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
5. Reporting. The Designated Biologist shall record the following information for any desert tortoises handled: a) the locations (narrative and maps) and dates of observation; b) general condition and health, including injuries, state of healing and whether desert tortoise voided their bladders; c) location moved from and location moved to (using GPS technology); d) gender, carapace length, and diagnostic markings (i.e., identification numbers or marked lateral scutes); e) ambient temperature when handled and released; and f) digital photograph of each handled desert. Desert tortoise moved from within project areas shall be marked and monitored in accordance with the Desert Tortoise Relocation/Translocation Plan.		
BIO-10, Desert Tortoise Relocation/Translocation Plan: The Project owner shall develop and implement a final Desert Tortoise Relocation/Translocation Plan (Plan) that is consistent with current USFWS approved guidelines, and meets the approval of the CPM. The Plan shall include guidance specific to each of the two phases of Project construction, as described in **BIO-29** (Phasing), and shall include measures to minimize the potential for repeated translocations of individual desert tortoises. The goals of the Desert Tortoise Relocation/Translocation Plan shall be to: relocate/translocate all desert tortoises from the project site to nearby suitable habitat; minimize impacts on resident desert tortoises outside the project site; minimize stress, disturbance, and injuries to relocated/translocated tortoises; and assess the success of the translocation effort through monitoring. The final Plan shall be based on the draft Desert Tortoise Relocation/Translocation Plan prepared by the Applicant (AECOM 2010a, DR-BIO-55) and shall include all revisions deemed necessary by BLM, USFWS, CDFG and the Energy Commission staff.	At least 30 days prior to site mobilization, the Project owner shall provide the CPM with the final version of a Plan that has been reviewed and approved by the CPM in consultation with BLM, USFWS and CDFG. All modifications to the approved Plan shall be made only after approval by the CPM, in consultation with BLM, USFWS and CDFG. Within 30 days after initiation of relocation and/or translocation activities, the Designated Biologist shall provide to the CPM for review and approval, a written report identifying which items of the Plan have been completed, and a summary of all modifications to measures made during implementation of the Plan.	CEC
BIO-11, Desert Tortoise Compliance Verification: The Project owner shall provide Energy Commission, BLM, CDFG and USFWS staff with reasonable access to the Project site and compensation lands under the control of the Project owner and shall otherwise fully cooperate with the Energy Commission's and BLM's efforts to verify the Project owner's compliance with, or the effectiveness of, mitigation measures set forth in the conditions of certification. The Designated Biologist shall do all of the following: 1. Notification. Notify the CPM at least 14 calendar days before initiating construction-related ground disturbance activities; immediately notify the CPM in writing if the Project owner is not in compliance with any conditions of certification, including but not limited to any actual or anticipated failure to implement mitigation measures within the time periods specified in the conditions of certification; 2. Monitoring During Grubbing and Grading. Remain on site daily while vegetation salvage, grubbing, grading and other ground- disturbance construction activities are taking place to avoid or minimize take of listed species, and verify personally or use Biological Monitors to check for compliance with all impact avoidance and minimization measures, including checking all exclusion zones to ensure that signs, stakes, and fencing are intact and that human activities are restricted in these protective zones. 3. Monthly Compliance Inspections. Conduct compliance inspections at a minimum of once per month after clearing, grubbing, and grading are completed and submit a monthly compliance report to the CPM, BLM, USFWS and CDFG during construction 4. Notification of Injured or Dead Listed Species. If an injured or dead listed species is detected within or near the Project Disturbance Area the CPM, BLM, the Ontario Office of CDFG, and the Carlsbad Office of USFWS shall be notified	No later than 2 days following the above required notification of a sighting, injury, kill, or relocation of a listed species, the Project owner shall deliver to the CPM, BLM, CDFG, and USFWS via FAX or electronic communication the written report from the Designated Biologist describing all reported incidents of injury, kill, or relocation of a listed species, identifying who was notified, and explaining when the incidents occurred. In the case of a sighting in an active construction area, the Project owner shall, at the same time, submit a map (e.g., using Geographic Information Systems) depicting both the limits of construction and sighting location to the CPM, BLM, CDFG and USFWS. No later than 45 days after initiation of Project operation the Designated Biologist shall provide the CPM and BLM a Final Listed Species Mitigation Report. Beginning with the first month after clearing, grubbing and grading are completed and continuing every month until construction is complete the Project owner shall submit a report describing the results of Monthly Compliance Inspections to the CPM, BLM, USFWS and CDFG.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
immediately by phone. Notification shall occur no later than noon on the business day following the event if it occurs outside normal business hours so that the agencies can determine if further actions are required to protect listed species. Written follow-up notification via FAX or electronic communication shall be submitted to these agencies within two calendar days of the incident and include the following information as relevant: a. Injured Desert Tortoise. If a desert tortoise is injured as a result of Project-related activities during construction, the Designated Biologist or approved Biological Monitor shall immediately take it to a CDFG-approved wildlife rehabilitation and/or veterinarian clinic. Any veterinarian bills for such injured animals shall be paid by the Project owner. Following phone notification as required above, the CPM, CDFG, and USFWS shall determine the final disposition of the injured animal, if it recovers. Written notification shall include, at a minimum, the date, time, and location, circumstances of the incident, and the name of the facility where the animal was taken. b. Desert Tortoise Fatality. If a desert tortoise is killed by Project- related activities during construction or operation, a written report with the same information as an injury report shall be submitted to the CPM, BLM, the Ontario Office of CDFG, and the Carlsbad Office of USFWS. These desert tortoises shall be salvaged according to guidelines described in *Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoise* (Berry 2001). The Project owner shall pay to have the desert tortoises transported and necropsied. The report shall include the date and time of the finding or incident. 5. Final Listed Species Report. The Designated Biologist shall provide the CPM and BLM a Final Listed Species Mitigation Report that includes, at a minimum: 1) a copy of the table in the BRMIMP with notes showing when each of the mitigation measures was implemented; 2) all available information about Project-related incidental take of listed species; 3) information about other Project impacts on the listed species; 4) construction dates; 5) an assessment of the effectiveness of conditions of certification in minimizing and compensating for Project impacts; 6) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future Projects on the listed species; and 7) any other pertinent information, including the level of take of the listed species associated with the Project. 6. Stop Work Order. The CPM may issue the Project owner a written stop work order to suspend any activity related to the construction or operation of the Project to prevent or remedy a violation of one or more conditions of certification (including but not limited to failure to comply with reporting, monitoring, or habitat acquisition obligations) or to prevent the illegal take of an endangered, threatened, or candidate species. The Project owner shall comply with the stop work order immediately upon receipt thereof.		
BIO-12, Desert Tortoise Compensatory Mitigation: To fully mitigate for habitat loss and potential take of desert tortoise, the Project owner shall provide compensatory mitigation per **BIO-29** – Table 2 (see 2013 PSIII. LLC, Revised Plan of Development, p. 121), adjusted to reflect the final Project footprint. For purposes of this condition, the Project footprint means all lands disturbed in the construction and operation of the Palen Project, including all Project linears, as well as undeveloped areas inside the Project's boundaries that will no longer provide viable long-term habitat for the desert tortoise. To satisfy this condition, the Project owner shall acquire, protect and transfer 5 acres of desert tortoise habitat for every acre of habitat within critical habitat and within the final Project footprint, and 1 acre of desert tortoise habitat for every acre of habitat outside of critical habitat but within the final Project footprint, and provide associated funding for the acquired lands, as specified below. Condition **BIO-28** may provide the Project owner with another option for satisfying some or all of the requirements in this condition. In lieu of acquiring lands itself, the Project owner may satisfy the requirements of this condition by depositing funds into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as provided below in section 3.i. of this condition.	If the mitigation actions required under this condition are not completed prior to the start of ground-disturbing activities, the Project owner shall provide the CPM and CDFG with an approved form of Security in accordance with this condition of certification no later than 30 days prior to beginning Project ground-disturbing activities. Actual Security shall be provided no later than 7 days prior to the beginning of Project ground-disturbing activities. If Security is provided, the Project owner, or an approved third party, shall complete and provide written verification to the CPM, CDFG, BLM and USFWS of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
The timing of the mitigation shall correspond with the timing of the site disturbance activities as stated in **BIO-29** (phasing). If compensation lands are acquired in fee title or in easement, the requirements for acquisition, initial improvement and long-term management of compensation lands include all of the following: 1. Selection Criteria for Compensation Lands. The compensation lands selected for acquisition in fee title or in easement shall: a. be within the Colorado Desert Recovery Unit, with potential to contribute to desert tortoise habitat connectivity and build linkages between desert tortoise designated critical habitat, known populations of desert tortoise, and/or other preserve lands; b. provide habitat for desert tortoise with capacity to regenerate naturally when disturbances are removed; c. be prioritized near larger blocks of lands that are either already protected or planned for protection, such as DWMAs within the Colorado Desert Recovery Unit (Chuckwalla DWMA as first priority, Chemehuevi DWMA as the second) or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation; d. be connected to lands with desert tortoise habitat equal to or better quality than the Project Site, ideally with populations that are stable, recovering, or likely to recover; e. not have a history of intensive recreational use or other disturbance that does not have the capacity to regenerate naturally when disturbances are removed or might make habitat recovery and restoration infeasible; f. not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration; g. not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and h. have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with CDFG, BLM and USFWS, agrees in writing to the acceptability of the land. 2. Review and Approval of Compensation Lands Prior to Acquisition. The Project owner shall submit a formal acquisition proposal to the CPM, CDFG, USFWS, and BLM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for desert tortoise in relation to the criteria listed above. Approval from the CPM and CDFG, in consultation with BLM and the USFWS, shall be required for acquisition of all compensatory mitigation parcels. 3. Compensation Lands Acquisition Requirements. The Project owner shall comply with the following requirements relating to acquisition of the compensation lands after the CPM and CDFG, in consultation with BLM and the USFWS, have approved the proposed compensation lands: a. Preliminary Report. The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM and CDFG. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM and CDFG, in consultation with BLM and the USFWS. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.	The Project owner may elect to fund the acquisition and initial improvement of compensation lands through NFWF or other approved third party by depositing funds for that purpose into NFWF's REAT Account. Initial deposits for this purpose must be made in the same amounts as the Security required in section 3.h. of this condition. Payment of the initial funds for acquisition and initial improvement must be made at least 30 days prior to the start of ground-disturbing activities. No fewer than 90 days prior to acquisition of the property, the Project owner shall submit a formal acquisition proposal to the CPM, CDFG, USFWS, and BLM describing the parcels intended for purchase and shall obtain approval from the CPM and CDFG prior to the acquisition. No fewer than 30 days after acquisition of the property the Project owner shall deposit the funds required by Section 3e above (long term management and maintenance fee) and provide proof of the deposit to the CPM. The Project owner, or an approved third party, shall provide the CPM, CDFG, BLM, and USFWS with a management plan for the compensation lands within180 days of the land or easement purchase, as determined by the date on the title. The CPM shall review and approve the management plan for the compensatory mitigation lands, in consultation with CDFG, BLM and the USFWS. Within 90 days after completion of all project related ground disturbance, the Project owner shall provide to the CPM, CDFG, BLM and USFWS an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction. This shall be the basis for the final number of acres required to be acquired.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
b. Title/Conveyance. The Project owner shall transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM and CDFG. Transfer of either fee title or an approved conservation easement will usually be sufficient, but some situations, e.g., the donation of lands burdened by a conservation easement to BLM, will require that both types of transfers be completed. Any transfer of a conservation easement or fee title must be to CDFG, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to BLM under terms approved by the CPM and CDFG. If an approved non-profit organization holds title to the compensation lands, a conservation easement shall be recorded in favor of CDFG in a form approved by CDFG. If an approved non-profit holds a conservation easement, CDFG shall be named a third party beneficiary. c. Initial Habitat Improvement Fund. The Project owner shall fund the initial protection and habitat improvement of the compensation lands. Alternatively, a non-profit organization may hold the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code section 65965) and if it meets the approval of CDFG and the CPM. If CDFG takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFG or its designee. d. Property Analysis Record. Upon identification of the compensation lands, the Project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate long-term maintenance and management fee to fund the in-perpetuity management of the acquired mitigation lands. e. Long-term Maintenance and Management Fund. In accordance with BIO-29 (phasing), the Project owner shall deposit in NFWF's REAT Account a capital long-term maintenance and management fee in the amount determined through the Property Analysis Record (PAR) or PAR-like analysis conducted for the compensation lands. The CPM, in consultation with CDFG, may designate another non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity. If CDFG takes fee title to the compensation lands, CDFG shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity to manage the long-term maintenance and management fee for CDFG and with CDFG supervision. f. Interest, Principal, and Pooling of Funds. The Project owner, the CPM and CDFG shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions: i. Interest. Interest generated from the initial capital long-term maintenance and management fee shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by CDFG designed to protect or improve the habitat values of the compensation lands. ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CDFG or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If CDFG takes fee title to the compensation lands, monies received by CDFG pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFG designates NFWF or another entity to manage the long-term maintenance and management fee for CDFG.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
iii. Pooling Long-Term Maintenance and Management Fee Funds. CDFG, or a CPM-and CDFG-approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the endowment with other endowments for the operation, management, and protection of the compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the CDFG and CPM. g. Other expenses. In addition to the costs listed above, the Project owner shall be responsible for all other costs related to acquisition of compensation lands and conservation easements, including but not limited to title and document review costs, expenses incurred from other state agency reviews, and overhead related to providing compensation lands to CDFG or an approved third party; escrow fees or costs; environmental contaminants clearance; and other site cleanup measures. h. Mitigation Security. The Project owner shall provide financial assurances in accordance with **BIO-29** (phasing) to the CPM and CDFG with copies of the document(s) to BLM and the USFWS, to guarantee that an adequate level of funding is available to implement the mitigation measures described in this condition. These funds shall be used solely for implementation of the measures associated with the Project in the event the Project owner fails to comply with the requirements specified in this condition, or shall be returned to the Project owner upon successful compliance with the requirements in this condition. The CPM's or CDFG's use of the security to implement measures in this condition may not fully satisfy the Project owner's obligations under this condition. Financial assurance can be provided to the CPM and CDFG in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security"). Prior to submitting the Security to the CPM, the Project owner shall obtain the CPM's approval in consultation with CDFG. BLM and the USFWS, of the form of the Security. Security shall be provided as described in **BIO-29 – Table 3** (see 2010 CEC PSPP Commission Decision, pp. 143, which would be updated to reflect current costs), and the beginning of the conditions of certification subsection. The actual costs to comply with this condition will vary depending on the final footprint of the Project and its two phases, and the actual costs of acquiring, improving and managing the compensation lands. i. NFWF REAT Account. The Project owner may elect to fund the acquisition and initial improvement of compensation lands through NFWF by depositing funds for that purpose into NFWF's REAT Account. Initial deposits for this purpose must be made in the same amounts as the security required in section 3.h., above, and may be provided in lieu of security. If this option is used for the acquisition and initial improvement, the Project owner shall make an additional deposit into the REAT Account if necessary to cover the actual acquisition costs and administrative costs and fees of the compensation land purchase once land is identified and the actual costs are known. If the actual costs for acquisition and administrative costs and fees are less than described in **Biological Resources Table 6b (**see 2010 CEC PSPP Revised Staff Assessment, Part II, pp. C.2-68 – C.2-72), the excess money deposited in the REAT Account shall be returned to the Project owner. Money deposited for the initial protection and improvement of the compensation lands shall not be returned to the Project owner. The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the Energy Commission and CDFG. Such delegation shall be subject to approval by the CPM and CDFG, in consultation with BLM and USFWS, prior to land acquisition, initial protection or maintenance and management activities. Agreements to delegate land acquisition to an approved third party, or to manage compensation lands, shall be implemented with 18 months of the Energy Commission's approval.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-13, Raven Management Plan and Fee: The Project owner shall implement a Raven Monitoring, Management, and Control Plan (Raven Plan) that is consistent with the most current USFWS-approved raven management guidelines, and which meets the approval of the CMP, in consultation with USFWS and CDFG. The draft Common Raven Monitoring, Management, and Control Plan submitted by the Applicant (AECOM 2010a, Attachment DR-BIO-57) shall provide the basis for the final Raven Plan, subject to review, revisions and approval from the CPM, CDFG and USFWS. The Raven Plan shall include but not be limited to a program to monitor raven presence in the Project vicinity, determine if raven numbers are increasing, and to implement raven control measures as needed based on that monitoring. The purpose of the plan is to avoid any Project- related increases in raven numbers during construction, operation, and decommissioning. In addition, the Project owner shall also provide funding for implementation of the USFWS Regional Raven Management Program, as described below. 1. The Raven Plan shall: a. Identify conditions associated with the Project that might provide raven subsidies or attractants; b. Describe management practices to avoid or minimize conditions that might increase raven numbers and predatory activities; c. Describe control practices for ravens; d. Establish thresholds that would trigger implementation of control practices; e. Address monitoring and nest removal during construction and for the life of the Project, and; f. Discuss reporting requirements. 2. USFWS Regional Raven Management Program. The Project owner shall submit payment to the project sub-account of the REAT Account held by the National Fish and Wildlife Foundation (NFWF) to support the USFWS Regional Raven Management Program. The one-time fee shall be as described by the USFWS in the *Renewable Energy Development and Common Raven Predation on the Desert Tortoise – Summary, dated May 2010* (USFWS 2010a) and the Cost Allocation Methodology for Implementation of the Regional Raven Management Plan, dated July 9, 2010) or more current guidance as provided by USFWS or CDFG (USFWS 2010b).	No less than 10 days prior to the start of any Project-related ground disturbance activities, the Project owner shall provide the CPM, USFWS, and CDFG with the final version of a Raven Plan. All modifications to the approved Raven Plan shall be made only with approval of the CPM in consultation with USFWS and CDFG. No less than 10 days prior to the start of any Project-related ground disturbance activities for each phase of Project construction as described in **BIO-29**, the Project owner shall provide documentation to the CPM, CDFG and USFWS that the one-time fee for the USFWS Regional Raven Management Program of has been deposited to the REAT-NFWS subaccount for the Project. Payment of the fees may be phased as described in **BIO-29 – Table 3 (**see 2010 CEC PSPP Commission Decision, p. 143, which would be updated to reflect current costs). Within 30 days after completion of Project construction, the Project owner shall provide to the CPM for review and approval, a written report identifying which items of the Raven Plan have been completed, a summary of all modifications to mitigation measures made during the Project's construction phase, and which items are still outstanding. As part of the annual compliance report, each year following construction the Designated Biologist shall provide a report to the CPM that includes: a summary of the results of raven management and control activities for the year; a discussion of whether raven control and management goals for the year were met; and recommendations for raven management activities for the upcoming year.	CEC
BIO-14, Weed Management Plan: The Project owner shall implement a Weed Management Plan (Plan) that meets the approval of the CPM. The objective of the Plan shall be to prevent the introduction of any new weeds and the spread of existing weeds as a result of Project construction, operation, and decommissioning. The Draft Weed Management Plan, submitted by the Applicant, shall provide the basis for the final Plan, subject to review and revisions from the CPM. The Plan shall include the following: 1. **Weed Plan Requirements**. The Project owner shall provide a map to the CPM indicating the location of the Weed Management Area, which shall include all areas within 100 feet of the Project Disturbance Area, access roads, staging and laydown sites, and all other areas subject to temporary disturbance. The Project owner shall provide a Plan for the Weed Management Area includes at a minimum the following information: specific weed management objectives and measures for each target non-native weed species; baseline conditions; a map of the Weed Management Areas; map of existing populations of target weeds within 100 feet of the Project Disturbance Area and access roads; weed risk assessment; measures to prevent the introduction and spread of weeds; measures to minimize the risk of unintended	No less than 10 days prior to start of any Project-related ground disturbance activities, the Project owner shall provide the CPM with the final version of a Weed Management Plan that has been reviewed by BLM and Energy Commission staff. Modifications to the approved Weed Control Plan shall be made only with approval from the CPM in consultation with BLM. Within 30 days after completion of Project construction, the Project owner shall provide to the CPM for review and approval, a written report identifying which items of the Weed Management Plan have been completed, a summary of all modifications to mitigation measures made during the	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
harm to wildlife and other plants from weed control activities; monitoring and surveying methods; and reporting requirements. Weed control described in the Plan shall focus on prevention, early detection of new infestations, and early eradication for the life of the Project. Weed control along the Project linears shall be limited to the areas where soils were disturbed during construction. Weed monitoring shall occur a minimum of once per year during the early spring months (March-April) to detect seedlings before they set seed. The focus of the Plan shall be on avoiding the introduction of new invasive weeds or the spread of highly invasive species, such as Sahara mustard. Non-native species with low ecological risk, or that are very widespread, such as Mediterranean grass, shall be noted but control shall not be required. When detected, infestations of high priority species shall be eradicated immediately. 2. **Avoidance and Treatment of Dense Weed Populations**. The Plan shall include a requirement to flag and avoid dense populations of the most invasive non-native weeds during any Project-related construction operation in or adjacent to infestations. If these areas cannot be avoided, they shall be pre-treated by one of the following methods: a) treating the infested areas in the season prior to construction by removing and properly disposing of seed heads by hand, prior to maturity, or spraying the new crop of plants that emerge in early spring, the season prior to construction, to reduce the viable seed contained in the soil, or b) removing and disposing the upper 2 inches of soil and disposing it offsite at a sanitary landfill or other site approved by the County Agricultural Commissioner, or burying the infested soil, e.g., under the solar facility or in a pit, and covering the infested soil with at least three feet of uncontaminated soil. 3. **Cleaning Vehicles and Equipment**. The Plan shall include specifications and requirements for the cleaning and removal of weed seed and weed plant parts from vehicles and equipment involved in Project-related construction and operation. Vehicles and equipment working in weed-infested areas (including previous job sites) shall be required to clean the equipment tires, tracks, and undercarriage *before* entering the Project area and before moving to infested areas of the Project Disturbance Area to uninfested areas. Cleaning shall be conducted on all track and bucket/blade components to adequately remove all visible dirt and plant debris. Cleaning using hand tools, such as brushes, brooms, rakes, or shovels, is preferred. If water must be used, the water/slurry shall be contained to prevent seeds and plant parts from washing into adjacent habitat. 4. **Safe Use of Herbicides**. The final Plan shall include detailed specifications for avoiding herbicide and soil stabilizer drift, and shall include a list of herbicides and soil stabilizers that will be used on the Project with manufacturer's guidance on appropriate use. The Plan shall indicate where the herbicides will be used, and what techniques will be used to avoid chemical drift or residual toxicity to special-status species and their pollinators, and consistent with the Nature Conservancy guidelines and the criteria under #2, below. Only weed control measures for target weeds with a demonstrated record of success shall be used, based on the best available information from sources such as The Nature Conservancy's The Global Invasive Species Team, California Invasive Plant Council: http://www.cal-ipc.org/ip/management/plant_profiles/index.php, and the California Department of Food & Agriculture Encycloweedia: http://www.cdfa.ca.gov/phpps/ipc/encycloweedia/encycloweedia_h p.htm. 5. The methods for weed control described in the final Plan shall meet the following criteria: a. Manual: Well-timed removal of plants or seed heads with hand tools; seed heads and plants must be disposed of in accordance with guidelines from the Riverside County Agricultural Commissioner. b. Chemical: Herbicides known to have residual toxicity, such as pre-emergents and pellets, shall not be used in natural areas or within the engineered channels. Only the following application methods may be used: wick (wiping onto leaves); inner bark injection; cut stump; frill or hack and squirt (into cuts in the trunk); basal bark girdling; foliar spot spraying with backpack sprayers or pump sprayers at low pressure or with a shield attachment to control drift, and only on windless days, or with a squeeze bottle for small infestations (see Nature Conservancy guidelines described above);	Project's construction phase, and which items are still outstanding. As part of the Annual Compliance Report, each year following construction the Designated Biologist shall provide a report to the CPM and BLM that includes: a summary of the results of noxious weeds surveys and management activities for the year; a discussion of whether weed management goals for the year were met; and recommendations for weed management activities for the upcoming year.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
c. Biological: Biological methods may be used subject to review and approval by CDFG and USFWS and only if approved for such use by CDFA, and are either locally native species or have no demonstrated threat of naturalizing or hybridizing with native species; d. Mechanical: Disking, tilling, and mechanical mowers or other heavy equipment shall not be employed in natural areas but hand weed trimmers (electric or gas-powered) may be used. Mechanical trimmers shall not be used during periods of high fire risk and shall only be used with implementation of fire prevention measures.		
BIO-15, Pre-Construction Nest Surveys and Avoidance Measures: Pre-construction nest surveys shall be conducted if construction activities would occur from February 1 through July 31. The Designated Biologist or Biological Monitor conducting the surveys shall be experienced bird surveyors familiar with standard nest-locating techniques such as those described in Martin and Guepel (1993). The goal of the nesting surveys shall be to identify the general location of the nest sites, sufficient to establish a protective buffer zone around the potential nest site, and need not include identification of the precise nest locations. Surveyors performing nest surveys shall not concurrently be conducting desert tortoise surveys. The bird surveyors shall perform surveys in accordance with the following guidelines: 1. Surveys shall cover all potential nesting habitat in areas that could be disturbed by each phase of construction, as described in **BIO-29** (Phasing). Surveys shall also include areas within 500 feet of the boundaries of the active construction areas (including linear facilities); 2. At least two pre-construction surveys shall be conducted, separated by a minimum 10-day interval. One of the surveys shall be conducted within the 14-day period preceding initiation of construction activity. Additional follow-up surveys may be required if periods of construction inactivity exceed three weeks, an interval during which birds may establish a nesting territory and initiate egg laying and incubation; 3. If active nests or suspected active nests are detected during the survey, a buffer zone (protected area surrounding the nest, the size of which is to be determined by the Designated Biologist in consultation with CDFG) and monitoring plan shall be developed. Nest locations shall be mapped and submitted, along with a report stating the survey results, to the CPM; and 4. The Designated Biologist or Biological Monitor shall monitor the nest until he or she determines that nestlings have fledged and dispersed; activities that might, in the opinion of the Designated Biologist, disturb nesting activities, shall be prohibited within the buffer zone until such a determination is made.	At least 10 days prior to the start of any Project-related ground disturbance activities during the nesting season, the Project owner shall provide the CPM a letter-report describing the findings of the pre-construction nest surveys, including the time, date, and duration of the survey; identity and qualifications of the surveyor (s); and a list of species observed. If active or suspected active nests are detected during the survey, the report shall include a map or aerial photo identifying the location or suspected location of the nest and shall depict the boundaries of the no-disturbance buffer zone around the nest(s) that would be avoided during Project construction. Each year during construction as part of the annual compliance report a follow-up report shall be provided to the CPM, BLM, CDFG, and USFWS describing the success of the buffer zones in preventing disturbance to nesting activity and a brief description of the outcome of the nesting effort (for example, whether young were successfully fledged from the nest or if the nest failed).	CEC
BIO-16, Avian Protection Plan		CEC
BIO-16A, Avian and Bat Habitat Compensation: To mitigate for potential avian and bat impacts, the Project owner shall provide compensatory mitigation prior to commercial operation of the first unit for 3,896 acres, adjusted to reflect the final Project footprint. For purposes of this condition, the Project footprint means all lands disturbed in the construction and operation of the PSEGS, including all Project linears, as well as undeveloped areas inside the Project's boundaries that will no longer provide viable long-term habitat for avian and bat species. To satisfy this condition, the Project owner shall acquire, protect and transfer 1 acre of habitat for every acre of habitat within the final Project footprint, and provide associated funding for the acquired lands, as specified below. Condition BIO-28 may provide the Project owner with another option for satisfying some or all of the requirements in this condition. In lieu of acquiring lands itself, the Project	If the mitigation actions required under this condition are not completed prior to commercial operation of the first unit, the Project owner shall provide the CPM and CDFW with an approved form of Security in accordance with this condition of certification no later than 30 days prior to commercial operation of the first unit. Actual Security shall be provided no later than 7 days prior to commercial operation of the first unit. If Security is provided, the Project owner, or an	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
owner may satisfy the requirements of this condition by depositing funds into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), as provided below in section 3.i. of this condition. The timing of the mitigation shall correspond with commercial operation of the first unit. If compensation lands are acquired in fee title or in easement, the requirements for acquisition, initial improvement and long-term management of compensation lands include all of the following: 1. **Selection Criteria for Compensation Lands.** The compensation lands selected for acquisition in fee title or in easement shall: a. be reasonably biologically comparable to the habitat lost or degraded by the Project footprint to assist in the conservation and enhancement of avian and bat populations in the vicinity of the project and throughout the region; b. be prioritized near larger blocks of lands that are either already protected or planned for protection, such as DWMAs within the Colorado Desert Recovery Unit, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation; c. not have a history of intensive recreational use or other disturbance that does not have the capacity to regenerate naturally when disturbances are removed or might make habitat recovery and restoration infeasible; d. not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration; e. not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and f. have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with CDFW, BLM and USFWS, agrees in writing to the acceptability of the land. 2. **Review and Approval of Compensation Lands Prior to Acquisition.** The Project owner shall submit a formal acquisition proposal to the CPM, CDFW and BLM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for avian and bat species in relation to the criteria listed above. Approval from the CPM and CDFW, in consultation with BLM and USFWS, shall be required for acquisition of all compensatory mitigation parcels. 3. **Compensation Lands Acquisition Requirements.** The Project owner shall comply with the following requirements relating to acquisition of the compensation lands after the CPM and CDFW, in consultation with BLM and USFWS, have approved the proposed compensation lands: a. *Preliminary Report*. The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM and CDFW. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM and CDFW, in consultation with BLM and the USFWS. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.	approved third party, shall complete and provide written verification to the CPM, CDFW, BLM and USFWS of the compensation lands acquisition and transfer within 18 months after commercial operation of the first unit. The Project owner may elect to fund the acquisition and initial improvement of funds for that purpose into NFWF's REAT Account. Initial deposits for this purpose must be made in the same amounts as the Security required in section 3.h. of this condition. Payment of the initial funds for acquisition and initial improvement must be made at least 30 days prior to commercial operation of the first unit. No fewer than 90 days prior to acquisition of the property, the Project owner shall submit a formal acquisition proposal to the CPM, CDFW, USFWS, and BLM describing the parcels intended for purchase and shall obtain approval from the CPM prior to the acquisition. No fewer than 30 days after acquisition of the property the Project owner shall deposit the funds required by Section 3e above (long term management and maintenance fee) and provide proof of the deposit to the CPM. The Project owner, or an approved third party, shall provide the CPM, CDFW, BLM, and USFWS with a management plan for the compensation lands within180 days of the land or easement purchase, as determined by the date on the title. The CPM shall review and approve the management plan for the compensatory mitigation lands, in consultation with CDFW, BLM and the USFWS. Within 90 days after completion of all project related ground disturbance, the Project owner shall provide to the CPM, CDFW, BLM and USFWS an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction. This shall be the basis for the final number of acres required to be acquired.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
b. *Title/Conveyance*. The Project owner shall transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM and CDFW. Transfer of either fee title or an approved conservation easement will usually be sufficient, but some situations, e.g., the donation of lands burdened by a conservation easement to BLM, will require that both types of transfers be completed. Any transfer of a conservation easement or fee title must be to CDFW, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to BLM under terms approved by the CPM and CDFW. If an approved non-profit organization holds title to the compensation lands, a conservation easement shall be recorded in favor of CDFW in a form approved by CDFW. If an approved non-profit holds a conservation easement, CDFW shall be named a third party beneficiary. c. *Initial Habitat Improvement Fund*. The Project owner shall fund the initial protection and habitat improvement of the compensation lands. Alternatively, a non-profit organization may hold the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code section 65965) and if it meets the approval of CDFW and the CPM. If CDFW takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFW or its designee. d. *Property Analysis Record*. Upon identification of the compensation lands, the Project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate long-term maintenance and management fee to fund the in-perpetuity management of the acquired mitigation lands. e. *Long-term Maintenance and Management Fund*. In accordance with BIO-29 (phasing), the Project owner shall deposit in NFWF's REAT Account a capital long-term maintenance and management fee in the amount determined through the Property Analysis Record (PAR) or PAR-like analysis conducted for the compensation lands. The CPM, in consultation with CDFW, may designate another non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity. If CDFW takes fee title to the compensation lands, CDFW shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity to manage the long-term maintenance and management fee for CDFW and with CDFW supervision. f. *Interest, Principal, and Pooling of Funds*. The Project owner, the CPM and CDFW shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions: i. Interest. Interest generated from the initial capital long-term maintenance and management fee shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by CDFW designed to protect or improve the habitat values of the compensation lands. ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CDFW or the approved third-party long-term maintenance of the species on the compensation lands. If CDFW takes fee title to the compensation lands, monies received by CDFW pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFW designates NFWF or another entity to manage the long-term maintenance and management fee for CDFW.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
iii. Pooling Long-Term Maintenance and Management Fee Funds. CDFW, or a CPM and CDFW-approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the endowment with other endowments for the operation, management, and protection of the compensation lands for avian and bat species. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the CDFW and CPM. g. *Other expenses*. In addition to the costs listed above, the Project owner shall be responsible for all other costs related to acquisition of compensation lands and conservation easements, including but not limited to title and document review costs, expenses incurred from other state agency reviews, and overhead related to providing compensation lands to CDFW or an approved third party; escrow fees or costs; environmental contaminants clearance; and other site cleanup measures. h. *Mitigation Security*. The Project owner shall provide financial assurances prior to commercial operation of the first unit to the CPM and CDFW with copies of the document(s) to BLM and the USFWS, to guarantee that an adequate level of funding is available to implement the mitigation measures described in this condition. These funds shall be used solely for implementation of the measures associated with the Project in the event the Project owner fails to comply with the requirements specified in this condition, or shall be returned to the Project owner upon successful compliance with the requirements in this condition. The CPM's or CDFW's use of the security to implement measures in this condition may not fully satisfy the Project owner's obligations under this condition. Financial assurance can be provided to the CPM and CDFW in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security"). Prior to submitting the Security to the CPM, the Project owner shall obtain the CPM's approval in consultation with CDFW, BLM and the USFWS, of the form of the Security. Security shall be in the amount shown in BIO-29, Table 3 **(**see 2010 CEC PSPP Commission Decision, p. 143, which would be updated to reflect current costs). The actual costs to comply with this condition will vary depending on the final footprint of the completed Project, and the actual costs of acquiring, improving and managing the compensation lands. i. *NFWF REAT Account*. The Project owner may elect to fund the acquisition and initial improvement of compensation lands through NFWF by depositing funds for that purpose into NFWF's REAT Account. Initial deposits for this purpose must be made in the same amounts as the security required in section 3.h. above, and may be provided in lieu of security. If this option is used for the acquisition and initial improvement, the Project owner shall make an additional deposit into the REAT Account if necessary to cover the actual acquisition costs and administrative costs and fees of the compensation land purchase once land is identified and the actual costs are known. If the actual costs for acquisition and administrative costs and fees are less than described in Biological Resources Table 6b (see 2010 CEC PSPP Revised Staff Assessment, Part II, pp. C.2-68 – C.2-72), the excess money deposited in the REAT Account shall be returned to the Project owner. Money deposited for the initial protection and improvement of the compensation lands shall not be returned to the Project owner. The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the Energy Commission and CDFW. Such delegation shall be subject to approval by the CPM and CDFW, in consultation with BLM and USFWS, prior to land acquisition, initial protection or maintenance and management activities. Agreements to delegate land acquisition to an approved third party, or to manage compensation lands, shall be implemented within 18 months of the Energy Commission's approval of the third party.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-16B, Avian Enhancement and Conservation Measures: The Project owner shall implement the following measure to conserve and enhance avian populations in the vicinity of the project and throughout the region: (a) **Regional Avian Electrocution Risk and Cable Collision Avoidance Measures.** Consistent with the DRECP framework (DRECP 2012), the project owner shall, prior to the commencement of commercial operations at the facility, fund the retrofitting of non-compliant utility poles in the vicinity of the project to APLIC (2006) standards or fund the installation of bird diverters in the vicinity of the Project. A total amount of $300,000 will be provided for these enhancements. The funding shall be provided to an independent third party who will perform the actual retrofitting, pursuant to a Retrofit Plan approved by the CPM. The Retrofit Plan will develop a tiered approach to minimizing electrocution and collision risk, wherein the first funding is applied to retrofit poles in areas where either mortalities are highest or area use is highest. The second tier of retrofitted poles would be areas of lesser importance. If funds remain available after first and second tier poles have been retrofitted, then the CPM may apply the remaining funds to other avian protection objectives outlined by the DRECP. As an alternative to the Retrofitting Plan and the use of a CPM-approved third party, the total funding can be accomplished by making a payment in the amount of $300,000 to the National Fish and Wildlife Foundation's Bald and Golden Eagle Protection Act account. (b) Additional Migratory Bird Conservation: The Project owner shall, prior to the commencement of commercial operations at the facility, pay $500,000 to fund the activities of a CPM approved third party that will perform additional bird migratory bird conservation measures. Such measures shall be approved by the CPM and may include, but not be limited to: (i) restoration of degraded habitat with native vegetation; (ii) restoration of agricultural fields to bird habitat; (iii) management of agricultural fields to enhance bird populations; (iv) invasive plant species and artificial food or water source management; (v) control and cleanup of potential avian hazards, such as lead or microtrash; (vi) retrofitting of buildings to minimize collisions; (vii) retrofitting of conductors and above ground cables to minimize collisions; (viii) animal control programs; (ix) support for avian and bat research and/or management efforts conducted by entities approved by the CPM within the Project's mitigation lands or other approved locations; (x) funding efforts to address avian diseases or depredation due to the expansion of predators in response to anthropomorphic subsidies that may adversely affect birds that use the mitigation lands or in other approved locations; and (xi) contribute to the Migratory Bird Conservation Fund managed by the Migratory Bird Conservation Commission.	No later than 30 days prior to beginning of Project ground-disturbing activities, the Project owner shall provide written verification of an approved form of Security in accordance with this condition of certification. Actual Security shall be provided no later than 7 days prior to the beginning of Project ground-disturbing activities. Prior to commercial operation, the Project owner shall provide the funding to the independent third party selected by the CPM.	
BIO-16C, Avian and Bat Surveys, Monitoring and Adaptive Management: The Project owner shall perform preconstruction baseline surveys prior to surface disturbance of avian and bat species for use in development of a Bird and Bat Conservation Strategy (BBCS). The Project owner shall prepare a BBCS and submit it to the CPM and BLM for approval and to CDFW and USFWS for review and comment. The BBCS shall provide for the following: • Survey and monitor onsite and offsite avian use and behavior to document species composition on and offsite, compare onsite and offsite rates of avian and bat use, document changes in avian and bat use over time, and evaluate the general behavior of birds in and near the facility. • Implement an onsite and offsite avian and bat mortality and injury monitoring program to identify the extent of potential avian or bat mortality or injury from collisions with facility structures or from elevated levels of solar flux that may be encountered within the facility airspace, including: - assessing levels of collision-related mortality and injury with heliostats, perimeter fences and power tower structures;	The BBCS shall be submitted to the CPM for review and approval and to CDFW and USFWS for review and comment no less than 120 days prior to the commercial operation of the first unit. The Project owner shall provide the CPM with copies of any written or electronic transmittal from the USFWS or CDFW related to the BBCS within 30 days of receiving any such transmittal. Survey reports shall be submitted to the CPM after each season and in an annual summary report throughout the course of the three-year study period and as set forth in the approved monitoring study plan. The reports will include all monitoring data required as part of the monitoring program. Each year throughout the minimum three year monitoring period, the	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
- calculating rates of solar flux-related avian mortality and injury, if any; - documenting seasonal, temporal, and weather-related patterns associated with collision- or solar flux-related mortality and injury; and - documenting spatial patterns that may be associated with collision- or flux-related mortality and injury. - documenting spatial patterns that may be associated with avoidance of the facility. • Identify conservation measures to minimize impacts and evaluate the effectiveness of those measures • Implement an adaptive management and decision-making framework for reviewing, characterizing, and responding to quantitative survey and monitoring results. ***Preconstruction Baseline Surveys*** The project owner shall perform avian use and behavior surveys of the facility site prior to construction. Surveys of avian use and behavior shall be conducted using standard point count protocols. The objective of the surveys shall be to estimate the spatial and temporal use of the facility and surrounding area by resident and migrating birds and to document the preconstruction avian community. The preconstruction baseline surveys will include, at least: • Species present, by season, including migration, nesting wintering • Abundance by unit effort, unit time, or other acceptable metric of abundance, by season • Use of the project area and that portion of the surrounding area in which indirect effects could occur (species-specific). The surveys will be sufficiently robust in design, including but not limited to, sampling schedule, sampling intervals, replicates, spatial layout, seasonal and annual variability, and statistics. All surveys will be project-relevant; data collection that is immaterial to baseline survey objectives and goals will not be included. Preconstruction surveys shall employ the following methods: Diurnally active and nesting avian surveys will be conducted using accepted, standard point count protocols (e.g., BLM 2009, Ralph et al. 1995, Ralph et al 1993, Smith et al. 1998) to identify seasonal and annual raptor and songbird species composition, rates of use (including nesting), types of use, and changes in use over time. The spatial design will include the entire area of effect, plus control areas, and employ a stratified-random approach to ensure sampling of all biologically relevant factors and project impacts. The first stratum will be biologically relevant features, such as proximity to vegetation types that may affect prey abundance and capture probability. The second stratum will attend to the specific aspects of the power towers and solar field, as well as the interface between the solar field and native habitat. To ensure entire area of effect coverage, a grid will overlay the entire project footprint and extended area of effect around the project disturbance area. Within these three strata, a sufficient number of transects (replicates) will be randomly sited to provide robust statistical results. Ten percent of the area is a suggested level of sampling that would provide sufficient information to answer the study questions as well as provide a basis to assess future sampling during the monitoring phase (see below). Point count locations would be spaced 500 ft apart along each transect. Each solar field has a radius of approximately one mile. Because the study would extend to indirect-effect areas outside the boundary, this design would result in 10, 1.25 to 1.5-mile-long transects (depending on access outside the project) for	Designated Biologist or other qualified biologist that may be identified by the Designated Biologist shall submit an Annual Report to the CPM, CDFW and USFWS by January 31 of each calendar year, summarizing all available bird and bat mortality data (species, date and location collected, evidence of injury and cause of death) collected over the course of the year. The report also shall summarize any additional wildlife mortality or injury documented on the project site during the year, regardless of cause, and assess any adaptive management measure implemented during the prior year as approved by the CPM. After the third year of the monitoring program, the CPM shall meet and confer with the project owner to determine of the study period should be extended based on data quality and sufficiency for analysis or if needed to document efficacy of any adaptive management measures undertaken by the Project owner. The study period may be extended up to five years from the commencement of facility operations. If a carcass of a golden eagle or any state or federally listed threatened or endangered species is found at any time by the monitoring study or Project operations staff, the Project owner, Designated Biologist, or other qualified biologist that may be identified by the Designated Biologist shall contact CDFW and USFWS by email, fax or other electronic means within one working day of any such detection.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
the both solar fields combined, five per solar field, with 15 sampling points per transect. Point counts would be 10 minutes long at each point and conducted during the greatest bird activity period – daybreak to approximately three hours past daybreak. Survey points will also include two-hour segments throughout the middle portion of the day (approximately 1000 h to 1600 h, depending on time of year) when diurnal raptors are generally considered most active. The surveys will be conducted weekly during the most intensive spring nesting and migration period (March 1 to May 1), twice monthly during the remainder of spring (May and June) and during fall (September 1 to December 1) and once per month during summer (June 1 to September 1) and winter (December 1 to February 1). Sampling will be rotated so that all points are evaluated equally throughout each sampling period. Nocturnal sampling will be conducted for nocturnally migrating birds during the spring and fall migration periods to assess the level of migratory activity and need for further nocturnal sampling. Bat acoustic sampling also will be implemented in this baseline stage to identify species present and assess risk potential. The survey will occur for one year prior to construction. If construction schedules dictate that an entire year of sampling is not possible, then at least one important migratory and activity season will be captured, preferably spring. Preconstruction surveys shall include collecting data from the spring migratory and activity season. ***BBCS Components*** The BBCS shall include the following components to be implemented after commercial operation of the Project: 1. Preconstruction Baseline survey results. A description and summary of the baseline survey methods and results. 2. Avian and bat use and behavior surveys. Avian and bat use behavior surveys shall be conducted. The program will outline survey methodology and field documentation, the identification of appropriate onsite and offsite survey locations, control sites, and the seasonal considerations. Prey abundance surveys will also be conducted to identify the locations and changes in the abundance of prey species. Bat acoustic sampling may be implemented depending on results of the baseline study. 3. Golden eagle nest monitoring, including a summary of available information concerning golden eagle nesting activity in the project vicinity shall be prepared and annual pedestrian and/or helicopter surveys of golden eagle nesting sites within a 10-mile radius of the Project site 4. Avian and bat mortality and injury monitoring: An avian and bat injury and mortality monitoring program shall be implemented, including: (a) Onsite monitoring that will systematically survey representative locations within the facility sufficient to ensure that the estimated coefficient of variation (the standard deviation divided by facility-wide estimates) of facility wide fatality estimates will be less than 25 percent over a reasonable range of potentially low, medium and high impact rates, account for potential spatial bias and allow for the extrapolation of survey results to unsurveyed areas, and the survey interval based on scavenger and searcher efficiency trials and detection rates. (b) Offsite monitoring, to the extent that access can be reasonably and feasibly obtained by the Project owner, of one or more locations adjacent to the project facilities using the same or comparable methods as implemented for the onsite monitoring to monitor the extent to which avian species potentially injured by collisions or solar flux traverse to and can be detected within adjacent areas.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
(c) Low-visibility and high-wind weather event monitoring to document potential weather-related collision risks that may be associated with the power towers at the facility, including foggy, highly overcast, or rainy night-time weather typically associated with an advancing frontal system, and high wind events in which 40 miles per hour winds are sustained for period of greater than 4 hours, including survey frequency, location and methods. (d) Scavenger and searcher efficiency trials to document the extent to which avian or bat fatalities remain visible over time and can be detected within the project area and to adjust the survey timing and survey results to reflect scavenger and searcher efficiency rates. (e) Statistical methods used to generate facility estimates of potential avian and bat impacts based on the observed number of detections during standardized searches in the monitoring season for which the cause of death can be determined and is determined to have been facility-related. (f) Field detection and mortality or injury identification, cause attribution, handling and reporting protocols consistent with applicable legal requirements. 5. Survey schedule and period. All surveys and monitoring studies included in the BBCS shall be conducted for three years following commercial operation and approval of the BBCS by the CPM. At the end of the three-year period, the project owner and the CPM shall meet and confer to determine whether the survey program shall be continued for subsequent periods, up to a maximum of five years. The monitoring program may be modified with the approval of the CPM in response to survey results, identified scavenging efficiency rates, or other factors to increase monitoring accuracy and reliability or in accordance with the adaptive management decision-making framework included in the BBCS. 6. Adaptive management. An adaptive management program shall be developed to identify and implement reasonable and feasible measures that would reduce any biologically significant detected levels of avian or bat mortality or injury attributable to project operations and facilities. Any such impact reduction measures must be commensurate (in terms of factors that include geographic scope, costs, and scale of effort) to the level of avian or bat mortality or injury that is specifically and clearly attributable to the Project facilities. The adaptive management program shall include the following element: (a) Reasonable measures for characterizing the extent and significance of detected mortality and injuries clearly attributable to the Project facilities. (b) Measures that the project owner will implement to adaptively respond to detected mortality and injuries attributable to the Project, including passive avian diverter installations along the perimeter or at other locations within the project to avoid site use, the use of sound, light or other means to discourage site use consistent with applicable legal requirements, onsite prey or habitat control measures consistent with applicable legal requirements, and additional perch and nest proofing of Project facilities. (c) A decision-making framework that facilitates concurrent Project owner, CPM, and state and federal wildlife agency review of seasonal and annual survey results, the effectiveness of the adaptive management measures implemented by the Project owner, modification of the surveys in response to the results, if necessary, and the identification of additional mitigation responses that are commensurate with the extent of impacts that may be identified in the monitoring studies.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-17, American Badger and Desert Kit Fox Impact Avoidance and Minimization Measures: The project owner shall develop and implement an American Badger and Desert Kit Fox Mitigation and Monitoring Plan (plan). The objective of the plan shall be to avoid direct impacts to the American badger and desert kit fox as a result of construction of the power plant and linear facilities, as well as during project operation and decommissioning. The final plan is subject to review and comment by BLM and revision and approval by the CPM, in consultation with CDFW. The final plan shall include, but is not limited to, the following procedures and impact avoidance measures: 1. Describe pre-construction survey and clearance field protocol, to determine the number and locations of single or paired kit foxes or badgers on the project site that would need to be passively relocated and the number and locations of desert kit fox or badger burrows or burrow complexes that would need to be collapsed to prevent re-occupancy by the animals. 2. Complete pre-construction den surveys for any new construction activity. Biological Monitors shall perform pre-construction surveys for badgers and kit fox dens in the Project area, including areas within 100 feet of all Project facilities, utility corridors, and access roads. Surveys may be concurrent with desert tortoise surveys. If dens are detected, each den shall be classified as inactive non-natal, inactive natal, potentially active, or definitely active non-natal, or active natal den. 3. The plan will include details on monitoring requirements, types and methods of passive hazing, and methods and timing of den excavation, including, but not limited to the following: a. Inactive non-natal and inactive natal dens that would be directly impacted by construction activities shall be excavated by hand and backfilled to prevent reuse by badgers or kit fox b. Potentially and definitely active dens that would be directly impacted by construction activities shall be monitored by the Biological Monitor for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den shall be excavated and backfilled by hand. If tracks are observed, the den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage the badger or kit fox from continued use. After verification that the den is unoccupied it shall then be excavated and backfilled by hand to ensure that no badgers or kit fox are trapped in the den. BLM approval may be required prior to release of badgers on public lands. c. *Active natal dens.* During denning season (American badger – March to August, and desert kit fox – February to June), any active natal dens that are detected in the preconstruction surveys shall have a buffer zone of 300 feet to 500 feet surrounding the den, pending approval from the CPM in consultation with CDFW, and monitoring measures shall be implemented. Discovery of an active natal den that could be impacted by the project shall be reported to the CPM and CDFW within 24-hours of the discovery. A detailed description outlining the types and methods of monitoring must be included in the plan. The den location shall be mapped and submitted along with a report stating the survey results to the CPM and CDFW. The Designated Biologist shall monitor the natal den until he or she determines that the pups have dispersed. No disturbance will be allowed for any animal associated with a natal den and any activities that might disturb denning activities shall be prohibited within the buffer zone. Once the pups have dispersed, various passive hazing methods may be used to discourage den reuse. A detailed description of the types of passive hazing to be used must be included in the plan; however, approval must be granted by the CPM, in consultation with CDFW prior to implementation. After verification that the den is unoccupied, it shall then be excavated by hand and backfilled to ensure that, no badgers or kit fox are trapped in the den.	No fewer than 30 days prior to the start of any construction-related ground disturbance activities associated with the new project related facilities, the project owner shall provide the CPM, BLM, and CDFW with a draft American Badger and Desert Kit Fox Mitigation and Monitoring Plan for review and comment. No fewer than 10 days prior to start of any ground disturbance activities associated with the new project-related facilities, the project owner shall provide an electronic copy of the CPM-approved final plan to the CPM and CDFW and implement the plan. The project owner shall submit a report to the CPM and CDFW within 30 days of completion of any badger and kit fox surveys. The report shall describe survey methods, results, impact avoidance and minimization measures implemented, and the results of those measures. No later than 2 days following a phone notification of an injured, sick, or dead American badger or desert kit fox, the project owner shall provide to the CPM and CDFW, via FAX or electronic communication, a written report from the Designated Biologist describing the incident of sickness, injury, or death of an American badger or desert kit fox, when the incident occurred, and who else was notified. Beginning with the first month after start of construction and continuing every month until construction is completed, the Designated Biologist shall include a summary of events regarding the American badger and desert kit fox in each MCR. No later than 45 days after initiation of project operation, the Designated Biologist shall provide the CPM a final American Badger and Desert Kit Fox Mitigation and Monitoring Plan that includes: 1) a discussion of all mitigation measures that were and currently are being implemented; 2) all information about project-related kit fox and badger injuries and/or deaths; 3) all information regarding sick kit fox and badger found within the project site and along related linear facilities; and 4) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the American badger and desert kit fox.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
d. *Exception for American badger.* In the event that passive relocation techniques fail for badgers outside the denning season, or during the denning season individual badgers can be verified to not have a litter, then live-trapping can be employed to safely perform active removal. This approach will be agreed to, in principle, ahead of clearance surveys, and refined for individual situations in discussions with the CPM and CDFW. 4. Address other factors and procedures that may affect the success of kit fox and American badger relocation offsite, such as: a. Qualitative discussion of availability of suitable habitat on off-site surrounding lands within 10 miles of the project boundary, and quantitative evaluation of unoccupied desert kit fox burrows available on surrounding lands within 1 mile of the project boundary (e.g., by inventorying burrow numbers in selected representative sample areas); b. Estimates of the distances kit foxes would need to travel across the project site and across adjacent lands to safely access suitable habitat (including burrows) off-site; c. Proposed scheduling of the passive relocation effort; d. Methods to minimize likelihood that the animals will return to the project site; e. Descriptions of any proposed or potential ground disturbing activities related to kit fox relocation, and locations of those activities (e.g., artificial burrow construction); f. A monitoring and reporting plan to evaluate success of the relocation efforts and any subsequent re-occupation of the project site; and g. A plan to subsequently relocate any animals that may return to the site (e.g., by digging beneath fences). 5. Notify the CPM and CDFW if injured, sick, or dead American badger and desert kit fox are found. If an injured, sick, or dead animal is detected on any area associated with the solar project site or associated linear facilities, the CPM and the Ontario CDFW Office shall be notified immediately by phone. Written follow-up notification via FAX or electronic communication shall be submitted to the CPM and CDFW within 24 hours of the incident and shall include the following information as appropriate: a. *Injured animals*. If an American badger or desert kit fox is injured because of any project-related activities, the Designated Biologist or approved Biological Monitor shall immediately notify the CPM and CDFW personnel regarding the capture and transport of the animal to CDFW-approved wildlife rehabilitation and/or veterinarian clinic. Following the phone notification, the CPM and CDFW shall determine the final disposition of the injured animal, if it recovers. A written notification of the incident shall be sent to the CPM and CDFW containing, at a minimum, the date, time, location, and circumstances of the incident. b. *Sick animals*. If an American badger or desert kit fox is found sick and incapacitated on any area associated with the solar project site or associated linear facilities, the Designated Biologist or approved Biological Monitor shall immediately notify the CPM and CDFW personnel for immediate capture and transport of the animal to a CDFW-approved wildlife rehabilitation and/or veterinarian clinic. Following the phone notification, the CPM and CDFW shall determine the final disposition of the sick animal, if it recovers. If the animal dies, a necropsy shall be performed by a CDFW-approved facility to determine the cause of death. The project owner shall pay to have the animal transported and a necropsy performed. A written notification of the incident shall be sent to the CPM and CDFW and contain, at a minimum, the date, time, location, and circumstances of the incident.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
c. *Fatalities*. If an American badger or desert kit fox is killed because of any project-related activities during construction, operation, and decommissioning, or is found dead on the project site or along associated linear facilities, the Designated Biologist or approved Biological Monitor shall immediately refrigerate the carcass and notify the CPM and CDFW personnel within 24 hours of the discovery to receive further instructions on the handling of the animal. If the animal is suspected of dying of unknown causes, a necropsy shall be performed by a CDFW-approved facility to determine the cause of death. The project owner shall pay to have the animal transported and a necropsy performed. 6. Additional protection measures to be included in the plan and implemented: a. All pipes within the project disturbance area must be capped and/or covered every evening or when not in use to prevent desert kit foxes or other animals from accessing the pipes. b. All water sources shall be covered and secured when not in use to prevent drowning. c. The project owner shall coordinate with CDFW to identify any additional fence design features to maximize the effectiveness of the fence to exclude kit foxes from the project. d. Incorporate and implement the CDFW Veterinarian's guidance regarding impact avoidance measures including measures to prevent disease spread among desert kit foxes. e. Include measures to reduce traffic impacts to wildlife if the project owner anticipates night-time construction. The plan must also include a discussion of what information will be provided to all night-time workers, including truck drivers, to educate them about the threats to kit fox, what they need to do to avoid impacts to kit fox, and what to report if they see a live, injured, or dead kit fox.		
BIO-18, Burrowing Owl Impact Avoidance, Minimization, and Compensation Measures: The Project owner shall implement the following measures to avoid, minimize and offset impacts to burrowing owls: 1. Pre-Construction Surveys. The Designated Biologist or Biological Monitor shall conduct pre-construction surveys for burrowing owls no more than 30 days prior to initiation of construction activities. Surveys shall be focused exclusively on detecting burrowing owls, and shall be conducted from two hours before sunset to 1 hour after or from 1 hour before to 2 hours after sunrise. The survey area shall include the Project Disturbance Area and surrounding 500 foot survey buffer for each phase of construction in accordance with **BIO-29** (phasing). 2. Implement Burrowing Owl Mitigation Plan. The Project owner shall implement measures described in the final Burrowing Owl Mitigation Plan. The final Burrowing Owl Mitigation Plan shall be approved by the CPM, in consultation with BLM, USFWS and CDFG, and shall: a. identify suitable sites within 1 mile of the Project Disturbance Areas for creation or enhancement of burrows prior to passive relocation efforts; b. provide guidelines for creation or enhancement of at least two natural or artificial burrows per relocated owl; c. provide detailed methods and guidance for passive relocation of burrowing owls occurring within the Project Disturbance Area; and d. describe monitoring and management of the passive relocation effort, including the created or enhanced burrow location and the project area where burrowing owls were relocated from, and provide a reporting plan.	If pre-construction surveys detect burrowing owls within the Project Disturbance Area and relocation of the owls is required, within 30 days of completion of the burrowing owl pre-construction surveys the Project owner shall submit to the CPM, BLM, CDFG, and USFWS a Burrowing Owl Mitigation Plan. The Burrowing Owl Mitigation Plan shall identify suitable areas for construction of burrows and the other passive relocation as described above. As part of the Annual Compliance Report each year following construction for a period of five years, the Designated Biologist shall provide a report to the CPM, BLM, USFWS and CDFG that describes the results of monitoring and management of the burrowing owl burrow creation or enhancement area(s). If pre-construction surveys detect burrowing owls within 500 feet of proposed construction activities, at least 10 days prior to the start of any Project-related site disturbance activities the Designated Biologist shall provide to the CPM, BLM, CDFG, and USFWS documentation indicating that non-disturbance buffer fencing has been installed as described above. The Project owner shall report monthly to	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
3. Implement Avoidance Measures. If an active burrowing owl burrow is detected within 500 feet from the Project Disturbance Area the following avoidance and minimization measures shall be implemented: a. Establish Non-Disturbance Buffer. Fencing shall be installed at a 250-foot radius from the occupied burrow to create a non- disturbance buffer around the burrow. The non-disturbance buffer and fence line may be reduced to 160 feet if all Project- related activities that might disturb burrowing owls would be conducted during the non-breeding season (September 1 through January 31). Signs shall be posted in English and Spanish at the fence line indicating no entry or disturbance is permitted within the fenced buffer. b. Monitoring: If construction activities would occur within 500 feet of the occupied burrow during the nesting season (February 1 – August 31) the Designated Biologist or Biological Monitor shall monitor to determine if these activities have potential to adversely affect nesting efforts, and shall make recommendations to minimize or avoid such disturbance. 4. Acquire Burrowing Owl Habitat. The Project owner shall acquire, in fee or in easement land suitable to support a resident population of burrowing owls and shall provide funding for the enhancement and long-term management of these compensation lands. The responsibilities for acquisition and management of the compensation lands may be delegated by written agreement to CDFG or to a third party, such as a non-governmental organization dedicated to habitat conservation, subject to approval by the CPM, in consultation with CDFG and USFWS prior to land acquisition or management activities. Additional funds shall be based on the adjusted market value of compensation lands at the time of construction to acquire and manage habitat. a. Criteria for Burrowing Owl Mitigation Lands. The terms and conditions of this acquisition or easement shall be as described in **BIO-12** [Desert Tortoise Compensatory Mitigation], with the additional criteria to include: 1) mitigation land per **BIO-29 - Table 2 (**see 2010 CEC PSPP Commission Decision, pp. 142 – 143), that must provide suitable habitat for burrowing owls, and 2) the acquisition lands must either currently support burrowing owls or be within dispersal distance from areas occupied by burrowing owls (generally approximately five miles). The burrowing owl mitigation lands may be included with the desert tortoise mitigation lands ONLY if these two burrowing owl criteria are met. If the burrowing owl mitigation land is separate from the acreage required for desert tortoise compensation lands, the Project owner shall fulfill the requirements described below in this condition. b. Security. If the burrowing owl mitigation land is separate from the acreage required for desert tortoise compensation lands the Project owner or an approved third party shall complete acquisition of the proposed compensation lands within the time period specified for this acquisition (see the verification section at the end of this condition). Alternatively, financial assurance can be provided by the Project owner to the CPM and CDFG, according to the measures outlined in **BIO-12**. The amount of the Security shall be as described in **BIO-29 – Table 3** (see 2010 CEC PSPP Commission Decision, p. 143, which would be updated to reflect current costs) for the proposed Project or any of the Project alternatives. These funds shall be used solely for implementation of the measures associated with the Project. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security (“Security”) prior to initiating ground-disturbing Project activities. Prior to submittal to the CPM, the Security shall be approved by the CPM, in consultation with CDFG and the USFWS to ensure funding. The final amount due will be determined by an updated appraisal and PAR analysis conducted as described in **BIO-12**.	the CPM, BLM, CDFG and USFWS for the duration of construction on the implementation of burrowing owl avoidance and minimization measures. Within 30 days after completion of construction the Project owner shall provide to the CPM and CDFG a written report identifying how mitigation measures described in the plan have been completed. No less than 30 days prior to the start of Project ground-disturbing activities the Project owner shall provide the CPM with an approved form of Security in accordance with this condition of certification. Actual Security for acquisition of 78 acres of burrowing owl habitat shall be provided no later than 7 days prior to the beginning of Project ground-disturbing activities. No fewer than 90 days prior to the land or easement purchase, as determined by the date on the title, the Project owner shall provide the CPM with a management plan for review and approval, in consultation with CDFG, BLM, and USFWS, for the compensation lands and associated funds. No later than 18 months from initiation of construction, the Project owner shall provide written verification to the CPM that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-19, Special-Status Plant Impact Avoidance, Minimization and Compensation: This condition contains the following four sections: **Section A: Special-Status Plant Impact Avoidance and Minimization Measures** contains the Best Management Practices and other measures designed to avoid accidental indirect impacts to plants during construction, operation, and closure. The measures are required for special-status plants located outside of the Project Disturbance Area and within 100 feet of the Project Disturbance Area. The same measures shall also be implemented for plants within the Project Disturbance Area that are avoided pursuant to Section C of this condition. **Section B: Conduct Late Season Botanical Surveys** describes guidelines for conducting summer-fall 2010 surveys to detect special-status plants that would have been missed during the spring 2010 surveys. **Section C: Avoidance Requirements for Special-Status Plants** Detected **in the Summer/Fall 2010 Surveys** outlines the level of on-site avoidance required for any special-status plants detected during the summer-fall surveys, and specifies when off-site mitigation is required. **Section D: Off-Site Compensatory Mitigation for Special-Status Plants** describes performance standards for off-site mitigation through acquisition or restoration/enhancement. "Project Disturbance Area" encompasses all areas to be temporarily and permanently disturbed by the Project, including the plant site, linear facilities, and areas disturbed by temporary access roads, fence installation, construction work lay-down and staging areas, parking, storage, or by any other activities resulting in disturbance to soil or vegetation. The term "Permanent Project Disturbance Area" refers only to the solar facility; "linears" includes transmission lines, laydown areas, pipelines, and access roads. The Project owner shall implement the following measures in Section A, B, C, and D to avoid, minimize, and compensate for direct, indirect, and cumulative impacts to special-status plant species: ***Section A: Special-Status Plant Impact Avoidance and Minimization Measures*** To protect all special-status plants located outside of the Project Disturbance Area and within 100 feet of the permitted Project Disturbance Area from accidental and indirect impacts during construction, operation, and closure, the Project owner shall implement the following measures: 1. Designated Botanist. An experienced botanist who meets the qualifications described in Section **B-2** below shall oversee compliance with all special-status plant avoidance, minimization, and compensation measures described in this condition throughout construction and closure. The Designated Botanist shall oversee and train all other Biological Monitors tasked with conducting botanical survey and monitoring work. During operation of the Project, the Designated Biologist shall be responsible for protecting special-status plant occurrences within 100 feet of the Project boundaries. 2. Special-Status Plant Impact Avoidance and Minimization Measures. The Project owner shall incorporate all measures for protecting special-status plants in close proximity to the site into the BRMIMP (**BIO-7**). These measures shall include the following elements: a. Site Design Modifications: i) Incorporate s modifications to site design or construction techniques to minimize direct and indirect impacts to special-status plants along the Project linears to include: limiting the width of the work area; adjusting the location of staging areas, lay downs, spur roads and poles or towers; driving and crushing vegetation as an alternative to blading temporary roads to preserve the seed bank, and minor adjustments to the alignment of the roads and pipelines within the constraints of the ROW; ii) These modifications shall be clearly depicted on the grading and construction plans, and on report-sized maps in the BRMIMP.	The Special-Status Plant Impact Avoidance and Minimization Measures shall be incorporated into the BRMIMP as required under Condition of Certification **BIO-7.** The Project owner shall notify the CPM and the BLM State Botanist no less than 14 days prior to the start of late-season surveys and provide a target list of late season special-status plants that will be considered. Concurrently, the Project owner shall coordinate with BLM to obtain a permit for seed collection. Seed collection is required for all special-status plants located within the Project Disturbance Area and shall be conducted according to the specifications in Section D.III.1 of this condition and with all terms and conditions of the BLM permit. Raw GPS data, metadata, and CNDDB field forms shall be submitted to the CPM within two weeks of the completion of each survey. A preliminary summary of results for the late summer/fall botanical surveys, prepared according to guidelines in Section B of this condition, shall also be submitted to the CPM and BLM's State Botanist within two weeks following the completion of the surveys. If surveys are split into more than one period, then a summary letter shall be submitted following each survey period. The Final Summer-Fall Botanical Survey Report, GIS shape files and metadata shall be submitted to the BLM State Botanist and the CPM no less than 30 days prior to the start of ground-disturbing activities. The Final Report shall include a detailed accounting of the acreage of Project impacts to special-status plant occurrences. For any special-status plant species located within the Project Disturbance Area, the Project owner shall submit to the CPM to less than 30 days prior to the start of ground-disturbing activities proof, in the form of a letter or receipt, of the seed or other propagules collected pursuant to Section D.III #1 of this Condition. The draft conceptual Special-Status Plant Mitigation Plan, as described under Section C.4 of this condition, shall be submitted to the CPM for review and approval no less than 30 days prior to the start of ground-disturbing activities. The Project owner shall immediately provide written notification to the CPM, CDFG, USFWS, and BLM State Botanist if it detects a State- or Federal-Listed Species, or BLM Sensitive Species at any time during its late	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
b. Establish Environmentally Sensitive Areas (ESAs). Prior to the start of any ground- or vegetation-disturbing activities, the Designated Botanist shall establish ESAs to protect avoided7 special-status plants located outside of the Project Disturbance Areas and within 100 feet of the boundary of construction. This includes plant occurrences identified during the spring 2009- 2010 surveys and the late season 2010 surveys. The locations of ESAs shall be clearly depicted on construction drawings, which shall also include all avoidance and minimization measures on the margins of the construction plans. The boundaries of the ESAs shall be placed a minimum of 20 feet from the uphill side of the occurrence and 10 feet from the downhill side. Where this is not possible due to construction constraints, other protection measures such as silt-fencing and sediment controls may be employed to protect the occurrences. Equipment and vehicle maintenance areas, and wash areas, shall be located 100 feet from the uphill side of any ESAs. ESAs shall be clearly delineated in the field with temporary construction fencing and signs prohibiting movement of the fencing or sediment controls under penalty of work stoppages and additional compensatory mitigation. ESAs shall also be clearly identified (with signage or by mapping on site plans) to ensure that avoided plants are not inadvertently harmed during construction, operation, or closure. c. Special-Status Plant Worker Environmental Awareness Program (WEAP). The WEAP (BIO-6) shall include training components specific to protection of special-status plants as outlined in this condition. d. Herbicide and Soil Stabilizer Drift Control Measures. Special- status plant occurrences within 100 feet of the Project Disturbance Area, and any occurrences avoided within the Project Disturbance Area3 shall be protected from herbicide and soil stabilizer drift. The Weed Control Program (BIO-14) shall include measures to avoid chemical drift or residual toxicity to special-status plants consistent with guidelines such as those provided by the Nature Conservancy's The Global Invasive Species Team8, the U.S. Environmental Protection Agency, and the Pesticide Action Network Database9. e. Erosion and Sediment Control Measures. Erosion and sediment control measures shall not inadvertently impact special-status plants by using invasive or non-native plants in seed mixes, introducing pest plants through contaminated seed or straw, accidental burial by mulches, etc. These specifications shall be incorporated in the Drainage, Erosion, and Sedimentation Control Plan required under **SOIL&WATER-1**. f. Locate Staging, Parking, Spoils, and Storage Areas Away from Special-Status Plant Occurrences. Areas for spoils, equipment, vehicles, and materials storage areas; parking; equipment and vehicle maintenance areas, and wash areas shall be placed at least 100 feet from any ESAs. These specifications shall be incorporated in the Drainage, Erosion, and Sedimentation Control Plan required under SOIL&WATER-1. g. Pre-Construction Seed Collection. For all significant impacts to special-status plants, mitigation shall include seed collection from the affected special-status plants population on-site prior to construction to conserve the germplasm and provide a seed source for restoration efforts. Seed collection shall follow the guidelines described in Section D.III.3 of this condition. h. Monitoring and Reporting Requirements. The Designated Botanist, or BM under supervision of the Designated Botanist, shall conduct weekly monitoring of the ESAs that protect special-status plant occurrences during construction and decommissioning activities. ***Section B: Conduct Late-Season Botanical Surveys*** The Project owner shall conduct late-summer/fall botanical surveys for late-season special-status plants prior to start of construction or by the end of 2010, as described below:	summer/fall botanical surveys or at any time thereafter through the life of the Project, including conclusion of Project decommissioning. No less than 30 days prior to the start of ground-disturbing activities the Project owner shall submit grading plans and construction drawings to the CPM which depict the location of Environmentally Sensitive Areas and the Avoidance and Minimization Measures contained in Section A of this Condition, and under Section C.1-3. If compensatory mitigation is required, pursuant to Section C.1-3, no less than 30 days prior to the start of ground-disturbing activities the Project owner shall submit to the CPM the form of Security adequate to acquire compensatory mitigation lands and/or undertake habitat enhancement or restoration activities, as described in this condition. Actual Security shall be provided 7 days prior to start of ground-disturbing activities. No fewer than 90 days prior to acquisition of compensatory mitigation lands, the Project owner shall submit a formal acquisition proposal and draft Management Plan for the proposed lands to the CPM, with copies to CDFG, USFWS, and BLM, describing the parcels intended for purchase and shall obtain approval from the CPM prior to the acquisition. No fewer than 90 days prior to acquisition of compensatory mitigation lands, the Project owner shall submit to the CPM and obtain CPM approval of any agreements to delegate land acquisition to an approved third party, or to manage compensation lands; such agreement shall be executed and implemented within 18 months of the start of ground disturbance. No fewer than 30 days after acquisition of the property the Project owner shall deposit the funds required by Section I e above (long term management and maintenance fee) and provide proof of the deposit to the CPM. The Project owner or an approved third party shall complete the acquisition and all required transfers of the compensation lands, and provide written verification to the CPM of such completion no later than 18 months after the start of Project ground-disturbing activities. If NFWF or another approved third party is being used for the acquisition, the Project owner shall ensure that funds	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
1. Survey Timing. Surveys shall be timed to detect: a) summer annuals triggered to germinate by the warm, tropical summer storms (which may occur any time between June and October), and b) fall-blooming perennials that respond to the cooler, later season storms (typically beginning in September or October). For those species that are identified by vegetative characteristics, surveys do not have to be timed for blooming or fruiting. The surveys shall not be timed to coincide with the statistical peak bloom period of the target species but shall instead, if possible, be based on plant phenology and the timing of a significant storm event (e. g., a 10mm or greater rain or multiple storm events of sufficient volume to trigger germination as determined by a qualified botanist.). If possible, surveys shall occur at the appropriate time to capture the characteristics necessary to identify the taxon. Construction is authorized to commence following a 2010 late season survey. 2. Surveyor Qualifications and Training. Surveys shall be conducted by a qualified botanist knowledgeable in the complex biology of the local flora, and consistent with CDFG (2009) and BLM (2009) guidelines for surveyor qualifications. Each surveyor shall be equipped with a GPS unit and record a complete tracklog; these data shall be compiled and submitted along with the Summer-Fall Survey Botanical Report (described below). Prior to the start of surveys, all crew members shall, at a minimum, visit reference sites (where available) and/or review herbarium specimens of all BLM Sensitive plants, CNPS List 1B or 2 (Nature Serve rank S1 and S2) or proposed List 1B or 2 taxa, and any new reported or documented taxa, to obtain a search image. Because the potential for range extensions is unknown, the list of potentially occurring special-status plants shall include all special-status taxa known to occur within the Sonoran Desert region and the eastern portion of the Mojave in California. The list shall also include taxa with bloom seasons that begin in fall and extend into the early spring as many of these are reported to be easier to detect in fall, following the start of the fall rains. 3. Survey Coverage. The survey coverage or intensity shall be in accordance with BLM Survey Protocols (issued July 2009)10, which specify that intuitive controlled surveys shall only be accomplished by botanists familiar with the habitats and species that may reasonably be expected to occur in the project area. 4. Pre-Construction Seed Collection. For all significant impacts to special-status plants, mitigation shall include seed collection from the affected special-status plants population on-site prior to construction to conserve the germplasm and provide a seed source for restoration efforts. Seed collection shall be conducted during the late-season surveys follow the guidelines described in Section D.III.3 of this condition. 5. Documenting Occurrences. If a special-status plant is detected, the full extent of the population onsite shall be recorded using GPS in accordance with BLM survey protocols. Additionally, the extent of the population within one mile of Project boundaries shall be assessed at least qualitatively to facilitate an accurate estimation of the proportion of the population affected by the Project. For populations that are very dense or very large, the population size may be estimated by simple sampling techniques. When populations are very extensive or locally abundant, the surveyor must provide some basis for this assertion and roughly map the extent on a topographic map. All but the smallest populations (e.g., a population occupying less than 100 square feet) shall be recorded as area polygons; the smallest populations may be recorded as point features. All GPS-recorded occurrences shall include: the number of plants, phenology, observed threats (e.g., OHV or invasive exotics), and habitat or community type. The map of occurrences submitted with the final botanical report shall be prepared to ensure consistency with definition of an occurrence by CNDDB, i.e., occurrences found within 0.25 miles of another occurrence of the same taxon, and not separated by significant habitat discontinuities, shall be combined into a single 'occurrence'. The Project owner shall also submit the raw GPS shape files and metadata, and completed CNDDB forms for each 'occurrence' (as defined by CNDDB).	needed to accomplish the acquisition are transferred in timely manner to facilitate the planned acquisition and to ensure the land can be acquired and transferred prior to the 18-month deadline. If habitat enhancement is proposed, no later than six months following the start of ground-disturbing activities, the Project owner shall obtain CPM approval of the final Habitat Enhancement/Restoration Plan, prepared in accordance with Section D, and submit to the CPM or a third party approved by the CPM Security adequate for long-term implementation and monitoring of the Habitat Enhancement/Restoration Plan. Enhancement/restoration activities shall be initiated no later than 12 months from the start of construction. The implementation phase of the enhancement project shall be completed within five years of initiation. Until completion of the five-year implementation portion of the enhancement action, a report shall be prepared and submitted as part of the Annual Compliance Report. This report shall provide, at a minimum: a summary of activities for the preceding year and a summary of activities for the following year; quantitative measurements of the Project's progress in meeting the enhancement project success criteria; detailed description of remedial actions taken or proposed; and contact information for the responsible parties. If a contingency measure is required, as described in Section D.III of this condition, the Project owner shall submit commence no later than six months following the start of ground-disturbing activities. The draft study shall be submitted to the CPM and BLM State Botanist for review and approval no more than two years following the start of ground-disturbing activities. The final study shall be submitted no more than 30 months following the start of ground- disturbing activities. If a Distribution Study is implemented as contingency mitigation, the study shall be initiated no later than 6 months from the start of construction. The implementation phase of the study shall be completed within two years of the start of construction. Within 18 months of ground-disturbing activities, the Project owner shall transfer to the CPM or an approved third party the difference between the Security paid and the actual costs of (1) acquiring compensatory mitigation lands,	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
6 Reporting. Raw GPS data, metadata, and CNDDB field forms shall be provided to the CPM and the BLM State Botanist within two weeks of the completion of each survey. If surveys are split into two or more periods (e.g., a late summer survey and a fall survey), then a summary letter shall be submitted following each survey period. The Final Summer-Fall Botanical Survey Report shall be prepared consistent with CDFG guidelines (CDFG 2009), and BLM 2009 guidelines and shall include all of the following components: a. the BLM designation, NatureServe Global and State Rank of each species or taxon found (or proposed rank, or CNPS List); b. the number or percent of the occurrence that will be directly affected, and indirectly affected by changes in drainage patterns or altered geomorphic processes; c. the habitat or plant community that supports the occurrence and the total acres of that habitat or community type that occurs in the Project Disturbance Area; d. an indication of whether the occurrence has any local or regional significance (e.g., if it exhibits any unusual morphology, occurs at the periphery of its range in California, represents a significant range extension or disjunct occurrence, or occurs in an atypical habitat or substrate); e. a completed CNDDB field form for every occurrence (occurrences of the same species within one-quarter mile or less of each other combined as one occurrence, consistent with CNDDB methodology), and f. two maps: one that depicts the raw GPS data (as collected in the field) on a topographic base map with Project features; and a second map that follows the CNDDB protocol for occurrence mapping. ***Section C: Avoidance Requirements for Special-Status*** *Plants Detected in the Summer/Fall 2010 Surveys* The Project owner shall apply the following avoidance and mitigation standards for impacts to late blooming special-status plants that might be detected during late summer/fall season surveys. The Project owner shall immediately notify the CDFG, USFWS, BLM State Botanist, and the CPM if any State- or Federal-listed species or BLM Sensitive species are detected. Avoidance and/or the off-site mitigation measures described in Section D below would reduce impacts to these special-status plant species to less-than-significant levels. Plants shall be considered impacted if they are within the Project footprint, or if they would be affected by Project-related hydrologic changes or changes to the local sand transport system Downstream/ downwind impacts from altered hydrology or geomorphic processes shall be considered direct impacts. 1. Mitigation for CNDDB Rank 1-Equivalent Plants (Critically Imperiled). Species that are not federally or state listed but are CNDDB Rank 1 plants first will be evaluated using all available data to determine if they meet the definition of a CNDDB Rank 1 species (i.e., a Rank 1-equivalent species). If late blooming CNDDB Rank 1-equivalent species are detected within the Project Disturbance Area, complete avoidance is mandatory along the linears and within construction laydown areas. The Project owner shall limit the width of the work area; adjusting the location of staging areas, lay downs, spur roads and poles or towers; driving and crushing vegetation as an alternative to blading temporary roads, and other construction or design modifications as necessary to achieve avoidance of any Rank 1-equivalent plants detected. If late-season Rank 1-equivalent plants are detected on the solar facility, the Project owner shall avoid all plants around the perimeter of the facility as necessary to achieve 75 percent avoidance of the local population of the affected species. The local population shall be measured by the number of individuals occurring on the Project Site and within	completing initial protection and habitat improvement, and funding the long-term maintenance and management of compensatory mitigation lands; and/or (2) implementing and providing for the long-term protection and monitoring of habitat enhancement or restoration activities. Implementation of the special-status plant impact avoidance and minimization measures shall be reported in the Monthly Compliance Reports prepared by the Designated Botanist. Within 30 days after completion of Project construction, the Project owner shall provide to the CPM, for review and approval, in consultation with the BLM State Botanist, a written construction termination report identifying how measures have been completed. The Project owner shall submit a monitoring report every year for the life of the project to monitor effectiveness of protection measures for all avoided special- status plants to the CPM and BLM State Botanist. The monitoring report shall include: dates of worker awareness training sessions and attendees, completed CNDDB field forms for each avoided occurrence on-site and within 100 feet of the Project boundary off-site, and description of the remedial action, if warranted and planned for the upcoming year. The completed forms shall include an inventory of the special-status plant occurrences and description of the habitat conditions, an indication of population and habitat quality trends.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
the immediate watershed of the Project for wash dependent-species or species of unknown dispersal mechanism, or within the local sand transport corridor for wind dispersed species. Measurement of percent avoidance shall be based on population for perennials and on habitat for annuals (habitat containing the species' micro-habitat preferences, such as "fine silts and moist depressions"). Avoidance within the central portion of the solar facility is not recommended because it would create fragmented conditions that would not sustain persistence of the affected species. For all portions of the local population not avoided, the Project owner shall implement off-site mitigation at a ratio of 3:1. The off-site mitigation may include land acquisition or implementation of a restoration/enhancement program for the species, and shall meet the performance standards described in section D of this Condition. The Applicant must demonstrate, subject to review and approval by the CPM, that the impacts, after mitigation, will not cause a loss of viability for that species. The Project owner shall prepare and implement a Special-Status Plant Mitigation Plan (Plan). The content of the Plan and definitions shall be as described above in subsection C.3, below. 2. Mitigation for CNDDB Rank 2-Equivalent Plants (Imperiled). Species that are CNDDB Rank plants first will be evaluated using all available data to determine if they meet the definition of a CNDDB Rank 2 species (i.e., a Rank 2-equivalent species). If late-season CNDDB Rank 2-equivalent species are detected within the Project Disturbance Area avoidance is mandatory along the linears and construction laydown areas, unless such avoidance would create greater environmental impacts in other resource areas (e.g., cultural resource sites). The Project owner shall limit the width of the work area, adjusting the location of staging areas, lay downs, spur roads and poles or towers; driving and crushing vegetation as an alternative to blading temporary roads, and other construction or design modifications as necessary to achieve avoidance of any Rank 2-equivalent plants detected. If late-season Rank 2-equivalent plants are detected on the solar facility, the Project owner shall implement off-site mitigation, at a ratio of 2:1, for any impacts exceeding 25 percent of the local population. The off-site mitigation may include land acquisition or implementation of a restoration/enhancement program for the species, and shall meet the performance standards described in section D of this Condition. The Project owner must demonstrate, subject to review and approval by the CPM, that the impacts, after mitigation, will not cause a loss of viability for that species. The Project owner shall prepare and implement a Special-Status Plant Mitigation Plan (Plan). The content of the Plan and definitions shall be as described above in subsection C.3, below. 3. Mitigation for CNDDB Rank 3-Equivalent Plants (Vulnerable). If CNDDB Rank 3 plants are detected (which constitutes most CNPS List 4 plants), mitigation is not required unless the occurrence has local or regional significance, in which case the plant occurrence shall be treated as a CNDDB Rank 2 plant if it meets the definition of a CNDDB Rank 2 species; avoidance and mitigation would be as described above under C.2. A plant occurrence would be considered to have local or regional significance if: a. It occurs at the outermost periphery of its range in California; b. It occurs in an atypical habitat, region, or elevation for the taxon that suggests that the occurrence may have genetic significance (e.g., that may increase its ability to survive future threats), or; c. It exhibits any unusual morphology that is not clearly attributable to environmental factors that may indicate a potential new variety or sub-species. 4. Prepare Special-Status Plant Mitigation Plan. If the project will impact any CNDDB Rank 1-equivalent or Rank 2-equivalent plants, or Rank 3 plants of local or regional significance that also meet the definition of a CNDDB Rank 2 species, or new taxa, the Project owner shall prepare and implement a Special-Status Plant Mitigation Plan (Plan).		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
Compensatory mitigation, as described in Section D of this condition, and at a mitigation ratio of 3:1 for Rank 1 plants, and 2:1 for Rank 2 plants and Rank 1 plants of local or regional significance, and new taxa. The Plan shall include, at a minimum, the following components and definitions: a. A description of the occurrences of the affected special-status species, ecological characteristics such as soil, hydrology, and other micro-habitat requirements, ecosystem processes required for maintenance of the species or its habitat, reproduction and dispersal mechanisms, pollinators, local distribution, a description of the extent of the population off-site, the percentage of the local population affected, and a description of how these occurrences would be impacted by the Project, including direct and indirect effects. Occurrences shall be considered impacted if they are within the Project footprint, and if they would be affected by Project-related hydrologic changes or changes to the local sand transport system. b. A description of the avoidance and minimization measures that would achieve complete avoidance of occurrences on the Project linears and construction laydown areas. If avoidance is also required on the solar facility (Rank 1-equivalent species), provide a description of the measures that would be implemented to avoid or minimize impacts to occurrences on the solar facility. "Avoidance" shall include protection of the ecosystem processes essential for maintenance of the protected plant occurrence, and protection of the seed bank. Isolated 'islands' of protected plants disconnected by the Project from natural fluvial, aeolian (wind), or other processes essential for maintenance of the species, shall not be considered avoidance. c. If off-site mitigation is also required, pursuant to C.1 –C.3 above, the Plan shall include a description of the proposed mitigation (acquisition or restoration/enhancement) and demonstrate how the mitigation will meet the performance standards described in Section D of this condition. For CNDDB Rank 1-equivalent plants that cannot be avoided (i.e., plants located in the central portion of the solar facility), the Plan must demonstrate that the impacts (after mitigation) will not cause a loss of viability for that species. The assessment of viability shall include: *i*) current literature compilation and review on the affected species, it's documented and reported occurrences, range and distribution, habitat, and the ecological conditions needed to support it; *ii)* consultation with scientists and others with expertise and local knowledge of the species to gather unpublished data and other information to supplement the literature review findings, and (if available) *iii*) information on species' habitat relationships, demographics, genetics, and risk factors. ***Section D: Off-Site Compensatory Mitigation for Special- Status Plants*** Where compensatory mitigation is required under the terms of Section C, above, the Project owner shall mitigate Project impacts to special- status plant occurrences with compensatory mitigation. Compensatory mitigation shall consist of acquisition of habitat supporting the target species, or restoration/enhancement of populations of the target species, and shall meet the performance standards for mitigation described below. In the event that no opportunities for acquisition or restoration/enhancement exist, the Project owner can fund a species distribution study designed to promote the future preservation, protection or recovery of the species. Compensatory mitigation shall be at a ratio of 3:1 for Rank 1-equivalent plants, with three acres of habitat acquired or restored/enhanced for every acre of habitat occupied by the special status plant that will be disturbed by the Project Disturbance Area (for example if the area occupied by the special status plant collectively measured is 1⁄4 acre than the compensatory mitigation will be 3⁄4 of an acre). The mitigation ratio for Rank 2-equivalent plants shall be 2:1. So, for the example above, the mitigation ratio would be one-half acre for the Rank 2-equivalent plants.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
The Project owner shall provide funding for the acquisition and/or restoration/enhancement, initial improvement, and long-term maintenance and management of the acquired or restored lands. The actual costs to comply with this condition will vary depending on the Project Disturbance Area, the actual costs of acquiring compensation habitat, the actual costs of initially improving the habitat, the actual costs of long-term management as determined by a Property Analysis Record (PAR) report, and other transactional costs related to the use of compensatory mitigation. The Project owner shall comply with other related requirements in this condition: **I. Compensatory Mitigation by Acquisition:** The requirements for the acquisition, initial protection and habitat improvement, and long- term maintenance and management of special-status plant compensation lands include all of the following: 1. Selection Criteria for Acquisition Lands. The compensation lands selected for acquisition may include any of the following three categories: a. Occupied Habitat, No Habitat Threats. The compensation lands selected for acquisition shall be occupied by the target plant population and shall be characterized by site integrity and habitat quality that are required to support the target species, and shall be of equal or better habitat quality than that of the affected occurrence. The occurrence of the target special-status plant on the proposed acquisition lands should be viable, stable or increasing (in size and reproduction). b. Occupied Habitat, Habitat Threats. Occupied compensation lands characterized by habitat threats may also be acquired as long as the population could be reasonably expected to recover with habitat restoration efforts (e.g., OHV or grazing exclusion, or removal of invasive non-native plants) and is accompanied by a Habitat Enhancement/Restoration Plan as described in Section D.II, below. c. Unoccupied but Adjacent. The Project owner may also acquire habitat for which occupancy by the target species has not been documented, if the proposed acquisition lands are adjacent to occupied habitat. The Project owner shall provide evidence that acquisitions of such unoccupied lands would improve the defensibility and long-term sustainability of the occupied habitat by providing a protective buffer around the occurrence and by enhancing connectivity with undisturbed habitat. This acquisition may include habitat restoration efforts where appropriate, particularly when these restoration efforts will benefit adjacent habitat that is occupied by the target species. 2. Review and Approval of Compensation Lands Prior to Acquisition. The Project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for special-status plants in relation to the criteria listed above, and must be approved by the CPM. 3. Management Plan. The Project owner or approved third party shall prepare a management plan for the compensation lands in consultation with the entity that will be managing the lands. The goal of the management plan shall be to support and enhance the long-term viability of the target special-status plant occurrences. The Management Plan shall be submitted for review and approval to the CPM. 4. Integrating Special-Status Plant Mitigation with Other Mitigation lands. If all or any portion of the acquired Desert Tortoise, Waters of the State, or other required compensation lands meets the criteria above for special-status plant compensation lands, the portion of the other species' or habitat compensation lands that meets any of the criteria above may be used to fulfill that portion of the obligation for special-status plant mitigation.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
5. Compensation Lands Acquisition Requirements. The Project owner shall comply with the following requirements relating to acquisition of the compensation lands after the CPM, has approved the proposed compensation lands: a Preliminary Report. The Project owner, or an approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board. b. Title/Conveyance. The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement, as required by the CPM. Any transfer of a conservation easement or fee title must be to CDFG, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to BLM or other public agency approved by the CPM. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of CDFG or another entity approved by the CPM. If an entity other than CDFG holds a conservation easement over the compensation lands, the CPM may require that CDFG or another entity approved by the CPM, in consultation with CDFG, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM of the terms of any transfer of fee title or conservation easement to the compensation lands. c. Initial Protection and Habitat Improvement. The Project owner shall fund activities that the CPM requires for the initial protection and habitat improvement of the compensation lands. These activities will vary depending on the condition and location of the land acquired, but may include trash removal, construction and repair of fences, invasive plant removal, and similar measures to protect habitat and improve habitat quality on the compensation lands. The costs of these activities would use the estimated cost per acre for Desert Tortoise mitigation as a best available proxy, at the ratio of 3:1 for Rank 1-equivalent plants and 2:1 for Rank 2-equivalent plants, but actual costs will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFG or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code section 65965), if it meets the approval of the CPM in consultation with CDFG, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFG takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFG or its designee. d. Property Analysis Record. Upon identification of the compensation lands, the Project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate amount of the long-term maintenance and management fund to pay the in-perpetuity management of the compensation lands. The PAR or PAR-like analysis must be approved by the CPM before it can be used to establish funding levels or management activities for the compensation lands. e. Long-term Maintenance and Management Funding. The Project owner shall deposit in NFWF's REAT Account a capital long- term maintenance and management fee in the amount determined through the Property Analysis Record (PAR) or PAR-like analysis conducted for the compensation lands.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
The CPM, in consultation with CDFG, may designate another non-profit organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity. If CDFG takes fee title to the compensation lands, CDFG shall determine whether it will hold the long-term management fee in the special deposit fund, leave the money in the REAT Account, or designate another entity to manage the long-term maintenance and management fee for CDFG and with CDFG supervision. Interest, Principal, and Pooling of Funds. The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fund (endowment) holder/manager to ensure the following requirements are met: i. Interest. Interest generated from the initial capital long-term maintenance and management fund shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action that is approved by the CPM and is designed to protect or improve the habitat values of the compensation lands. ii. Withdrawal of Principal. The long-term maintenance and management fund principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM or by the approved third-party long-term maintenance and management fund manager, to ensure the continued viability of the species on the compensation lands. iii. Pooling Long-Term Maintenance and Management Funds. An entity approved to hold long-term maintenance and management funds for the Project may pool those funds with similar funds that it holds from other projects for long-term maintenance and management of compensation lands for special-status plants. However, for reporting purposes, the long-term maintenance and management funds for this Project must be tracked and reported individually to the CPM. f. Other Expenses. In addition to the costs listed above, the Project owner shall be responsible for all other costs related to acquisition of compensation lands and conservation easements, including but not limited to the title and document review costs incurred from other state agency reviews, overhead related to providing compensation lands to CDFG or an approved third party, escrow fees or costs, environmental contaminants clearance, and other site cleanup measures. g. Mitigation Security. The Project owner shall provide financial assurances to the CPM to guarantee that an adequate level of funding is available to implement any of the mitigation measures required by this condition that are not completed prior to the start of ground-disturbing Project activities. Financial assurances shall be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") approved by the CPM. The amount of the Security shall use the estimated cost per acre for Desert Tortoise mitigation as a best available proxy, at a ratio of 3:1 for Rank 1 plants and 2:1 for Rank 2 plants, for every acre of habitat supporting the target special-status plant species which is significantly impacted by the project. The actual costs to comply with this condition will vary depending on the actual costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a PAR report. Prior to submitting the Security to the CPM, the Project owner shall obtain the CPM's approval of the form of the Security. The CPM may draw on the Security if the CPM determines the Project owner has failed to comply with the requirements specified in this condition. The CPM may use money from the Security solely for implementation of the requirements of this condition. The CPM's use of the Security to implement measures in this condition may not fully satisfy the Project owner's obligations under this condition, and the Project owner remains responsible for satisfying the obligations under this condition if the Security is insufficient. The unused Security shall be returned to the Project owner in whole or in part upon successful completion of the associated requirements in this condition.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
h. NFWF REAT Account. The Project owner may elect to comply with the requirements in this condition for acquisition of compensation lands, initial protection and habitat improvement on the compensation lands, or long-term maintenance and management of the compensation lands by funding, or any combination of these three requirements, by providing funds to implement those measures into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF). To use this option, the Project owner must make an initial deposit to the REAT Account in an amount equal to the estimated costs (as set forth in the Security section of this condition) of implementing the requirement. If the actual cost of the acquisition, initial protection and habitat improvements, or long-term funding is more than the estimated amount initially paid by the Project owner, the Project owner shall make an additional deposit into the REAT Account sufficient to cover the actual acquisition costs, the actual costs of initial protection and habitat improvement on the compensation lands, and the long-term funding requirements as established in an approved PAR or PAR-like analysis. If those actual costs or PAR projections are less than the amount initially transferred by the Applicant, the remaining balance shall be returned to the Project owner. The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the Energy Commission. Such delegation shall be subject to approval by the CPM, in consultation with CDFG, BLM and USFWS, prior to land acquisition, enhancement or management activities. Agreements to delegate land acquisition to an approved third party, or to manage compensation lands, shall be executed and implemented within 18 months of the start of ground disturbance. **II. Compensatory Mitigation by Habitat Enhancement/Restoration:** As an alternative or adjunct to land acquisition for compensatory mitigation the Project owner may undertake habitat enhancement or restoration for the target special-status plant species. Habitat enhancement or restoration activities must achieve protection at a 3:1 ratio for Rank 1 plants and 2:1 for Rank 2 plants, with improvements applied to three acres, or two acres, respectively, of habitat for every acre special-status plant habitat directly or indirectly disturbed by the Project Disturbance Area (for example if the area occupied by the special status plant collectively measured is 1/4 acre than the improvements would be applied to an area equal to 3/4 of an acre at a 3:1 ratio, or one-half acre at a 2:1 ratio). Examples of suitable enhancement projects include but are not limited to the following: i) control unauthorized vehicle use into an occurrence (or pedestrian use if clearly damaging to the species); ii) control of invasive non-native plants that infest or pose an immediate threat to an occurrence; iii) exclude grazing by wild burros or livestock from an occurrence; or iv) restore lost or degraded hydrologic or geomorphic functions critical to the species by restoring previously diverted flows, removing obstructions to the wind sand transport corridor above an occurrence, or increasing groundwater availability for dependent species. If the Project owner elects to undertake a habitat enhancement project for mitigation, the project must meet the following performance standards: The proposed enhancement project shall achieve rescue of an off-site occurrence that is currently assessed, based on the NatureServe threat ranking system17 with one of the following threat ranks: a) long-term decline >30%; b) an immediate threat that affects >30% of the population, or c) has an overall threat impact that is High to Very High. “Rescue” would be considered successful if it achieves an improvement in the occurrence trend to “stable” or “increasing” status, or downgrading of the overall threat rank to slight or low (from “High” to “Very High”). If the Project owner elects to undertake a habitat enhancement project for mitigation, they shall submit a Habitat Enhancement/Restoration Plan to the CPM for review and approval, and shall provide sufficient funding for implementation and monitoring of the Plan. The amount of the Security shall use the estimated cost per acre for Desert Tortoise mitigation as a best available proxy, at the ratio of 3:1 for Rank 1 plants and 2:1 for Rank 2 plants, for every acre of habitat supporting the target special-status plant species which is directly or indirectly impacted by the project. The amount of the security may be adjusted based on the actual costs of implementing the enhancement, restoration and monitoring. The		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
implementation and monitoring of the enhancement/restoration may be undertaken by an appropriate third party such as NFWF, subject to approval by the CPM. The Habitat Enhancement/Restoration Plan shall include each of the following: 1. Goals and Objectives. Define the goals of the restoration or enhancement project and a measurable course of action developed to achieve those goals. The objective of the proposed habitat enhancement plan shall include restoration of a target special- status plant occurrence that is currently threatened with a long-term decline. The proposed enhancement plan shall achieve an improvement in the occurrence trend to "stable" or "increasing" status, or downgrading of the overall threat rank to slight or low (from "High" to "Very High"). 2. Historical Conditions. Provide a description of the pre-impact or historical conditions (before the site was degraded by weeds or grazing or ORV, etc.), and the desired conditions. 3. Site Characteristics. Describe other site characteristics relevant to the restoration or enhancement project (e.g., composition of native and pest plants, topography and drainage patterns, soil types, geomorphic and hydrologic processes important to the site or species. 4. Ecological Factors. Describe other important ecological factors of the species being protected, restored, or enhanced such as total population, reproduction, distribution, pollinators, etc. 5. Methods. Describe the restoration methods that will be used (e.g., invasive exotics control, site protection, seedling protection, propagation techniques, etc.) and the long-term maintenance required. The implementation phase of the enhancement must be completed within five years. 6. Budget. Provide a detailed budget and time-line, and develop clear, measurable, objective-driven annual success criteria. 7. Monitoring. Develop clear, measurable monitoring methods that can be used to evaluate the effectiveness of the restoration and the benefit to the affected species. The Plan shall include a minimum of five years of quarterly monitoring, and then annual monitoring for the remainder of the enhancement project, and until the performance standards for rescue of a threatened occurrence are met. At a minimum the progress reports shall include: quantitative measurements of the projects progress in meeting the enhancement project success criteria, detailed description of remedial actions taken or proposed, and contact information for the responsible parties. 8. Reporting Program. The Plan shall ensure accountability with a reporting program that includes progress toward goals and success criteria. Include names of responsible parties. 9. Contingency Plan. Describe the contingency plan for failure to meet annual goals. 10. Long-term Protection. Include proof of long-term protection for the restoration site. For private lands this would include conservations easements or other deed restrictions; projects on public lands must be contained in a Desert Wildlife Management Area, Wildlife Habitat Management Area, or other land use protections that will protect the mitigation site and target species. **III. Contingency Measures:** 1. Preservation of the Germplasm of Affected Special-Status Plants. For all significant impacts to special-status plants, mitigation shall also include seed collection from the affected special-status plants population on-site prior to construction to conserve the germplasm and provide a seed source for restoration efforts. The seed shall be collected under the supervision or guidance of a reputable seed storage facility such as the Rancho Santa Ana Botanical Garden Seed Conservation Program, San Diego Natural History Museum, or the Missouri Botanical Garden. The costs		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
associated with the long-term storage of the seed shall be the responsibility of the Project owner. Any efforts to propagate and reintroduce special- status plants from seeds in the wild shall be carried out under the direct supervision of specialists such as those listed above and as part of a Habitat Restoration/Enhancement Plan approved by the CPM. 2. Compensatory Mitigation by Conducting or Contributing to a Management Plan for the Affected Species. Subject to approval of the CPM, as a contingency measure in the event there are no opportunities for mitigation through acquisition or restoration/enhancement to meet the obligations for off-site mitigation as described in Section C.1-3 of this condition, a Management Plan for the affected special-status plant species may be conducted or funded. The goal of the Management Plan is to devise a science-based, region-wide strategy to ensure the long- term viability of the affected species, and to acquire, protect, and restore existing populations and the habitat that supports them. The information gathered shall be used to develop conservation approaches to address the identified risk factors. These approaches include land allocations, restoration needs, identifying and preserving important refugia to facilitate species dispersal and maintain biodiversity in the face of climate change, recommending Best Management Practices or other measures that could be used to minimize threats, and identifying planning needs at the regional level. The results of the study would also be provided to the resource agencies, conservation organizations, and academic institutions, as well as the state's Natural Diversity Database and Consortium of California Herbaria. 3. Under this contingency measure, the Project owner shall acquire all available information on the distribution, status or health of known occurrences, ecological requirements, and ownership and management opportunities of the affected special-status plant species and other special status plants known to occur in the Chuckwalla Valley. Some of these late blooming species are only known from a few viable occurrences in California, and historic occurrences that have not been re-located or surveyed since they were first documented. At a minimum, the study shall include the following: a. Occurrence and Life History Review. The Study shall include an evaluation of all documented, historical and reported localities for the affected species, and a review of current information on the species life history. This would include a review of the CNDDB database, records from regional and national herbaria, literature review, consultation with U.C. Riverside, San Diego Natural History Museum, and other educational institutions or natural heritage organizations in California, Arizona, and Nevada, etc.), other biotechnical survey reports from the region, and information from regional botanical experts. b. Conduct Site Visits to Documented and Reported Localities. Documented and reported occurrences would be evaluated in the field during the appropriate time of the year for each late blooming species. If located, these occurrences would be evaluated for population size (area and quantity), population trend, ecological characteristics, soils, habitat quality, potential threats, degree and immediacy of threats, ownership and management opportunities. GPS location data would also be collected during these site visits. c. Survey Surrounding Areas. Areas surrounding the occurrences that contain habitat suitable to support the affected species shall be surveyed to determine the full extent of its range and distribution. If additional populations are found, collect data (GPS and assessment) on these additional populations consistent with III.2 above. d. Prepare Report on Status, Distribution, and Management Needs. A report shall be prepared that contains the results of the surveys and assessment. The report shall contain the following components: a) Range and Distribution (including maps and GPS data); b) Abundance and Population Trends; c) Life History; d) Habitat Necessary for Survival; d) Factors Affecting Ability to Survive and Reproduce; e) Degree and Immediacy of Threat; f) Ownership and Management Opportunities for Protection or Recovery; g) Sources of Information, and g) Conclusions. The conclusions shall contain an explanation of whether the species' survival is threatened by any of the following factors: i) present or threatened modification or destruction of its habitat; ii) competition; iii) disease; iv) other natural		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
occurrences (such as climate change) or human-related activities. This valuable information will provide a better understanding of the ecological factors driving the distribution of these species, and will identify opportunities for mitigation and management opportunities for recovery. All data from this study will be submitted for incorporation into the CNDDB system and the study report will be made available to resource agencies, and conservation groups, and other interested parties. e. The cost to implement or fund the study shall be no greater than the cost for acquisition, enhancement, and long-term management of compensatory mitigation lands based on the specifications and standards for acquisition or restoration/enhancement described above under D.I and D.II.		
BIO-20, Sand Dune/Mojave Fringe-Toed Lizard Mitigation: To mitigate for habitat loss and direct impacts to Mojave fringe-toed lizards the Project owner shall provide compensatory mitigation, which may include compensation lands purchased in fee or in easement in whole or in part, at the following ratios: 3:1 mitigation for direct impacts to stabilized and partially stabilized sand dunes (per BIO-29 – Table 2 or final acreage impacted by the Project footprint); 1:1 mitigation for direct impacts non-dune Mojave fringe-toed lizard habitat (per BIO-29 – Table 2 or final acreage impacted by the Project footprint); and 0.5:1 mitigation for indirect impacts to stabilized and partially stabilized sand dunes (per BIO-29 – Table 2 or final acreage impacted by the Project footprint). If compensation lands are acquired, the Project owner shall provide funding for the acquisition in fee title or in easement, initial habitat improvements, and long-term maintenance and management of the compensation lands. In addition, the compensation lands must include, at a minimum, the number acres of stabilized and partially stabilized sand dune habitat shown in **BIO-29 Table 2** (see 2010 CEC PSPP Commission Decision, pp. 142 – 143). 1. Criteria for Compensation Lands: The compensation lands selected for acquisition shall: a. Provide suitable habitat for Mojave fringe-toed lizards, and, aside from the minimum amount of stabilized and partially stabilized sand dunes, may include stabilized and partially stabilized desert dunes, sand drifts over playas, or Sonoran creosote bush scrub; b. Be within the Palen or Chuckwalla valleys with potential to contribute to Mojave fringe-toed lizard habitat connectivity and build linkages between known populations of Mojave fringe-toed lizards and preserve lands with suitable habitat; c. Be prioritized near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non- governmental organization dedicated to habitat preservation; d. Provide quality habitat for Mojave fringe-toed lizard that has the capacity to regenerate naturally when disturbances are removed; e. Not have a history of intensive recreational use or other disturbance that might make habitat recovery and restoration infeasible; f. Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration;	No later than 30 days prior to beginning Project ground-disturbing activities, the Project owner shall provide written verification of an approved form of Security in accordance with this condition of certification. Actual Security shall be provided no later than 7 days prior to the beginning of Project ground- disturbing activities for each Project phase as described in **BIO-29**. The Project owner, or an approved third party, shall complete and provide written verification of the proposed compensation lands acquisition within 18 months of the start of Project ground-disturbing activities for each Project phase. No less than 90 days prior to acquisition of the property, the Project owner shall submit a formal acquisition proposal to the CPM, CDFG, and USFWS describing the parcels intended for purchase. The Project owner, or an approved third party, shall provide the CPM, BLM, and CDFG, with a management plan for the compensation lands and associated funds within 180 days of the land or easement purchase, as determined by the date on the title. The CPM shall review and approve the management plan, in consultation with BLM and CDFG. Within 90 days after completion of Project construction, the Project owner shall provide to the CPM and CDFG an analysis with the final accounting of the amount (detailed by habitat type) of Mojave fringe-toed lizard habitat disturbed during Project construction. The Project owner shall provide written verification to the CPM, and CDFG that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient no later than 18 months from the start of ground-disturbing activities.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
g. Not contain hazardous wastes that cannot be removed to the extent the site is suitable for habitat; h. Have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with CDFG, BLM and USFWS, agrees in writing to the acceptability of the land; and i. Be on land for which long-term management is feasible. 2. Security for Implementation of Mitigation: The Project owner shall provide financial assurances to the CPM to guarantee that an adequate level of funding is available to implement the acquisitions and enhancement of Mojave fringe-toed lizard habitat as described in this condition. These funds shall be used solely for implementation of the measures associated with the Project. Financial assurance can be provided to the CPM according to the measures outlined in **BIO-12**, and within the time period specified for this assurance (see the verification section at the end of this condition). The final amount due will be determined by an updated appraisal and a PAR analysis conducted as described in **BIO-12**, but current estimates are included in **Biological Resources Tables 22** and **23** located at the beginning of the conditions of certification subsection **(**see 2010 CEC PSPP Revised Staff Assessment, Part II, pp. C.2-250 – C.2-251). 3. Preparation of Management Plan: The Project owner shall submit to the CPM, BLM, and CDFG a draft Management Plan that reflects site-specific enhancement measures for the Mojave fringe-toed lizard habitat on the acquired compensation lands. The objective of the Management Plan shall be to enhance the value of the compensation lands for Mojave fringe-toed lizards, and may include enhancement actions such as weed control, fencing to exclude livestock, erosion control, or protection of sand sources or sand transport corridors.		
BIO-21, Mitigation for Impacts to State Waters: The Project owner shall implement the following measures to avoid, minimize and mitigate for direct and indirect impacts to waters of the state and to satisfy requirements of California Fish and Game Code sections 1600 and 1607. 1. Acquire Off-Site State Waters: The Project owner shall acquire, in fee or in easement, a parcel or parcels of land that includes state jurisdictional waters per **BIO-29 – Table 2** (see 2010 CEC PSPP Commission Decision, pp. 142 – 143), or the area of state waters directly or indirectly impacted by the final Project footprint. The Project footprint means all lands disturbed by construction and operation of the Palen Project, including all linears. The parcel or parcels comprising the ephemeral washes shall include desert dry wash woodland per **BIO-29 – Table 2**, or the acreage of desert dry was woodland impacted by the final Project footprint at a 3:1 ratio. The terms and conditions of this acquisition or easement shall be as described in Condition of Certification **BIO 12**, and the timing associated with **BIO-29** (phasing). The current estimated costs are included in **BIO-29 – Table 3** (see 2010 CEC PSPP Commission Decision, p. 143, which would be updated to reflect current costs) located at the beginning of the Conditions of Certification subsection. Mitigation for impacts to state waters shall occur within the Chuckwalla, East Salton Sea, Hayfield, Rice, or portion of Whitewater within the NECO, Hydrologic Units (HUs) or the Palo Verde Watershed and be prioritized within the Chuckwalla HU in the Palen or adjacent watersheds. 2. Security for Implementation of Mitigation: The Project owner shall provide financial assurances to the CPM and CDFG to guarantee that an adequate level of funding is available to implement the acquisitions and enhancement of state waters as described in this condition. These funds shall be used solely for implementation of the measures associated with the Project. Financial assurance can be provided to the CPM and CDFG in the form of an irrevocable letter of credit, a pledged savings account or Security prior to initiating ground-disturbing Project activities. Prior to submittal to the CPM, the Security shall be approved by the CPM, in consultation with CDFG, to ensure funding. The final amount due shall be determined by updated appraisals and the PAR analysis conducted pursuant to **BIO-12**.	No less than 30 days prior to the start of construction-related ground disturbance activities potentially affecting waters of the state, the Project owner shall provide written verification (i.e., through incorporation into the BRMIMP) to the CPM that the above best management practices will be implemented. The Project owner shall also provide a discussion of work in waters of the state in Annual Compliance Reports for the duration of the Project. No less than 30 days prior to beginning of Project ground-disturbing activities for each project phase as described in **BIO-29**, the Project owner shall provide to the CPM design drawings demonstrating how pre-development drainage patterns (location and volume of flows) to drainages downstream of the Project boundaries will be unaffected. At the same time the Project owner shall provide design drawings for temporary and permanent stream crossings. No less than 30 days prior to beginning Project ground-disturbing activities, the Project owner shall provide the form of Security in accordance with this condition of certification. No later than 7 days prior to beginning Project ground-disturbing activities, the Project owner shall provide written verification of the actual Security. The Project owner, or an	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
3. Preparation of Management Plan: The Project owner shall submit to the CPM and CDFG a draft Management Plan that reflects site- specific enhancement measures for the drainages on the acquired compensation lands. The objective of the Management Plan shall be to enhance the wildlife value of the drainages, and may include enhancement actions such as weed control, fencing to exclude livestock, or erosion control. 4. Code of Regulations: The Project owner shall provide a copy of this condition (Condition of Certification **BIO-21**) from the Energy Commission Decision to all contractors, subcontractors, and the Applicant's Project supervisors. Copies shall be readily available at work sites at all times during periods of active work and must be presented to any CDFG personnel upon demand. The CPM reserves the right to issue a stop work order or allow CDFG to issue a stop work order after giving notice to the Project owner and the CPM, if the CPM in consultation with CDFG, determines that the Project owner has breached any of the terms or conditions or for other reasons, including but not limited to the following: a. The information provided by the Applicant regarding impacts to waters of the state is incomplete or inaccurate; b. New information becomes available that was not known in preparing the terms and conditions; or c. The Project or Project activities as described in the Revised Staff Assessment have changed. 5. Road Crossings at Streams. The Project owner shall preserve pre- development downstream flows and sediment transport in washes crossed by permanent roads by incorporating culverts and Arizona crossings at stream crossings. Arizona crossings are the preferred option and shall be employed wherever such crossings do not present a safety hazard and where the roadbed elevation allows the construction of such crossings. Drainages that have been graded for temporary construction access shall be restored to original contours and surface drainage patterns and shall be revegetated according to specifications in **BIO-8**. 6. Best Management Practices: The Project owner shall also comply with the following conditions to protect drainages near the Project Disturbance Area: a. The Project owner shall minimize road building, construction activities and vegetation clearing within ephemeral drainages to the extent feasible. b. The Project owner shall not allow water containing mud, silt, or other pollutants from grading, aggregate washing, or other activities to enter ephemeral drainages or be placed in locations that may be subjected to high storm flows. c. The Project owner shall comply with all litter and pollution laws. All contractors, subcontractors, and employees shall also obey these laws, and it shall be the responsibility of the Project owner to ensure compliance. d. Spoil sites shall be located at least 30 feet from the boundaries and drainages or in locations that may be subjected to high storm flows, where spoils might be washed back into drainages. e. Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources, resulting from Project-related activities, shall be prevented from contaminating the soil and/or entering waters of the state. These materials, placed within or where they may enter a drainage, shall be removed immediately. f. No broken concrete, debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into, or placed where it may be washed by rainfall or runoff into, waters of the state.	approved third party, shall complete and provide written verification of the proposed compensation lands acquisition within 18 months of the start of Project ground-disturbing activities. The Project owner, or an approved third party, shall provide the CPM, BLM, CDFG, and USFWS with a management plan for the compensation lands and associated funds within 180 days of the land or easement purchase, as determined by the date on the title. The CPM shall review and approve the management plan, in consultation with CDFG and the USFWS. Within 90 days after completion of Project construction, the Project owner shall provide to the CPM, BLM, USFWS, and CDFG an analysis with the final accounting of the amount of jurisdictional state waters disturbed during Project construction. The Project owner shall provide written verification to the CPM, BLM, USFWS and CDFG that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient no later than 18 months of the start of Project ground-disturbing activities. The Project owner shall notify the CPM and CDFG, in writing, at least five days prior to initiation of Project ground-disturbing activities in jurisdictional state waters and at least five days prior to completion of Project activities in jurisdictional areas. The Project owner shall notify the CPM and CDFG of any change of conditions to the Project, impacts to state waters, or the mitigation efforts.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
g. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any drainage. h. No equipment maintenance shall occur within 150 feet of any ephemeral drainage where petroleum products or other pollutants from the equipment may enter these areas under any flow. 7. Changes of Conditions. A notifying report shall be provided to the CPM and CDFG if a change of conditions is identified. As used here, change of condition refers to the process, procedures, and methods of operation of a Project; the biological and physical characteristics of a Project area; or the laws or regulations pertinent to the Project as defined below. A copy of the notifying change of conditions report shall be included in the annual reports or until it is deemed unnecessary by the CPM, in consultation with CDFG. a. Biological Conditions: a change in biological conditions includes, but is not limited to, the following: 1) the presence of biological resources within or adjacent to the Project area, whether native or non-native, not previously known to occur in the area; or 2) the presence of biological resources within or adjacent to the Project area, whether native or non-native, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations. b. Physical Conditions: a change in physical conditions includes, but is not limited to, the following: 1) a change in the morphology of a river, stream, or lake, such as the lowering of a bed or scouring of a bank, or substantial changes in stream form and configuration caused by storm events; 2) the movement of a river or stream channel to a different location; 3) a reduction of or other change in vegetation on the bed, channel, or bank of a drainage, or 4) changes to the hydrologic regime such as fluctuations in the timing or volume of water flows in a river or stream. c. Legal Conditions: a change in legal conditions includes, but is not limited to, a change in Regulations, Statutory Law, a Judicial or Court decision, or the listing of a species, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations.		
BIO-22, Decommissioning and Reclamation Plan: Upon Project closure the Project owner shall implement a final Decommissioning and Reclamation Plan. The Decommissioning and Reclamation Plan shall include a cost estimate for implementing the proposed decommissioning and reclamation activities, and shall be consistent with the guidelines in BLM's 43 CFR 3809.550 et seq.	No fewer than 30 days prior to the start of Project-related ground disturbing activities or alternate date as agreed to with the BLM, the Project owner shall provide to the CPM (for review) and BLM (for review and approval) a draft Decommissioning and Reclamation Plan. The plan shall be finalized prior to the start of commercial operation and reviewed every five years thereafter and submitted to the CPM for review and to the BLM for approval. Modifications to the approved Decommissioning and Reclamation Plan shall be made only after approval from the BLM. The Project owner shall provide a copy of the approved Decommissioning and Reclamation Plan and any BLM approved revisions to the CPM.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-23, Groundwater-Dependent Vegetation Monitoring: The Project owner shall prepare a Groundwater-Dependent Vegetation Monitoring Plan for monitoring the Project effects of groundwater pumping on groundwater dependent vegetation. The monitoring shall encompass the area depicted in *Figure Soil and Water-3 (Project Only Revised Operational Water Supply End of 30 Years)* within the 0.1-foot drawdown polygon of the Model Predicted Drawdown (Galati & Blek 2010i). The vegetation and groundwater data collected as part of the Plan shall be used to determine if remedial action is required, as described in **BIO-24.** The Project owner may forgo development of a Groundwater Dependent Vegetation Monitoring Plan, or may cease implementation of such a plan, by providing evidence to the CPM that the source of water for the GDEs is a shallow perched water-bearing zone rather than the regional groundwater system and that the shallow perched water-bearing zone is unrelated and not influenced by the regional groundwater system that the Project owner proposes to use for water as described below under15a – 15d. The Project owner shall develop and implement a Groundwater- Dependent Vegetation Monitoring Plan (Plan) that meets the performance standards described below and includes the following components: 1. Monitoring Objectives and Performance Standards. The objectives of the Plan shall be to monitor the Project effects of groundwater pumping on vegetation and groundwater-dependent ecosystems (GDEs) and, in conjunction with the remedial action described in **BIO-24**, to ensure that the Project groundwater pumping has a less than significant effect on biological resources. Monitoring shall be conducted at a level of detail adequate for detecting adverse effects, as reflected in vegetation attributes and groundwater levels in the shallow (alluvial) aquifer. The baseline for groundwater levels shall be the lowest baseline water level as measured at the Project site prior to the start of groundwater pumping. 2. Location of Monitoring Plots. The monitoring plots shall be established within the area depicted in *Figure Soil and Water -3 (Project Only Revised Operational Water Supply End of 30 Years)* within the Model Predicted Drawdown showing the 0.1-foot drawdown polygon (Galati & Blek 2010i). The majority of the plots shall be in the area north and east of the Project site, where groundwater-dependent ecosystems (GDEs) and the intersection of the ground surface and shallow groundwater are located, in the topographic lows in the valley. 3. Monitoring Plots and Controls. Because of the variation in vegetation types and depth to groundwater within the predicted groundwater drawdown zone, the study design shall treat the monitoring plot with a corresponding control plot as a pair (versus comparing the mean of all treatment plots to the mean of all control plots). The “control” plots shall consist of the data collected at the same plot during the baseline (pre-disturbance) monitoring for a pre-disturbance vs. post-disturbance comparison. Appropriate statistical methods shall be used to analyze the differences between the control and monitoring plots (for example, a one-tailed paired-sample statistical test (Manly 2008)18). 4. Off-Site Reference Plots: Off-site monitoring plots shall be established as reference sites to distinguish changes in plant vigor seen at the site from the effects of a region-wide drought. The off- site reference plots can be located within Chuckwalla Valley but shall be within areas that would not be affected hydrologically by groundwater pumping for the Project or other projects or agricultural operations. Off-site monitoring reference plots shall be located in the same general hydrologic and geologic setting (i.e., playa margins), in the same climatic region (Sonoran Desert region of California), and contain the same natural communities or vegetation alliances as those to which they are being compared. Impacts from pests and diseases, if present, must also be considered and excluded or adjusted for as part of the analysis. Data on climate and surface runoff in the study area shall be collected to identify “drought” conditions and correlate groundwater changes and weather changes.	At least 30 days prior to operation of project pumping wells, the Project owner shall submit to the CPM and BLM for review and approval a draft Groundwater-Dependent Vegetation Monitoring Plan (Plan). The final plan shall incorporate recommendations from the peer review and shall be submitted to the CPM and BLM no less than 15 days prior to the start of groundwater pumping. No less than 15 days prior to the start of groundwater pumping the Project owner shall submit as-built drawings indicating the location and depth of piezometers, and shall provide evidence that the piezometers are operational. Baseline groundwater and groundwater-dependent vegetation monitoring shall begin 15 days prior to construction and shall occur every year during the same one to two week time period in early spring (March) and post-monsoon (September). The First Annual Monitoring Report shall be provided to the CPM and BLM no later than January 31 following the first year of data collection, and shall include an assessment of whether the sampling design would provide statistically adequate monitoring data and whether modifications to the monitoring design would be needed. If the first Annual Monitoring Report recommends a revised sampling design, the Project owner shall submit the revised Plan to the CPM and BLM no later than March 1. Thereafter the Project owner shall submit a Groundwater-Dependent Vegetation Annual Monitoring Report to the CPM and BLM no later than January 31 of each year for the duration of Project operation. If the project owner elects to prepare a geologic and groundwater investigation (as described in Subsection 15 a-d of this condition) to determine if the source of water for the GDEs is a shallow perched water-bearing zone rather than the regional groundwater system, and that the shallow perched water-bearing zone is not hydraulically connected to the regional groundwater system that the Project owner proposes to use for water supply, the project owner shall submit the resumes of at least two independent, qualified peer reviewers 45 days prior to submittal of the report to the	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
5. Sample Size and Design The number of monitoring sites shall be established using appropriate statistical methods (for example, by a "priori power analysis" (Elzinga et al. 1998)) and shall be sufficient to achieve adequate (90%) statistical power. Following collection of the baseline data a statistical analysis shall be conducted to refine the power analysis and evaluate the adequacy of the sampling design. If the analysis of baseline data indicates that the sampling design is insufficient to achieve adequate statistical power, the design shall be modified (for example, by adding additional monitoring sites). 6. Water Table Monitoring. The Project owner shall install piezometers at each of the dominant vegetation community types within or near the monitoring plots. The number, location, depth and monitoring frequency of the piezometers shall be sufficient to establish the effect of Project groundwater pumping on the shallow aquifer water levels. At a minimum, each piezometer shall be monitored twice per year, in early spring (March) and post-monsoon (September). The piezometers shall be designed to monitor the maximum expected fluctuation in the water table and to last the duration of the Project. Data collected from the Project wells and piezometers for **SOIL &WATER-4** (Groundwater Level Monitoring, Mitigation, and Reporting) and S&W-6 (groundwater monitoring for the evaporation ponds and land treatment unit) shall be used to refine the modeling of the predicted groundwater drawdown and zone of influence after two years of data collection following the start of groundwater production. The Project owner shall submit to the CPM, for review and approval, a report on the results of the refined modeling. The report shall include all calculations and assumptions made in development of report data and interpretations, and all well monitoring data and piezometer data collected and used in the calculations. If the results indicate that the drawdown and zone of influence is greater than the effect predicted in the GRI, and the GDE are found to be drawing groundwater that is hydraulically connected to the regional groundwater system, then the project owner will submit a revised monitoring plan for GDE areas outside of the original monitoring area. 7. Soil Monitoring. Soil salinity and pH shall be monitored annually at every monitoring plot. The Plan shall describe the monitoring devices and techniques used to collect and interpret this data, relative to ecosystem function. One soil core sample per community type shall be collected as part of the baseline data to establish the approximate rooting depth of the phreatophytes, and thereafter shall be repeated every five years. The coring method must provide a continuous core that will provide visual examination of roots and root nodules, soil profile, and soil moisture. 8. Baseline and Long-term Data Collection. At a minimum, baseline data shall be collected at all monitoring sites prior to the start of pumping; however, vegetation data collected from sites farther from the nearest wells will allow for the collection of multiple years of "pre-disturbance" data. Although the Project proposes to begin construction (and pumping) by December 2010, it appears that the effects of pumping would not reach the areas supporting the GDEs or phreatophytic plants for several years (see C.9 **Soil and Water Resources**). Because the proposed well in the northeast portion of the Project (Soil & Water Figure 1, Galati & Blek 2010i) is located in very close proximity to known phreatophytes, this well shall not be used within the first 3 years of the Project in order to allow an adequate period for baseline data collection in the area northeast of the Project. Subject to approval by the CPM, if groundwater pumping ceases or is replaced by other water sources, groundwater and vegetation monitoring shall continue for a period of 5 years or until refined modeling indicates that the groundwater levels have returned to baseline levels and the decline in plant vigor has been restored to pre-disturbance conditions. 9. Target Vegetation Population. The monitoring sites shall include GDEs and other vegetation potentially affected by the drawdown that occur within the zone of influence. The following phreatophytes have been documented to occur around Palen Lake: honey mesquite (*Prosopis glandulosa*); iodine bush (*Allenrolfea occidentalis*), bush seep-weed (*Suaeda moquinii*), jackass clover (*Wislizenia refracta*), four-wing saltbush (*Atriplex canescens*), allscale (*A. polycarpa*), spinescale (*A. spinifera*), a potentially new taxon of saltbush (*Atriplex* sp. nov. Andre), ironwood (*Olneya*	CPM and BLM for review and approval. The Project owner must submit the results of their investigation, subject to review and approval by the CPM, prior to the start of construction or Project groundwater use. If the refined modeling conducted according subsection 6 of this condition indicates that the drawdown and zone of influence is greater than the effect predicted in the GRI, and the GDE are found to be drawing groundwater that is hydraulically connected to the regional groundwater system, then the Project owner shall submit a revised monitoring plan for GDE areas outside of the original monitoring area. The Revised Monitoring Plan shall be submitted no later than January 31 in the third year following the start of groundwater pumping and well monitoring.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
tesota), palo verde (*Cercidium microphyllum*), cat's claw (*Acacia greggii*), and smoke tree (*Psorothamnus spinosus).*The final number of each community type sample needed shall be based on the *priori* power test conducted after the first year of baseline data collection. 10. Fine-Scale Vegetation Mapping. Within the monitoring sites vegetation shall be mapped to the alliance level, consistent with classification protocol in the *Manual of California, 2nd edition* (Sawyer et al. 2009) but any important associations shall also be mapped. Mapping shall be done using minimum 1 meter resolution color orthophotos or higher resolution infrared imagery. The mapping shall also be used to determine the acreages of GDEs and establish the amount of security to be deposited in the event that adverse effects are detected during the monitoring. Boundaries of the permanent plots and any off-site reference sites shall be recorded using GPS technology and depicted on the geo- referenced aerials. GIS shapefiles and metadata shall be submitted along with the draft Plan and any subsequent revisions to the Plan (i.e., following the collection of baseline data and subsequent power analysis). 11. Guidelines for the Monitoring Plan. The Groundwater-Dependent Vegetation Monitoring Plan (Plan) shall be prepared with guidance from *Measuring and Monitoring Plant Populations* (Elzinga et al. 1998). The Plan shall provide a detailed description of each of the following components: a. Sampling Design. The sampling design shall include a description of: a) the populations (vegetation types) sampled; b) number, size, and shape of the sampling units; c) layout of the sampling units; d) methods for permanently marking plots in the field; e) monitoring schedule/frequency; f) vegetation and other attributes sampled; and g) sampling objectives (target/threshold, change/trend-based) for each attribute. b. Habitat Function and Values. The Plan shall describe the hydrologic, geologic/geomorphic, geochemical, biological and ecological characteristics of the GDEs, and shall also describe whether species are obligate or facultative; root growth and water acquisition characteristics; morphological adaptations to the desert environment; reproduction and germination characteristics; general and micro-habitat preferences; obligate or facultative halophytes and phreatophytes; role in the morphology of dunes; and importance to wildlife, etc. c. Field techniques for measuring vegetation. This will include the vegetation (or other) attributes selected based on a demonstrated knowledge of the biology and morphology of the species, and include a discussion of the limitations involved in each measurement. Examples of appropriate field techniques for measuring drought response include: percent dieback; live crown density; crown height and width, percent cover of live (versus dead or residual) vegetation, percent cover/frequency of associated species; percent composition of native versus non- native species; and percent cover based on wetland status codes (OBL, FACW, FAC, FACU, UPL19) and status as phreatophytes or halophytes. Photo monitoring shall not be considered an acceptable monitoring method but may be useful to conduct periodically (e.g., every 3 to 5 years). d. Data Management. Including how the data will be recorded in the field (e.g., using a GPS data dictionary), processed and stored. e. Training of personnel. Describe minimum standards for training and monitoring personnel. f. Statistical analysis. Describe statistical methods used to analyze the monitoring data (incorporating the minimum standards for statistical power and error rate described above). 12. Peer Review of the Plan. The draft Plan shall undergo a peer review by recognized experts, which shall include one or more scientists with expertise in: the preparation of monitoring plans for plant populations; the physiological responses of desert phreatophytes to drought stress; assessing the effects of groundwater withdrawal on vegetation in the desert		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
region; and biostatistics. The Project owner shall provide the resumes of suggested peer reviewers to the CPM for review and approval. 13. Annual Monitoring Report. Annual Monitoring Reports shall be submitted to the CPM and BLM and shall include, at a minimum: a) names and contact information for the responsible parties and monitoring personnel; b) summaries of the results of the monitoring as required in **Soil&Water-4 and Soil&Water-6**; c) piezometer monitoring results**,** and a comparison of predicted versus actual water table declines; d) summary of the results of vegetation, groundwater, and soil monitoring data compared to the baseline data for each plot (pre- versus post-disturbance comparison); e) description of sampling and monitoring techniques used for each attribute; f) description of the data management and statistical analysis; g) photos; h) conclusions and recommendations for remedial action, if the monitoring data indicates that the threshold described below has been met. The first Annual Monitoring Report shall include an appropriate statistical analysis using the first year baseline monitoring data to assess whether the sampling design was adequate to provide statistically meaningful data, as described above. If warranted, the first year Annual Monitoring Report shall include recommendations for revisions to the Plan based on this analysis. 14. Threshold for Remedial Action: The Project owner shall implement remedial action, as described in Condition of Certification **BIO-24,** if the monitoring described in **BIO-23** detects a decline in plant vigor of 20 percent or more compared to the same plots pre-disturbance AND also detects a decline in the alluvial (shallow) aquifer confirmed by two consecutive annual water monitoring events in any amount greater than the lowest baseline water level as measured prior to groundwater pumping. If regional drought, off-site pumping or other activities unrelated to the Project are also contributing to the decline in water table, the Project owner shall only be responsible for the portion of the effect that can be statistically demonstrated to be the result of Project pumping. To determine whether declines in plant vigor are related to Project pumping as opposed to regionwide drought or offsite pumping conditions the Project owner shall install a network background monitoring piezometers and incorporate these data in the assessment of Project-related effects on GDEs. 15. To understand the source of the water for the GDEs, the Project owner shall prepare a groundwater investigation work plan for submittal to the CPM that will outline steps to determine if the source of water for the GDEs is a shallow perched water-bearing zone rather than the regional groundwater system, and that the shallow perched water-bearing zone is not hydraulically connected to the regional groundwater system. The groundwater investigation will be comprised of the following components: a. A continuous soil coring program at five locations to be identified based on field mapping of GDEs in the area shown on the Figure *Soil and Water-3 (Project Only Revised Operational Water Supply End of 30 Years)* within the 0.1-foot drawdown polygon of the Model Predicted Drawdown (Galati & Blek 2010i). One of the five borings will be drilled adjacent to a GDE containing mesquite, and the other four located to provide an assessment of the range of plant communities within GDEs in the area of interest (i.e., to assess the variability of GDE plant type water requirements and root zone depth). b. The soil cores shall extend a minimum of 20 feet below the deepest root zones of the GDEs investigated to demonstrate separation between the shallow and regional water zones. At a minimum the soil cores shall show that 20 feet of unsaturated conditions are present below the deepest root zones of the plant communities investigated. The soil cores will be logged by a professional geologist in the State of California, and the coring program will be overseen by a qualified biologist with experienced in the plant communities identified within each GDE. c. A sampling plan for selective analysis of soil moisture content and saturation will also be conducted for each soil core advanced adjacent to a GDE. The number and frequency of soil samples shall be established to confirm field		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
observations of soil moisture content in the shallow water-bearing zone, through the root zone and in the deeper sediments below the root zone above the regional water table. Soil samples shall be analyzed for moisture content after ASTM Method D2216. d. Depending on the results of the soil coring program, piezometers may be installed as monitoring points for the regional water table and to monitoring changes in the shallow water-bearing zone from Project pumping. In the report of results from the soil coring program, a water-level monitoring program shall be proposed if it is shown that the regional water table is in direct hydraulic connection to the source of water to the GDE's. If the field data clearly shows an unsaturated zone of 20 feet or more below the deepest root zones of the GDEs, then piezometers will not be installed. If the results of the pre-construction field observations and soil sampling demonstrate 20 feet or more of unsaturated sediments between the deepest root zones of the GDEs and the regional water table, there will be no requirements to implement any of the underlying conditions as provided for in **BIO-23** and **BIO-24**, as sufficient evidence will have been provided to demonstrate that the groundwater is not the source for the GDE's. If the refined modeling of the predicted groundwater drawdown and zone of influence after two years of data collection (following the start of groundwater production), as described in Subsection 6 of this condition and in **SOIL&WATER-4** and **SOIL&WATER-6**, indicates the drawdown or zone of influence would be greater than predicted in the Project owner's Groundwater Resources Investigation (GRI), and the GDE are found to be drawing groundwater that is hydraulically connected to the regional groundwater system, then the project owner will submit a revised monitoring plan for GDE areas outside of the original monitoring area.		
BIO-24, Remedial Action and Compensation for Adverse Effects to Groundwater-Dependent Biological Resources: If monitoring detects Project-related adverse impacts to groundwater dependent ecosystems (GDEs), as described in **BIO-23** and the impacts are shown to be the result of a decline in the regional groundwater table due to Project pumping, the Project owner shall determine which well(s) are the source of the adverse impacts and shall implement remedial measures as outlined below. If regional drought, off-site pumping or other activities unrelated to the Project are also contributing to the decline in water table, the Project owner shall only be responsible for the portion of the effect that can be demonstrated to be the result of Project pumping. The remedial measures shall be implemented with the objective of restoring the groundwater levels to the baseline described in **BIO-23**, and shall compensate for impacts to GDEs with off-site habitat acquisition or restoration. The Project owner shall do all of the following: 1. Modification and/or Cessation of Pumping: The Project owner shall provide to the CPM evidence based on groundwater monitoring and modeling indicating which wells are likely to be causing adverse impacts to GDEs. The Project owner shall initially modify operation of those wells to reduce the offsite drawdown in the areas of the GDEs. Remedial Action Plan: The objective of remedial action shall be restoration of the spring groundwater table in the alluvial (shallow) aquifer to baseline levels, as described in **BIO-23**. The Remedial Action Plan shall include one or more of the following measures: 1) Begin rotational operation of the site water supply wells reducing pumping in wells that are the most proximal to the GDEs, 2) reducing the pumping rate in the wells that have been identified as the cause of the drawdown in the area of the GDEs, 3) focus pumping on wells on the southern portion of the project site away from the GDEs 4) cease operation of the well(s) that are the cause of the drawdown. Groundwater water level monitoring shall increase to a frequency necessary to document change and recovery in the drawdown from the changes in the pumping program.	No more than 30 days following submission of the Groundwater Dependent Vegetation Annual Monitoring Report the Project owner shall submit to the CPM for review and approval a draft Remedial Action Plan if that report indicates that the threshold for remedial action as described in **BIO-23** has been met. At the same time the Project owner shall submit written evidence that the Project wells responsible for impacts to groundwater levels and GDEs have modified their operation or ceased operation. A final Remedial Action Plan shall be submitted to the CPM within 30 days of receipt of the CPM's comments on the draft plan. No later than 6 months following approval of the final Remedial Action Plan, the Project owner shall provide to the CPM written documentation of the effectiveness of the completed remedial action. No more than 30 days following submission of the Groundwater-Dependent Vegetation Annual Monitoring Report**,** the Project owner shall provide to the CPM a final accounting of the amount of GDE habitat affected by Project groundwater pumping.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
The Remedial Action Plan shall include a water level monitoring program of sufficient frequency to document changes in operation of the water supply wells, and demonstrate that the water table has been restored to baseline levels. The Project owner shall use the following guidelines for determining if an ecosystem (or species) is phreatophytic (Brown et al 2007; LeMaite et al 1999; Froend & Loomes 2004): a. It is not known or documented to depend on groundwater, based on scientific literature or expert opinion (local knowledge can be useful in making a determination as some species' dependence varies by setting); b. The species are not known to have roots extending over a meter in depth; c. The community does not occur in an area where the water table is known to be 'near' the surface (relative to the documented rooting depths of the species); d. The herbaceous or shrub vegetation is not still green and/or does not have a high leaf area late in the dry season (compared to other dry areas in the same watershed that do not have access to groundwater). 2. Compensate for Loss of Ecosystem Function. If the decline in the water table in the alluvial (shallow) aquifer is accompanied by a corresponding decline in plant vigor greater than 20 percent (as described in BIO-23), the Project owner shall compensate for the loss of habitat functions and values in the affected groundwater- dependent ecosystems. The amount of compensation shall be at a 3:1 ratio based on area of affected area, using mapping as described in **BIO-23**. The Project owner shall acquire, in fee or in easement, a parcel or parcels of land that include an amount of groundwater-dependent vegetation that is of the same habitat-type as the community affected (e.g., mesquite woodland, alkali sink scrubs, or microphyll woodland) and of an equal or greater habitat quality. The compensation lands shall be located within the watersheds encompassing the Chuckwalla or Palen valleys. As an alternative to habitat compensation, the Project owner may submit a plan that achieves restoration of lost habitat function and value at another location within the Chuckwalla Groundwater Basin that contains the same habitats as those affected. a. Review and Approval of Compensation Lands Prior to Acquisition or Restoration. The Project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands in relation to the criteria listed above. Approval from the CPM shall be required for acquisition of all compensatory mitigation parcels. b. Preparation of Management Plan: The Project owner shall submit to the CPM and CDFG a draft Management Plan that reflects site-specific enhancement measures for the acquired compensation lands. The objective of the Management Plan shall be to maintain the functions and values of the acquired GDE plant communities and may include enhancement actions such as weed control, fencing to exclude livestock, or erosion control. c. Delegation of Acquisition. The responsibility for acquisition of compensation lands may be delegated to NFWF or another third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the Energy Commission. Such delegation shall be subject to approval by the CPM prior to land acquisition, enhancement or management activities.	No more than 6 months following submission of the Groundwater-Dependent Vegetation Annual Monitoring Report the Project owner shall submit a formal acquisition or restoration proposal to the CPM, describing the mitigation parcels intended for purchase or restoration. The acquisition/restoration proposal shall describe how the proposed parcels meet the acquisition or restoration criteria described in this condition. No fewer than 90 days prior to compensatory acquisition or restoration, the Project owner shall submit to the CPM and obtain CPM approval of any agreements to delegate land acquisition to an approved third party, or to manage compensation lands; such agreement shall be executed and implemented no more than months following approval of the acquisition proposal. The Project owner shall provide written verification to the CPM that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient no later than 18 months from submission of the Groundwater-Dependent Vegetation Annual Monitoring Report.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-25, Golden Eagle Inventory and Monitoring: The Project owner shall implement the following measures to avoid or minimize Project-related construction impacts to golden eagles. 1. Annual Inventory During Construction. For each calendar year during which construction will occur an inventory shall be conducted to determine if golden eagle territories occur within one mile of the Project boundaries. Survey methods for the inventory shall be as described in the Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations (Pagel et al. 2010) or more current guidance from the USFWS. 2. Inventory Data: Data collected during the inventory shall include at least the following: territory status (unknown, vacant, occupied, breeding successful, breeding unsuccessful); nest location, nest elevation; age class of golden eagles observed; nesting chronology; number of young at each visit; digital photographs; and substrate upon which nest is placed. 3. Determination of Unoccupied Territory Status: A nesting territory or inventoried habitat shall be considered unoccupied by golden eagles ONLY after completing at least 2 full surveys in a single breeding season. In circumstances where ground observation occurs rather than aerial surveys, at least 2 ground observation periods lasting at least 4 hours or more are necessary to designate an inventoried habitat or territory as unoccupied as long as all potential nest sites and alternate nests are visible and monitored. These observation periods shall be at least 30 days apart for an inventory, and at least 30 days apart for monitoring of known territories. 4. Monitoring and Adaptive Management Plan: If an occupied nest is detected within one mile of the Project boundaries, the Project owner shall prepare and implement a Golden Eagle Monitoring and Adaptive Management Plan for the duration of construction to ensure that Project construction activities do not result in injury or disturbance to golden eagles. The monitoring methods shall be consistent with those described in the Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations (Pagel et al. 2010) or more current guidance from the USFWS. The Monitoring and Management Plan shall be prepared in consultation with the USFWS. Triggers for adaptive management shall include any evidence of Project-related disturbance to nesting golden eagles, including but not limited to: agitation behavior (displacement, avoidance, and defense); increased vigilance behavior at nest sites; changes in foraging and feeding behavior, or nest site abandonment. The Monitoring and Adaptive Management Plan shall include a description of adaptive management actions, which shall include, but not be limited to, cessation of construction activities that are deemed by the Designated Biologist to be the source of golden eagle disturbance.	No fewer than 30 days from completion of the golden eagle inventory the project owner shall submit a report to the CPM, BLM, CDFG, and USFWS documenting the results of the inventory. If an occupied nest is detected within one mile of the Project boundary during the inventory the Project owner shall contact staff at the USFWS Carlsbad Office and CDFG within one working day of detection of the nest for interim guidance on monitoring and nest protection. The project owner shall provide the CPM, CDFG, and USFWS with the final version of the Golden Eagle Monitoring and Management Plan within 30 days after detection of the nest. This final Plan shall have been reviewed and approved by the CPM in consultation with USFWS and CDFG.	CEC
BIO-26, Evaporation Pond Netting and Monitoring: The Project owner shall cover the evaporation ponds prior to any discharge with 1.5-inch mesh netting designed to exclude birds and other wildlife from drinking or landing on the water of the ponds. Netting with mesh sizes other than 1.5-inches may be installed if approved by the CPM in consultation with CDFG and USFWS. The netted ponds shall be monitored regularly to verify that the netting remains intact, is fulfilling its function in excluding birds and other wildlife from the ponds, and does not pose an entanglement threat to birds and other wildlife. The ponds shall include a visual deterrent in addition to the netting, and the pond shall be designed such that the netting shall never contact the water. Monitoring of the evaporation ponds shall include the following: 1. Monthly Monitoring. The Designated Biologist or Biological Monitor shall regularly survey the ponds at least once per month starting with the first month of operation of the evaporation ponds. The purpose of the surveys shall be to	No less than 30 days prior to operation of the evaporation ponds the project owner shall provide to the CPM as-built drawings and photographs of the ponds indicating that the bird exclusion netting has been installed. For the first year of operation the Designated Biologist shall submit quarterly reports to the CPM, BLM, CDFG, and USFWS describing the dates, durations and results of site visits conducted at the evaporation ponds. Thereafter the Designated Biologist shall submit annual monitoring reports with this information. The quarterly and annual reports shall fully describe any	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
determine if the netted ponds are effective in excluding birds, if the nets pose an entrapment hazard to birds and wildlife, and to assess the structural integrity of the nets. The monthly survey shall be conducted in 1 day for a minimum of 2 hours following sunrise (i.e., dawn), a minimum of 1 hour mid-day (i.e., 1100 to 1300), and a minimum of 2 hours preceding sunset (i.e., dusk) in order to provide an accurate assessment of bird and wildlife use of the ponds during all seasons. Surveyors shall be experienced with bird identification and survey techniques. Operations staff at the Project site shall also report finding any dead birds or other wildlife at the evaporation ponds to the Designated Biologist within 1 day of the detection of the carcass. The Designated Biologists shall report any bird or other wildlife deaths or entanglements within 2 days of the discovery to the CPM, CDFG, and USFWS. 2. Dead or Entangled Birds. If dead or entangled birds are detected, the Designated Biologist shall take immediate action to correct the source of mortality or entanglement. The Designated Biologist shall make immediate efforts to contact and consult the CPM, CDFG, and USFWS by phone and electronic communications prior to taking remedial action upon detection of the problem, but the inability to reach these parties shall not delay taking action that would, in the judgment of the Designated Biologist, prevent further mortality of birds or other wildlife at the evaporation ponds. 3. Quarterly Monitoring. If after 12 consecutive monthly site visits no bird or wildlife deaths or entanglements are detected at the evaporation ponds by or reported to the Designated Biologist, monitoring, as described in paragraph 1, can be conducted on a quarterly basis. 4. Biannual Monitoring. If after 12 consecutive quarterly site visits no bird or wildlife deaths or entanglements are detected by or reported to the Designated Biologist and with approval from the CPM, USFWS, and CDFG, future surveys may be reduced to 2 surveys per year, during the spring nesting season and during fall migration. If approved by the CPM, USFWS, and CDFG, monitoring outside the nesting season may be conducted by the Environmental Compliance Manager. 5. Modification of Monitoring Program. CDFG or USFWS may submit a request for modifications to the evaporation pond monitoring program based on information acquired during monitoring, and may also suggest adaptive management measures to remedy any problems that are detected during monitoring or modifications if bird impacts are not observed. Modifications to the evaporation pond monitoring described above and implementation of adaptive management measures shall be made only after approval from the CPM, in consultation with USFWS and CDFG.	bird or wildlife death or entanglements detected during the site visits or at any other time, and shall describe actions taken to remedy these problems. The annual report shall be submitted to the CPM, BLM, CDFG, and USFWS no later than January 31 of every year for the life of the project.	
BIO-27: *Staff and the Applicant have agreed to delete this condition.*		
BIO-28, In-Lieu Fee Mitigation Option: The Project owner may choose to satisfy its mitigation obligations by paying an in-lieu fee instead of acquiring compensation lands, pursuant to Fish and Game code sections 2069 and 2099 or any other applicable in-lieu fee provision, provided that the Project's in-lieu fee proposal is found by the Commission to the mitigate the impacts identified herein. If the in-lieu fee proposal is found by the Commission to be in compliance, and the Project Owner chooses to satisfy its mitigation obligations through the in-lieu fee, the Project Owner shall provide proof of the in-lieu fee payment to the CPM prior to construction related ground disturbance.	If electing to use this provision, the Project owner shall notify the Commission and all parties to the proceeding that it would like a determination that the Project's in-lieu fee proposal would mitigate for the impacts identified herein. Prior to construction related ground disturbance the Project Owner shall provide proof of the in lieu fee payment to the CPM.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
BIO-29, Project Construction Phasing Plan: The Project Owner shall provide compensatory mitigation for the total Project Disturbance Area and may provide such mitigation in two phases as described in Figure 1 in the Supplement to the Petition For Amendment dated February 8, 2013. For purposes of this condition, the Project Disturbance Area means all lands disturbed in the construction and operation of the PSEGS or its phases, including all linears and ancillary facilities, as well as undeveloped areas inside the Project's boundaries that would no longer provide viable long-term habitat. The disturbance area for each project Phase and resource type is provided in **BIO-29** Table 1 on page 120 of the February 8, 2013 Revised Plan of Development for the PSEGS (Palen Solar III, LLC, 2013) (the "POD"). Mitigation is shown in **BIO-29** Table 2 (POD, p. 121), and mitigation security is shown in **BIO-29 Table 3,** below**.** This table shall be refined prior to the start of each construction phase with the disturbance area adjusted to reflect the final Project footprint for each phase. Prior to initiating each phase of construction the Project owner shall submit the actual construction schedule, a figure depicting the locations of proposed construction and amount of acres to be disturbed. Mitigation acres are calculated based on the compensation requirements for each resource type as described in the above Conditions of Certification – **BIO-12** (Desert Tortoise), **BIO-20** (Mojave Fringe-toed Lizard), **BIO-18** (Western Burrowing Owl), and **BIO-22** (State Waters). Compensatory mitigation for each phase shall be implemented according to the timing required by each condition. (See BIO-29 Table 1, Table 2, and Table 3 in the CEC Amendment to Final Decision) (see 2010 CEC PSPP Commission Decision, pp. 141- 143, which would be updated to reflect proposed area of disturbance and current costs).	The Project owner shall not disturb any area outside of the area that has been approved for that phase of construction and for the previously approved phases of construction. No less than 30 days prior to the start of desert tortoise clearance surveys for each phase, the Project owner shall submit a description of the proposed construction activities for that phase to CDFG, USFWS and BLM for review and to the CPM for review and approval. The description for each phase shall include the proposed construction schedule, a figure depicting the locations of proposed construction, and amount of acres of each habitat type to be disturbed. No less than 30 days prior to beginning Project ground-disturbing activities for each phase, the Project owner shall provide the form of Security in accordance with this Condition of Certification in the amounts described in **BIO-29 Table 3.** No later than 7 days prior to beginning Project ground-disturbing activities for each phase, the Project owner shall provide written verification of the actual Security. The Project owner, or an approved third party, shall complete and provide written verification of the proposed compensation lands acquisition within 18 months of the start of Project ground-disturbing activities for each phase.	CEC
WIL-1: Desert Kit Fox Protection. To avoid direct impacts to desert kit fox from disease transmission, the Applicant shall implement the following measures: 1. ***Baseline Kit Fox Population and Health Survey:*** A qualified biologist familiar with desert kit foxes shall direct a baseline study of desert kit fox populations on the Project site and the anticipated relocation/receiving area(s) at least 60 days prior to initiation of construction activities. The study shall characterize the population size and distribution of the kit fox population on the site and receiving areas. The receiving area would be determined following the initial survey of the Project site, and based on the location and number of Project site kit foxes. The initial survey to locate, map and describe kit fox burrows may occur as part of the desert tortoise clearance, an intensive survey that is completed using two passes spaced at 5 m intervals. Pending CDFW approval, the baseline survey may include a testing component in which the researchers trap and test a representative subsample of the population for canine distemper, and generally describe animal health on the site and receiving areas. The baseline kit fox census and health findings shall be summarized in a report that informs will be used to inform site management of kit foxes during preconstruction surveys. Alternately, the Applicant may coordinate with and fund studies by federal or State wildlife health officials (e.g., the CDFW Wildlife Investigations Lab) to establish baseline health conditions at the site and in the receiving area. 2. ***Prepare Desert Kit Fox Management Plan*****:** At least 45 days prior to construction, the Applicant shall prepare a Desert Kit Fox Management Plan that: 1) incorporates baseline desert kit fox survey and health survey findings into a cohesive management strategy that minimizes disease risk to kit fox populations; 2) provides a program for tagging, radio-	A qualified biologist familiar with desert kit foxes shall direct a baseline study of desert kit fox populations on the Project site and the anticipated relocation/receiving area(s) at least 60 days prior to initiation of construction activities.	BLM

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
BIOLOGICAL RESOURCES (cont.)		
tracking and monitoring of a subset of kit foxes that are anticipated to be during the construction phase to provide understanding of how displacement affects displaced foxes, and foxes in the receiving area.; 3) specifically identifies preconstruction survey methods for kit foxes and large carnivores (e.g., badgers) in the Project area; 4) describes preconstruction and construction-phase relocation methods from the site, including the possibility for passive and active relocation from the site (and outlines identified CDFW permit and MOU requirements for active relocation), and; 5) coordinates survey findings prior to and during construction to meet the information needs of wildlife health officials in monitoring the health of kit fox populations. The Plan shall include contingency measures that would be performed if canine distemper were documented in the Project area or in potential relocation areas, and measures to address potential kit fox reoccupancy of the site (as documented at the Genesis site). The contents and requirements of the Plan shall be subject to review and approval by the BLM Authorized Officer (BLM AO) in consultation with USFWS and CDFW. 3. ***Implement Desert Kit Fox Management Plan:*** If canine distemper is not identified in the Project area or relocation areas during baseline surveys, the mitigation strategy may utilize passive means or active means with appropriate CDFW authorization to relocate kit foxes from the site as described in APM BIO-17. 4. ***Measures to Minimize Canine Disease Transmission***. The approach below assumes that canine distemper is not detected during baseline surveys. Additionally, the following measures are required to reduce the likelihood of distemper transmission: i. No pets shall be allowed on the site prior to or during construction, with the possible exception of kit fox scat detection dogs during preconstruction surveys, and then only with prior CDFW approval; ii. Any kit fox hazing activities that include the use of animal repellents such as coyote urine must be cleared through CDFW prior to use, and; iii. Any sick or diseased kit fox, or documented kit fox mortality shall be reported to CDFW and the BLM AO within 24 hours of identification. If a dead kit fox is observed, it shall be retained and protected from scavengers until CDFW determines if the collection of necropsy samples is justified.		
CULTURAL RESOURCES		
CUL-1, Prehistoric Trails Network Cultural Landscape (PTNCL) Documentation and NRHP Nomination: The project owner shall contribute to a special fund set up by the Energy Commission and/or BLM to finance the completion of the PTNCL Documentation and Possible NRHP Nomination program presented in the Palen Solar Power Project (PSPP) Revised Staff Assessment (RSA). The amount of the contribution shall be $35 per acre that the project encloses or otherwise disturbs. Any additional contingency contribution is not to exceed an amount totaling 20 percent of the original contribution. The contribution to the special fund may be made in installments at the approval of the CPM, with the first installment to constitute one-third of the total original contribution amount. If a project is not certified, or if a project owner does not build the project, or, if for some other reason deemed acceptable by the CPM, a project owner does not participate in funding the PTNCL documentation and possible NRHP nomination program, the other project owner(s) may consult with the CPM to adjust the scale of the PTNCL documentation and possible NRHP nomination program research activities to match available funding. A project owner that funds the PTNCL documentation and possible NRHP nomination program, then withdraws, will be able to reclaim their monetary contribution, to be refunded on a prorated basis.	No later than 10 days after receiving notice of the successful transfer of funds for any installment to the Energy Commission‘s and/or BLM‘s special PTNCL fund, the project owner shall submit a copy of the notice to the Energy Commission‘s Compliance Project Manager (CPM).	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
CUL-2, Desert Training Center California-Arizona Maneuver Area Cultural Landscape (DTCCL) Documentation and Possible NRHP Nomination: The project owner shall contribute to a special fund set up by the Energy Commission and/or BLM to finance the completion of the Documentation and Possible NRHP Nomination program presented in the PSPP RSA. The amount of the contribution shall be $25 per acre that the project encloses or otherwise disturbs. Any additional contingency contribution is not to exceed an amount totaling 20 percent of the original contribution. The contribution to the special fund may be made in installments at the approval of the CPM, with the first installment to constitute one-third of the total original contribution amount. If a project is not certified, or if a project owner does not build the project, or, if for some other reason deemed acceptable by the CPM, a project owner does not participate in funding the DTCCL documentation and possible NRHP nomination program, the other project owner(s) may consult with the CPM to adjust the scale of the DTCCL documentation and possible NRHP nomination program research activities to match available funding. A project owner that funds the DTCCL documentation and possible NRHP nomination program, then withdraws, will be able to reclaim their monetary contribution, to be refunded on a prorated basis.	No later than 10 days after receiving notice of the successful transfer of funds for any installment to the Energy Commission's and/or BLM's special DTCCL fund, the project owner shall submit a copy of the notice to the CPM.	CEC
CUL-3, Cultural Resources Personnel: Prior to the start of ground disturbance (includes "preconstruction site mobilization," "construction-related ground disturbance," and "construction-related grading, boring, and trenching," as defined in the General Conditions for this project), the project owner shall obtain the services of a Cultural Resources Specialist (CRS) and one or more alternate CRSs, if alternates are needed. The CRS shall manage all monitoring, mitigation, curation, and reporting activities in accordance with the Conditions of Certification (Conditions). The CRS shall have a primarily administrative and coordination role for the PSPP. The CRS may obtain the services of Cultural Resources Monitors (CRMs), if needed, to assist in monitoring, mitigation, and curation activities. The project owner shall ensure that the CRS implements the **Cultural Resources** Conditions providing for data recovery from known historical resources and ensure that the CRS makes recommendations regarding the eligibility for listing in the California Register of Historical Resources (CRHR) of any cultural resources that are newly discovered or that may be affected in an unanticipated manner. No ground disturbance shall occur prior to Compliance Project Manager (CPM) approval of the CRS and alternates, unless such activities are specifically approved by the CPM. Approval of a CRS may be denied or revoked for reasons including but not limited to noncompliance on this or other Energy Commission projects. ***Cultural Resources Specialist*:** The resumés for the CRS and alternate(s) shall include information demonstrating to the satisfaction of the CPM that their training and backgrounds conform to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61. In addition, the CRS shall have the following qualifications: 1. A background in anthropology and prehistoric archaeology; 2. At least 10 years of archaeological resource mitigation and field experience, with at least three of those years in California; and 3. At least three years of experience in a decision-making capacity on cultural resources projects, with at least one of those years in California, and the appropriate training and experience to knowledgably make recommendations regarding the significance of cultural resources.	**Verification:** 1. Preferably at least 120 days, but in any event no less than 75 days prior to the start of ground disturbance, the project owner shall submit the résumés for the CRS, the alternate CRS(s) if desired, the PPA, and the PHA to the CPM for review and approval. 2. At least 65 days prior to the start of data recovery on known archaeological sites, the project owner shall confirm in writing to the CPM that the approved CRS, the PPA, and the PHA will be available for on-site work and are prepared to implement the **Cultural Resources** Conditions **CUL-11** through **CUL-15**. 3. At least 10 days prior to a termination or release of the CRS, or within 10 days after the resignation of a CRS, the project owner shall submit the résumé of the proposed new CRS to the CPM for review and approval. At the same time, the project owner shall also provide to the proposed new CRS the AFC and all cultural resources documents, field notes, photographs, and other cultural resources materials generated by the project. If no alternate CRS is available to assume the duties of the CRS, a monitor may serve in place of a CRS so that ground disturbance may continue up to a maximum of three days without a CRS. If cultural resources are discovered then ground disturbance will	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
***Required Cultural Resources Technical Specialists*:** The project owner shall ensure that the CRS obtains the services of a qualified prehistoric archaeologist to conduct the research specified in **CUL-11** and **CUL-12**. The Project Prehistoric Archaeologist's (PPA) training and background must meet the U.S. Secretary of the Interior's Professional Qualifications Standards for prehistoric archaeology, as published in Title 36, Code of Federal Regulations, part 61, and the résumé of the PPA must demonstrate familiarity with similar artifacts and environmental modifications (deliberate and incidental) to those associated with the prehistoric and protohistoric use of the Chuckwalla Valley. The PPA must meet OSHA standards as a "Competent Person" in trench safety. The project owner shall ensure that the CRS obtains the services of a qualified historical archaeologist to conduct the research specified in **CUL-13** and **CUL-14**. The Project Historical Archaeologist's (PHA) training and background must meet the U.S. Secretary of Interior's Professional Qualifications Standards for historical archaeology, as published in Title 36, Code of Federal Regulations, part 61. The résumés of the CRS, alternate CRS, the PPA, and the PHA shall include the names and telephone numbers of contacts familiar with the work of these persons on projects referenced in the résumés and demonstrate to the satisfaction of the CPM that these persons have the appropriate training and experience to undertake the required research. The project owner may name and hire the CRS, alternate CRS, the PPA, and the PHA prior to certification. ***Field Crew Members and Cultural Resources Monitors*:** CRMs and field crew members shall have the following qualifications: 1. A B.S. or B.A. degree in anthropology, archaeology, historical archaeology, or a related field, and one year experience monitoring in California; or 2. An A.S. or A.A. degree in anthropology, archaeology, historical archaeology, or a related field, and four years experience monitoring in California; or 3. Enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historical archaeology, or a related field, and two years of monitoring experience in California.	remain halted until there is a CRS or alternate CRS to make a recommendation regarding significance. 4. At least 20 days prior to data recovery on known archaeological sites, the CRS shall provide a letter naming anticipated field crew members for the project and attesting that the identified field crew members meet the minimum qualifications for cultural resources data recovery required by this Condition. 5. At least 20 days prior to ground disturbance, the CRS shall provide a letter naming anticipated CRMs for the project and attesting that the identified CRMs meet the minimum qualifications for cultural resources monitoring required by this Condition. 6. At least five days prior to additional CRMs beginning on-site duties during the project, the CRS shall provide letters to the CPM identifying the new CRMs and attesting to their qualifications.	
CUL-4, Project Documentation for Cultural Resources Personnel: Prior to the start of ground disturbance, the project owner shall provide the CRS, the PPA, and the PHA with copies of the AFC, data responses, confidential cultural resources documents, the Revised Staff Assessment (RSA), RSA Errata, and the Commission Decision for the project. The project owner shall also provide the CRS, the PPA, the PHA, and the CPM with maps and drawings showing the footprints of the power plant, all linear facility routes, all access roads, and all laydown areas. Maps shall include the appropriate USGS quadrangles and maps at an appropriate scale (e.g., 1:2400 or 1" = 200') for plotting cultural features or materials. If the CRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM. The CPM shall review map submittals and, in consultation with the CRS, approve those that are appropriate for use in cultural resources planning activities. No ground disturbance shall occur prior to CPM approval of maps and drawings, unless such activities are specifically approved by the CPM. If construction of the project would proceed in phases, maps and drawings not previously provided shall be provided to the CRS, the PPA, the PHA, and CPM prior to the start of each phase. Written notice identifying the proposed schedule of each project phase shall be provided to the CRS and CPM. Weekly, until ground disturbance is completed, the project construction manager shall provide to the CRS and CPM a schedule of project activities for the following week, including the identification of area(s) where ground disturbance will occur during that week. The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.	1. Preferably at least 115 days, but in any event no less than 60 days prior to the start of ground disturbance, the project owner shall provide the AFC, data responses, confidential cultural resources documents, the Revised Staff Assessment (RSA), RSA Errata, and the Commission Decision for the project to the CRS, if needed, and to the PPA, and the PHA. The project owner shall also provide the subject maps and drawings to the CRS, PPA, PHA, and CPM. Staff, in consultation with the CRS, PPA, and PHA, will review and approve maps and drawings suitable for cultural resources monitoring and data recovery activities. 2. At least 15 days prior to the start of ground disturbance, if there are changes to any project-related footprint, the	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
	project owner shall provide revised maps and drawings for the changes to the CRS, PPA, PHA, and CPM. 3. At least 15 days prior to the start of each phase of a phased project, the project owner shall submit the appropriate maps and drawings, if not previously provided, to the CRS, PPA, PHA, and CPM. 4. Weekly, during ground disturbance, a current schedule of anticipated project activity shall be provided to the CRS and CPM by letter, e-mail, or fax. 5. Within five days of changing the scheduling of phases of a phased project, the project owner shall provide written notice of the changes to the CRS and CPM.	
CUL-5, Cultural Resources Monitoring and Mitigation Plan: Prior to the start of ground disturbance, the project owner shall submit to the CPM for review and approval the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by or under the direction of the CRS, with the contributions of the PPA, and the PHA. The authors' name(s) shall appear on the title page of the CRMMP. The CRMMP shall specify the impact mitigation protocols for all known cultural resources and identify general and specific measures to minimize potential impacts to all other cultural resources, including those discovered during construction. Implementation of the CRMMP shall be the responsibility of the CRS and the project owner. Copies of the CRMMP shall reside with the CRS, alternate CRS, the PPA, and the PHA, each CRM, and the project owner's on-site construction manager. No ground disturbance shall occur prior to CPM approval of the CRMMP, unless such activities are specifically approved by the CPM. Prior to certification, the project owner may have the CRS, alternate CRS, the PPA, and the PHA complete and submit to CEC for review the CRMMP, except for the portions to be contributed by the PTNCL and the DTCCL programs. The CRMMP shall include, but not be limited to, the elements and measures listed below. 1. The following statement shall be included in the Introduction: "Any discussion, summary, or paraphrasing of the Conditions of Certification in this CRMMP is intended as general guidance and as an aid to the user in understanding the Conditions and their implementation. The Conditions, as written in the Commission Decision, shall supersede any summarization, description, or interpretation of the conditions in the CRMMP. The **Cultural Resources** Conditions of Certification from the Commission Decision are contained in **Appendix A**." 2. The duties of the CRS shall be fully discussed, including coordination duties with respect to the completion of the Prehistoric Trails Network Cultural Landscape (PTNCL) documentation and possible NRHP nomination program and the Desert Training Center California-Arizona Maneuver Area Cultural Landscape (DTCCL) documentation and possible NRHP nomination program, and oversight/management duties with respect to site evaluation, data collection, monitoring, and reporting at both known prehistoric and historic-period archaeological sites and any CRHR-eligible (as determined by the CPM) prehistoric and historic-period archaeological sites discovered during construction.	1. Preferably at least 45 days, but in any event no less than 30 days prior to the start of ground disturbance, the project owner shall submit the CRMMP to the CPM for review and approval. 2. At least 20 days prior to the start of ground disturbance, in a letter to the CPM, the project owner shall agree to pay curation fees for any materials generated or collected as a result of the archaeological investigations (survey, testing, data recovery). 3. At least 30 days prior to the start of ground disturbance, the project owner shall provide to the CPM a copy of a letter from a curation facility that meets the standards stated in the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, stating the facility's willingness and ability to receive the materials generated by PSPP cultural resources activities and requiring curation. Any agreements concerning curation will be retained and available for audit for the life of the project.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
3. A general research design shall be developed that: a. Charts a timeline of all research activities, including those coordinated under the PTNCL and DTCCL documentation and possible NRHP nomination programs; b. Recapitulates the existing paleoenvironmental, prehistoric, ethnohistoric, ethnographic, and historic contexts developed in the PTNCL and DTCCL historic context and adds to these the additional context of the non-military, historic-period occupation and use of the Chuckwalla Valley, to create a comprehensive historic context for the PSPP vicinity; c. Poses archaeological research questions and testable hypotheses specifically applicable to the archaeological resource types known for the Chuckwalla Valley, based on the research questions developed under the PTNCL and DTCCL research and on the archaeological and historical literature pertinent to the Chuckwalla Valley; and d. Clearly articulates why it is in the public interest to address the research questions that it poses. 4. Protocols, reflecting the guidance provided in CUL-10 through CUL-15 shall be specified for the treatment of known and newly discovered prehistoric and historic-period archaeological resource types. 5. Artifact collection, retention/disposal, and curation policies shall be discussed, as related to the research questions formulated in the research design. These policies shall apply to cultural resources materials and documentation resulting from evaluation and data recovery at both known prehistoric and historic-period archaeological sites and any CRHR-eligible (as determined by the CPM) prehistoric and historic-period archaeological sites discovered during construction. A prescriptive treatment plan may be included in the CRMMP for limited data types. 6. The implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the ground disturbance and post-ground–disturbance analysis phases of the project shall be specified. 7. Person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team shall be identified. 8. The manner in which Native American observers or monitors will be included, in addition to their roles in the activities required undeCUL-1, the procedures to be used to select them, and their roles and responsibilities shall be described. 9. All impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Any areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts. 10. The commitment to record on Department of Parks and Recreation (DPR) 523 forms, to map, and to photograph all encountered cultural resources over 50 years of age shall be stated. In addition, the commitment to curate all archaeological materials retained as a result of the archaeological investigations (survey, testing, data recovery), in accordance with the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, into a retrievable storage collection in a public repository or museum shall be stated.		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
11. The commitment of the project owner to pay all curation fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project shall be stated. The project owner shall identify a curation facility that could accept cultural resources materials resulting from PSPP cultural resources investigations. 12. The CRS shall attest to having access to equipment and supplies necessary for site mapping, photography, and recovery of all cultural resource materials (that cannot be treated prescriptively) from known CRHR-eligible archaeological sites and from CRHR eligible sites that are encountered during ground disturbance. 13. The contents, format, and review and approval process of the final Cultural Resource Report (CRR) shall be described.		
CUL-6, Cultural Resources Report (CRR): The project owner shall submit the final Cultural Resources Report (CRR) to the CPM for review and approval and to the BLM Palm Springs archaeologist for review and comment. The final CRR shall be written by or under the direction of the CRS. The final CRR shall report on all field activities including dates, times and locations, results, samplings, and analyses. All survey reports, revised and final Department of Parks and Recreation (DPR) 523 forms, data recovery reports, and any additional research reports not previously submitted to the California Historical Resource Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as appendices to the final CRR. If the project owner requests a suspension of ground disturbance and/or construction activities, then a draft CRR that covers all cultural resources activities associated with the project shall be prepared by the CRS and submitted to the CPM and to the BLM Palm Springs archaeologist for review and approval on the same day as the suspension/extension request. The draft CRR shall be retained at the project site in a secure facility until ground disturbance and/or construction resumes or the project is withdrawn. If the project is withdrawn, then a final CRR shall be submitted to the CPM for review and approval at the same time as the withdrawal request.	1. Within 30 days after requesting a suspension of construction activities, the project owner shall submit a draft CRR to the CPM for review and approval. 2. Within 180 days after completion of ground disturbance (including landscaping), the project owner shall submit the final CRR to the CPM for review and approval and to the BLM Palm Springs archaeologist for review and comment. If any reports have previously been sent to the CHRIS, then receipt letters from the CHRIS or other verification of receipt shall be included in an appendix. 3. Within 10 days after the CPM and the BLM Palm Springs archaeologist approve the CRR, the project owner shall provide documentation to the CPM confirming that copies of the final CRR have been provided to the SHPO, the CHRIS, the curating institution, if archaeological materials were collected, and to the Tribal Chairpersons of any Native American groups requesting copies of project-related reports.	CEC
CUL-7, Worker Environmental Awareness Program (WEAP): Prior to and for the duration of ground disturbance, the project owner shall provide Worker Environmental Awareness Program (WEAP) training to all new workers within their first week of employment at the project site, along the linear facilities routes, and at laydown areas, roads, and other ancillary areas. The training shall be prepared by the CRS, may be conducted by any member of the archaeological team, and may be presented in the form of a video. The CRS shall be available (by telephone or in person) to answer questions posed by employees. The training may be discontinued when ground disturbance is completed or suspended, but must be resumed when ground disturbance, such as landscaping, resumes. The training shall include:	1. At least 30 days prior to the start of ground disturbance, the CRS shall provide the training program draft text and graphics and the informational brochure to the CPM for review and approval. 2. At least 15 days prior to the start of ground disturbance, the CPM will provide to the project owner a WEAP Training Acknowledgement form for each WEAP trained worker to sign.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
1. A discussion of applicable laws and penalties under the law; 2. Samples or visuals of artifacts that might be found in the project vicinity; 3. A discussion of what such artifacts may look like when partially buried, or wholly buried and then freshly exposed; 4. A discussion of what prehistoric and historical archaeological deposits look like at the surface and when exposed during construction, and the range of variation in the appearance of such deposits; 5. Instruction that the CRS, alternate CRS, and CRMs have the authority to halt ground disturbance in the area of a discovery to an extent sufficient to ensure that the resource is protected from further impacts, as determined by the CRS; 6. Instruction that employees are to halt work on their own in the vicinity of a potential cultural resources discovery and shall contact their supervisor and the CRS or CRM, and that redirection of work would be determined by the construction supervisor and the CRS; 7. An informational brochure that identifies reporting procedures in the event of a discovery; 8. An acknowledgement form signed by each worker indicating that they have received the training; and 9. A sticker that shall be placed on hard hats indicating that environmental training has been completed. 10. No ground disturbance shall occur prior to implementation of the WEAP program, unless such activities are specifically approved by the CPM.	3. Monthly, until ground disturbance is completed, the project owner shall provide in the Monthly Compliance Report (MCR) the WEAP Training Acknowledgement forms of workers who have completed the training in the prior month and a running total of all persons who have completed training to date.	
CUL-8, Construction Monitoring Program: The project owner shall ensure that the CRS, alternate CRS, or CRMs, to prevent construction impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner, monitor full time all ground disturbance. Full-time archaeological monitoring for this project shall be the archaeological monitoring of the earth-removing activities in the areas specified in the previous paragraph, for as long as the activities are ongoing. Where excavation equipment is actively removing dirt and hauling the excavated material farther than 50 feet from the location of active excavation, full-time archaeological monitoring shall require at least two monitors per excavation area. In this circumstance, one monitor shall observe the location of active excavation and a second monitor shall inspect the dumped material. For excavation areas where the excavated material is dumped no farther than 50 feet from the location of active excavation, one monitor shall both observe the location of active excavation and inspect the dumped material. A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts may be discovered. Contact lists of interested Native Americans and guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that shall be monitored. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM. The CPM will either identify potential monitors or will allow ground disturbance to proceed without a Native American monitor. The research design in the CRMMP shall govern the collection, treatment, retention/disposal, and curation of any archaeological materials encountered.	1. At least 30 days prior to the start of ground disturbance, the CPM will provide to the CRS an electronic copy of a form to be used as a daily monitoring log. 2. Monthly, while monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring prepared by the CRS and shall attach any new DPR 523A forms completed for finds treated prescriptively, as specified in the CRMMP. 3. At least 24 hours prior to implementing a proposed change in monitoring level, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for changing the monitoring level.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
On forms provided by the CPM, CRMs shall keep a daily log of any monitoring and other cultural resources activities and any instances of noncompliance with the Conditions and/or applicable LORS. Copies of the daily monitoring logs shall be provided by the CRS to the CPM, if requested by the CPM. From these logs, the CRS shall compile a monthly monitoring summary report to be included in the MCR. If there are no monitoring activities, the summary report shall specify why monitoring has been suspended. The CRS or alternate CRS shall report daily to the CPM on the status of the project's cultural resources-related activities, unless reducing or ending daily reporting is requested by the CRS and approved by the CPM. In the event that the CRS believes that the current level of monitoring is not appropriate in certain locations, a letter or e-mail detailing the justification for changing the level of monitoring shall be provided to the CPM for review and approval prior to any change in the level of monitoring. The CRS, at his or her discretion, or at the request of the CPM, may informally discuss cultural resources monitoring and mitigation activities with Energy Commission technical staff. Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from duties assigned by the CRS, or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these Conditions. Upon becoming aware of any incidents of non-compliance with the Conditions and/or applicable LORS, the CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the Conditions. When the issue is resolved, the CRS shall write a report describing the issue, the resolution of the issue, and the effectiveness of the resolution measures. This report shall be provided in the next MCR for the review of the CPM.	4. Daily, as long as no cultural resources are found, the CRS shall provide a statement that "no cultural resources over 50 years of age were discovered" to the CPM as an e-mail or in some other form of communication acceptable to the CPM. 5. At least 24 hours prior to reducing or ending daily reporting, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for reducing or ending daily reporting. 6. No later than 30 days following the discovery of any Native American cultural materials, the project owner shall submit to the CPM copies of the information transmittal letters sent to the Chairpersons of the Native American tribes or groups who requested the information. Additionally, the project owner shall submit to the CPM copies of letters of transmittal for all subsequent responses to Native American requests for notification, consultation, and reports and records. 7. Within 15 days of receiving them, the project owner shall submit to the CPM copies of any comments or information provided by Native Americans in response to the project owner's transmittals of information.	
CUL-9, Authority to Halt Construction; Treatment of Discoveries: The project owner shall grant authority to halt ground disturbance to the CRS, alternate CRS, PPA, PHA, and the CRMs in the event of a discovery. Redirection of ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the CRS. In the event that a cultural resource over 50 years of age is found (or if younger, determined exceptionally significant by the CPM), or impacts to such a resource can be anticipated, ground disturbance shall be halted or redirected in the immediate vicinity of the discovery sufficient to ensure that the resource is protected from further impacts. Monitoring and daily reporting, as provided in other Conditions, shall continue during the project's ground-disturbing activities elsewhere. The halting or redirection of ground disturbance shall remain in effect until the CRS has visited the discovery, and all of the following have occurred: 1. The CRS has notified the project owner, and the CPM has been notified within 24 hours of the discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning, including a description of the discovery (or changes in character or attributes), the action taken (i.e., work stoppage or redirection), a recommendation of CRHR eligibility, and recommendations for data recovery from any cultural resources discoveries, whether or not a determination of CRHR eligibility has been made.	1. At least 30 days prior to the start of ground disturbance, the project owner shall provide the CPM and CRS with a letter confirming that the CRS, alternate CRS, PPA, PHA, and CRMs have the authority to halt ground disturbance in the vicinity of a cultural resources discovery, and that the project owner shall ensure that the CRS notifies the CPM within 24 hours of a discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning. 2. Within 48 hours of the discovery of a resource of interest to Native Americans, the project owner shall ensure that the CRS notifies all Native American groups that expressed a desire to be notified in the event of such a discovery.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
2. If the discovery would be of interest to Native Americans, the CRS has notified all Native American groups that expressed a desire to be notified in the event of such a discovery. 3. The CRS has completed field notes, measurements, and photography for a DPR 523 "Primary" form. Unless the find can be treated prescriptively, as specified in the CRMMP, the "Description" entry of the DPR 523 "Primary" form shall include a recommendation on the CRHR eligibility of the discovery. The project owner shall submit completed forms to the CPM. 4. The CRS, the project owner, and the CPM have conferred, and the CPM has concurred with the recommended eligibility of the discovery and approved the CRS's proposed data recovery plan, if any, including the curation of the artifacts, or other appropriate mitigation; and any necessary data recovery and mitigation have been completed.	3. Unless the discovery can be treated prescriptively, as specified in the CRMMP, completed DPR 523 forms for resources newly discovered during ground disturbance shall be submitted to the CPM for review and approval no later than 24 hours following the notification of the CPM, or 48 hours following the completion of data recordation/recovery, whichever the CRS decides is more appropriate for the subject cultural resource.	
CUL-10, Flag and Avoid: If resources within the transmission line corridor can be spanned rather than impacted, or in the event that new resources are discovered during construction where impacts can be reduced or avoided, the project owner shall: 1. Ensure that a CRS, alternate CRS, PPA, or CRM re-establish the boundary of each site, add a 10-meter-wide buffer around the periphery of each site boundary, and flag the resulting space in a conspicuous manner; 2. Ensure that a CRM enforces avoidance of the flagged areas during PSPP construction; and 3. Ensure, after completion of construction, boundary markings around each site and buffer are removed so as not to attract vandals.	Within 90 days of the completion of Project construction, the project owner shall submit for CPM review and approval a letter, with photograph and maps, evidencing the removal of boundary markings.	CEC
CUL-11, Data Recovery for Simple Prehistoric Sites: (Sparse Lithic Scatters, Cairns, and Pot Drops) The project owner shall ensure the CRMMP includes a data recovery plan for the resource type "simple prehistoric sites," consisting of sites SMP-P-1015, SMP-P-1016, SMP-P-2014, SMP-P-2015, and SMP-P- 001. This site list may be revised only with the agreement of the CRS and the CPM. The data recovery plan shall include the use of the CARIDAP protocol on sites that qualify, how to proceed if features or other buried deposits are encountered, and the materials analyses] and laboratory artifact analyses that will be used. The plan shall also specify in detail the location recordation equipment and methods used and describe any post-processing of the data. If allowed by the BLM, prior to the start of ground disturbance within 30 meters of the site boundaries of each of these sites, the project owner shall ensure that the CRS, the PPA, and/or archaeological team members implement the plan, which, for sites where CARIDAP does not apply, shall include, but is not limited to the following tasks: 1. Use location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers) to add to the original site maps the following features: seasonal drainages, site boundaries, location of each individual artifact, and the boundaries around individual artifact concentrations; 2. Request the PTNCL PG, or equivalent qualified person approved by the CPM and hired by the project owner should the PTNCL geoarchaeologist not be available, to identify the specific landform for each site and its relationship to specific ancient lakeshores of Palen Dry Lake; if a lakeshore is present within 100 meters of the site boundary, include it on the site map;	1. At least 45 days prior to ground disturbance, the project owner shall notify the CPM that data recovery for small sites has ensued. 2. After the completion of the excavation of the first 1-meter-by-1-meter excavation unit at each of the subject sites, the CRS shall notify the CPM regarding the presence or absence of subsurface deposits and shall make a recommendation on the site's CRHR eligibility. 3. Within one week of the completion of data recovery at a site, the project owner shall submit a letter report written by the PPA or CRS for review and approval of the CPM. When the CPM approves the letter report, ground disturbance may begin at this site location.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
3. Map and field-record all lithic artifacts (numbers of flakes, the reduction sequence stage each represents, cores, tool blanks, finished tools, hammerstones, and concentrations, and the material types of each) and the other types of prehistoric artifacts present. 4. Map any differential distribution of artifacts and suggest explanations for the distribution 5. Assess the integrity of the site and provide the evidence substantiating that assessment; 6. Collect for dating and source analyses any obsidian artifacts; 7. Field record the surface location of all other artifacts and collect all ceramic artifacts and botanical and faunal remains for laboratory analysis and curation; 8. Surface scrape to a depth of 5 centimeters a 5-meter-by-5-meter area centered on the artifact concentration, field-record the lithic artifacts as to location, material type, and the reduction sequence stage each represents, record the location of all other artifacts, and retain the obsidian and ceramic artifacts and botanical and faunal remains for laboratory analysis and curation; 9. Excavate one 1-meter-by-1-meter unit in 10-centimeter levels until the unit reaches a depth of 20 centimeters below any anthropogenic materials, placing the unit in the part of the site with the highest artifact density and recording its locations on the site map; 10. Place one 1-meter-by-1-meter excavation unit, as described above, in the center of each concentration if multiple artifact concentrations have been identified; 11. Notify the CPM by telephone or e-mail that subsurface deposits were or were not encountered and make a recommendation on the site's CRHR eligibility; 12. If no subsurface deposits were encountered, and the CPM agrees the site is not eligible for the CRHR, data recovery is complete; 13. If subsurface deposits are encountered, test the horizontal limits of the site by excavating additional 1-meter-by-1-meter excavation units in 10-centimeter levels until the unit reaches a depth of 20 centimeters below any anthropogenic materials, using a shovel or hand auger, or other similar technique, at four spots equally spread around the exterior edge of each site, recording the locations of these units on the site map; 14. Sample the encountered features or deposits, using the methods described in the CRMMP, record their locations on the site map, retain samples, such as flotation, pollen, and charcoal, for analysis, and retain all artifacts for professionally appropriate laboratory analyses and curation, until data recovery is complete; 15. Present the results of the **CUL-11** data recovery in a letter report by the PPA or CRS, which shall serve as a preliminary report. Letter reports may address one site, or multiple sites depending on the needs of the CRS. The letter report shall be a concise document the provides description of the schedule and methods used in the field effort, a preliminary tally of the numbers and types of features and deposits that were found, a discussion of the potential range of error for that tally, a map showing the location of excavation units including topographic contours and the site landforms, and a discussion of the CRHR eligibility of each site and the justification for that determination;		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
16. Update the existing Department of Parks and Recreation (DPR) 523 site form for these sites, including new data on seasonal drainages, site boundaries, location of each individual artifact, the boundaries around individual artifact concentrations, the landform, and the eligibility determination; 17. Provide the recovered data to the PTNCL PI-Prehistoric Archaeologist; and 18. Present the final results of data recovery at these prehistoric sites in the CRR, as described in **CUL-6**.		
CUL-12, Data Recovery for Complex Prehistoric Sites: The project owner shall ensure the CRMMP includes a data recovery plan for the resource type "complex prehistoric sites," consisting of SMP-P-1017, SMP-P-1018, SMP-P-2018, and SMP-P-2023. This site list may be revised only with the agreement of the CRS and the CPM. The data recovery plan shall include how to proceed if buried deposits are encountered and shall also include the materials analyses and laboratory artifact analyses that will be used. The plan shall also specify in detail the location recordation equipment and methods used and describe any post-processing of the data. If allowed by the BLM, prior to the start of ground disturbance within 30 meters of the site boundaries of each of these sites, the project owner shall then ensure that the CRS, the PPA, and/or archaeological team members implement the plan, which shall include, but is not limited to, the following tasks: 1. Use location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers) to add to the original site maps the following features: seasonal drainages, site boundaries, location of each individual artifact, and the boundaries around individual artifact concentrations; 2. Request the PTNCL PG, or equivalent qualified person approved by the CPM and hired by the project owner should the PG not be available, to identify the specific landform for each site and its relationship to specific ancient lakeshores of Palen Dry Lake. If a lakeshore is present within 100 meters of the site boundary, include it on the site map; 3. Map any differential distribution of artifacts and suggest an explanation for this distribution; 4. Assess the integrity of the site and state the evidence substantiating that opinion; 5. Collect all artifacts after their locations are marked and submit them for laboratory analysis; 6. Excavate one 1-meter-by-1-meter unit in 10-centimeter levels until three sterile levels are encountered, or until the unit reaches maximum depth of planned impact, placing this unit in the part of the site with the highest artifact density; or, if multiple artifact concentrations were identified, place one 1-meter-by-1-meter excavation unit in the center of each concentration and excavate as just described; retain any artifacts for laboratory analysis; 7. Determine the vertical and horizontal limits of the each site by placing test units at four locations equally spread around the surface exterior edge and excavating or probing down to the Holocene basement, using a shovel, hand auger, or similar technique; continue exploration in all directions until the horizontal limits of the site are reached; retain any artifacts for laboratory analysis; 8. Excavate the surface feature or features, using the methods described in the CRMMP; record their locations on the site map, retain samples, such as flotation, pollen, and charcoal, for analysis, and retain all artifacts for professionally appropriate laboratory analyses and curation, until data recovery is complete;	1. At least 45 days prior to ground disturbance, the project owner shall notify the CPM that data recovery for large complex sites has ensued. 2. Within one week of the completion of data recovery at a site, the project owner shall verify this by submitting a letter report written by the PPA or CRS for review and approval of the CPM. When the CPM approves the letter report, ground disturbance may begin at these site locations.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
9. Notify the CPM by telephone or e-mail that subsurface deposits were or were not encountered and make a recommendation on the site's CRHR eligibility; 10. If no subsurface deposits were encountered, and the CPM agrees the site is not eligible for the CRHR, data recovery is complete; 11. If subsurface deposits were found, develop a sampling design for additional data recovery in consultation with the CRS; plans for this contingency shall be described in detail in the CRMMP; 12. Present the results of the **CUL-12** data recovery in a letter report by the PPA or CRS that shall serve as a preliminary report. Letter reports may address one site, or multiple sites depending on the needs of the CRS. The letter report shall be a concise document that provides description of the schedule and methods used in the field effort, a preliminary tally of the numbers and types of features and deposits that were found, a discussion of the potential range of error for that tally, and a map showing the location of excavation units including topographic contours and the site landforms; 13. Update the existing Department of Parks and Recreation (DPR) 523 site form for these sites, including new data on seasonal drainages, site boundaries, location of each individual artifact, the boundaries around individual artifact concentrations, and the landform; 14. Provide the recovered data to the PTNCL PI-Prehistoric Archaeologist; and 15. Present the final results of data recovery for the complex prehistoric sites in the CRR, as described in **CUL-6**.		
CUL-13, Data Recovery for Historic-Period Refuse Scatters: Prior to the start of ground disturbance, the project owner shall ensure that a recovery plan is included in the CRMMP for upgrading the recordation of historic-period refuse scatter sites located on the proposed plant site. For Reconfigured Alternative # 3, these consist of sites SMP-H-1003, SMP-H-1004, SMP-H-1006, SMP-H-1008, SMP-H-1009, SMP-H-1010, SMP-H-1011, SMP-H-1012, SMP-H- 1013, SMP-H-1020, SMP-H-1021, SMP-H 1022, SMP-H-1023, SMPH- 2002, SMP-H-2003, SMP-H-2004, SMP-H-2006, SMP-H-2007, SMP-H-2008, SMP-H-2010, SMP-H-2011/12, SMP-H-2017, SMP-H- 2019, SMP-H-2021; JR-101, JR-102, JR-104, JR-109, JR-110; TC- 008, TC-009, TC-020, and TC-032. For Reconfigured Alternative #2, the sites requiring upgraded recordation consist of the same sites as Reconfigured Alternative #3 plus site JR-107. These site lists may be revised only with the agreement of the CRS and the CPM. The focus of the recordation upgrade is to determine if these sites can be attributed to the DTC/C-AMA use of the region and are therefore contributors to the DTCCL. The plan shall specify in detail the location recordation equipment and methods to be used and describe any anticipated post-processing of the data. The project owner shall then ensure that the CRS, the PHA, and/or archaeological team members implement the plan, if allowed by the BLM, which shall include, but is not limited to the following tasks: 1. The project owner shall hire a PHA with the qualifications described in CUL-3 to supervise the field work. 2. The project owner shall ensure that, prior to beginning the field work, the PHA and crew chief are trained by the DTCCL Historical Archaeologist, or equivalent qualified person approved by the CPM and hired by the project owner should the DTCCL Historical Archaeologist not be available, to identify the specific landform for each site; in the identification, analysis and interpretation of the artifacts, environmental modifications, and trash disposal patterns associated with the	1. At least 45 days prior to ground disturbance, the project owner shall notify the CPM that mapping and upgraded in-field artifact analysis has ensued on the historic-period refuse scatter sites. 2. Within one week of completing data recovery at a site, the project owner shall submit to the CPM for review and approval a letter report written by the CRS, evidencing that the field portion of data recovery at each site has been completed. When the CPM approves the letter report, ground disturbance may begin at the site location(s) that are the subject of the letter report.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
early phases of WWII land-based U.S. army activities, as researched and detailed by the DTCCL PI-Historian and the DTCCL Historical Archaeologist. 3. The project owner shall ensure that, prior to beginning the field work, the field crew members are also trained in the consistent and accurate identification of the full range of late nineteenth and early- to mid-twentieth-century can, bottle, and ceramic diagnostic traits. 4. The project owner shall ensure that the original site map shall be updated to include at minimum: landform features such as small drainages, any man-made features, the limits of any artifact concentrations and features, using location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers). 5. The project owner shall ensure that a detailed in-field analysis of all artifacts shall be completed, documenting the measurements and the types of seams and closures for each bottle, and the measurements, seams, closure, and opening method for all cans. Photographs shall be taken of maker's marks on bottles, any text or designs on bottles and cans, and of decorative patterns and maker's marks on ceramics. Artifacts shall not be collected. 6. The project owner shall ensure that the details of what is found at each site shall be presented in a letter report from the CRS or PHA, which shall serve as a preliminary report, that details what was found at each site, as follows: a. Letter reports may address one site, or multiple sites depending on the needs of the CRS; and b. The letter report shall be a concise document that provides a description of the schedule and methods used in the field effort, a preliminary tally of the numbers and types of features and deposits that were found, a discussion of the potential range of error for that tally, and a map showing the location of collection and/or excavation units, including topographic contours and the site landforms. c. The letter report shall make a recommendation on whether each site is a contributor to the DTTCL. 7. The project owner shall ensure that the data collected from the field work shall be provided to the DTCCL Historical Archaeologist to assist in the determination of which, if any, of the historic-period sites are contributing elements to the DTCCL. 8. The project owner shall ensure that the PHA analyzes all recovered data and writes, or supervisors the writing of a comprehensive final report. This report shall be included in the CRR (CUL-6). Relevant portions of the information gathered shall be included in the possible NRHP nomination for the DTCCL (funded by CUL-2).		
CUL-14, Data Recovery for Historic-Period Sites with Features: Prior to the start of ground disturbance, the project owner shall ensure that a data recovery plan is included in the CRMMP for evaluation and data recovery from historic-period archaeological sites with features. For Reconfigured Alternative #3, these sites consist of sites SMP-H- 1005, SMP-H-1007, SMP-H-2016. For Reconfigured Alternative #2, these sites consist of the same sites as Reconfigured Alternative #3, plus site JR-108. These site lists may be revised only with the agreement of the CRS and the CPM. The plan shall specify in detail the location recordation equipment and methods to be used and describe any anticipated post-processing of the data. The project owner shall then ensure that the CRS, the PHA, and/or archaeological team members implement the plan, if allowed by the BLM, which shall include, but is not limited to the following tasks:	1. At least 45 days prior to ground disturbance, the project owner shall notify the CPM that mapping and in-field artifact analysis has ensued on historic-period sites with features. 2. Within one week of completing data recovery at a site, the project owner shall submit to the CPM for review and approval a letter report written by the CRS, evidencing	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
1. The project owner shall hire a PHA with the qualifications described in CUL-3 to supervise the field work. 2. The project owner shall ensure that, prior to beginning the field work, the PHA and crew chief are trained by the DTCCL Historical Archaeologist, or equivalent qualified person approved by the CPM and hired by the project owner should the DTCCL Historical Archaeologist not be available, in the identification, analysis and interpretation of the artifacts, environmental modifications, and trash disposal patterns associated with the early phases of WWII land-based U.S. army activities, as researched and detailed by the DTCCL PI-Historian and the DTCCL Historical Archaeologist. 3. The project owner shall ensure that, prior to beginning the field work, the field crew members are also trained in the consistent and accurate identification of the full range of late nineteenth and early-to-mid-twentieth-century can, bottle, and ceramic diagnostic traits. 4. The project owner shall ensure that the original site map shall be updated to include at minimum: landform features such as small drainages, any man-made features, the limits of any artifact concentrations and features (previously known and newly found in the metal detector survey), using location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers). 5. The project owner shall ensure that a detailed in-field analysis of all artifacts shall be completed, if not done previously. Types of seams and closures for each bottle and all cans shall be documented. Photographs shall be taken of any text or designs. Unusual or unidentifiable artifacts may be collected for further analysis, but otherwise artifacts shall not be collected. 6. The project owner shall ensure a systematic metal detector survey be completed at each site, and that each “hit” is investigated. All artifacts and features thus found must be mapped, measured, photographed, and fully described in writing. 7. The project owner shall ensure that all features are recorded, and that any features having subsurface elements are excavated by a qualified historical archaeologist. All features and contents must be mapped, measured, photographed, and fully described in writing. 8. The project owner shall ensure that the details of what is found at each site shall be presented in a letter report from the CRS or PHA which shall serve as a preliminary report, that details what was found at each site, as follows: a. Letter reports may address one site, or multiple sites depending on the needs of the CRS; and b. The letter report shall be a concise document that provides a description of the schedule and methods used in the field effort, a preliminary tally of the numbers and types of features and deposits that were found, a discussion of the potential range of error for that tally, and a map showing the location of collection and/or excavation units, including topographic contours and the site landforms. c. The letter report shall make a recommendation on whether each site is a contributor to the DTCCL. 9. The project owner shall ensure that the data collected from the field work shall be provided to the DTCCL Historical Archaeologist to assist in the determination of which, if any, of the historic-period sites are contributing elements to the DTCCL.	that the field portion of data recovery at each site has been completed. When the CPM approves the letter report, ground disturbance may begin at the site location(s) that are the subject of the letter report.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
CULTURAL RESOURCES (cont.)		
10. The project owner shall ensure that the PHA analyzes all recovered data and writes or supervises the writing of a comprehensive final report. This report shall be included in the CRR **(CUL-6**). Relevant portions of the information gathered shall be included in the possible NRHP nomination for the DTCCL (funded by **CUL-2**).		
CUL-15, Data Recovery on Historic-Period Roads: The project owner shall ensure that a qualified architectural historian (must meet the U.S. Secretary of the Interior's Professional Qualifications Standards for historian, as published in Title 36, Code of Federal Regulations, part 61) conducts research and writes a report on the age and use of SMP-H-1032. The project owner shall provide the historian's report to the DTCCL PI-Historian for possible use in the DTCCL NRHP nomination, if appropriate. The project owner may undertake this task prior to Energy Commission certification of the project.	1. At least 15 days prior to ground disturbance, the project owner shall submit to the CPM the historian's report documenting the age and historical use of the road. 2. Within 15 days after the CPM approves the report, the project owner shall forward it to the DTCCL PI-Historian.	CEC
CUL-16, Compliance with BLM Programmatic Agreement: If provisions in the BLM PSPP Programmatic Agreement and associated implementation and monitoring programs conflict with or duplicate these Conditions of Certification, the BLM provisions shall take precedence. Provisions in these Conditions that are additional to or exceed BLM provisions and represent requirements under the Energy Commission's CEQA responsibilities shall continue to apply to the project's activities, contingent on BLM's approval as authorized by federal law.		CEC
HAZARDOUS MATERIALS MANAGEMENT		
HAZ-1, Hazardous Material Requirements: The project owner shall not use any hazardous material not listed in, or in greater quantities or strengths than those identified by chemical name in Table 4.11-1 of Section 4.11, *Public Health and Safety*, unless approved in advance by the Compliance Project Manager (CPM).	The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials contained at the facility.	CEC
HAZ-2, Hazardous Materials Business Plan (HMBP): The project owner shall concurrently provide a Hazardous Materials Business Plan (HMBP), and Spill Prevention, Control, and Countermeasure Plan (SPCC), and a Process Safety Management Plan (PSMP) to the Riverside County Department of Environmental Health (RCDEH), to the Hazardous Materials Division of the Riverside County Fire Department (RCFD), and the CPM for review. After receiving comments from the RCDEH, Hazardous Materials Division of the RCFD and the CPM, the project owner shall reflect all received recommendations in the final documents. If no comments are received from the county within 30 days of submittal, the project owner may proceed with preparation of final documents upon receiving comments from the CPM. Copies of the final HMBP, RCFD shall then be provided to the Hazardous Materials Division of the Fire Department for information and to the CPM for approval.	At least 30 days prior to receiving any hazardous material on the site for commissioning or operations, the project owner shall provide a copy of a final Hazardous Materials Business Plan, Spill Prevention, Control, and Countermeasures Plan, and the Process Safety Management Plan to the CPM for approval.	CEC
HAZ-3, Safety Management Plan: The project owner shall develop and implement a Safety Management Plan for the delivery and handling of liquid and gaseous hazardous materials delivered by tanker truck or pipeline**.** The plan shall include procedures, protective equipment requirements, training and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of incompatible hazardous materials. This plan shall be applicable during construction, commissioning, and operation of the power plant.	At least 30 days prior to the delivery of any liquid or gaseous hazardous material to the facility, the project owner shall provide a Safety Management Plan as described above to the CPM for review and approval.	CEC/BLM

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
HAZARDOUS MATERIALS MANAGEMENT (cont.)		
HAZ-5, Construction Site Security Plan: Prior to commencing construction, a site-specific Construction Site Security Plan for the construction phase shall be prepared and made available to the CPM for review and approval. The Construction Security Plan shall include the following: 1. perimeter security consisting of fencing enclosing the construction area; 2. security guards; 3. site access control consisting of a check-in procedure or tag system for construction personnel and visitors; 4. written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on site or off site; 5. protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and 6. evacuation procedures.	At least 30 days prior to commencing construction, the project owner shall notify the CPM that a site-specific Construction Security Plan is available for review and approval.	CEC
HAZ-6, Operation Security Plan: The project owner shall also prepare a Operation Security Plan for the operational phases and shall be made available to the CPM for review and approval. The project owner shall implement site security measures that address physical site security and hazardous materials storage. The level of security to be implemented shall not be less than that described below (as per NERC 2002). The Operation Security Plan shall include the following: 1. Permanent full perimeter fence or wall, eight feet tall around the Power Block and Solar Field; 2. Main entrance security gate, either hand operatable or motorized; 3. Evacuation procedures; 4. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; 5. Written standard procedures for employees, contractors, and vendors when encountering suspicious objects or packages on site or off site; 6. A statement (refer to sample, **ATTACHMENT A**), signed by the project owner certifying that background investigations have been conducted on all project personnel. Background investigations shall be restricted to determine the accuracy of employee identity and employment history and shall be conducted in accordance with state and federal laws regarding security and privacy; A statement(s) (refer to sample, **ATTACHMENT B**), signed by the contractor or authorized representative(s) for any permanent contractors or other technical contractors (as determined by the CPM after consultation with the project owner), that are present at any time on the site to repair, maintain, investigate, or conduct any other technical duties involving critical components (as determined by the CPM after consultation with the project owner) certifying that background investigations have been conducted on contractors who visit the project site. Background investigations shall be restricted to ascertaining the accuracy of employee identity and employment history, and shall be conducted in accordance with state and federal law regarding security and privacy;	At least 30 days prior to the initial receipt of hazardous materials on site, the project owner shall notify the CPM that a site-specific operations site security plan is available for review and approval. In the annual compliance report, the project owner shall include a statement that all current project employee and appropriate contractor background investigations have been performed, and that updated certification statements have been appended to the operations security plan. In the annual compliance report, the project owner shall include a statement that the operations security plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
HAZARDOUS MATERIALS MANAGEMENT (cont.)		
7. Site access controls for employees, contractors, vendors, and visitors; 8. Closed circuit TV (CCTV) monitoring system, recordable, and viewable in the power plant control room and security station (if separate from the control room) with cameras capable of viewing, at a minimum, the main entrance; and 9. Additional measures to ensure adequate perimeter security consisting of either: A. Security guard present 24 hours per day, seven days per week; **or** B. Power plant personnel on site 24 hours per day, 7 days per week, and one of the following: 1) The CCTV monitoring system required in number 8 above shall include cameras that are able to pan, tilt, and zoom (PTZ), have low-light capability, are recordable, and are able to view 100% of the perimeter fence to the power block, the outside entrance to the control room, and the front gate from a monitor in the power plant control room; OR 2) Perimeter breach detectors or on-site motion detectors for the power block. The project owner shall fully implement the security plans and obtain CPM approval of any substantive modifications to those security plans. The CPM may authorize modifications to these measures, or may require additional measures, such as protective barriers for critical power plant components (e.g. transformers, gas lines, compressors, etc.) depending upon circumstances unique to the facility or in response to industry-related standards, security concerns, or additional guidance provided by the U.S. Department of Homeland Security, the U.S. Department of Energy, or the North American Electrical Reliability Council, after consultation with both appropriate law enforcement agencies and the applicant.		
PUBLIC HEALTH AND SAFETY		
PUBLIC HEALTH-1, Cooling Water Management Plan: The Project owner shall develop and implement a Cooling Water Management Plan to ensure that the potential for bacterial growth in cooling water is kept to a minimum. The Plan shall be consistent with either staff's "Cooling Water Management Program Guidelines" or with the Cooling Technology Institute's "Best Practices for Control of Legionella" guidelines but in either case, the Plan must include sampling and testing for the presence of Legionella bacteria at least every 6 months. After 2 years of power plant operations, the Project owner may ask the CPM to re-evaluate and revise the Legionella bacteria testing requirement.	At least 60 days prior to the commencement of cooling tower operations, the Cooling Water Management Plan shall be provided to the CPM for review and approval.	CEC
LAND USE, RECREATION, AND WILDERNESS		
LAND-1, Submittals to the CPM Prior to Construction: Prior to the start of construction, the Applicant shall provide to the Compliance Project Manager (CPM) documentation of the U.S. Bureau of Land Management (BLM) Right-of-Way grant and the BLM-approved project-specific amendment to the California Desert Conservation Area Plan (CDCA) permitting the construction/operation of the proposed Palen Solar Power Project.	Prior to the start of construction, the Applicant shall submit to the CPM a copy of the BLM approved project specific amendment to the CDCA Plan permitting the Palen Solar Power Project.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
NOISE		
NOISE-1, Public Notification Process: At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within one mile of the project site and the linear facilities, by mail or by other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project. If the telephone is not staffed 24 hours a day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction where it is visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.	Prior to ground disturbance, the project owner shall transmit to the compliance project manager (CPM) a statement, signed by the project owner's project manager, stating that the above notification has been performed, and describing the method of that notification. This communication shall also verify that the telephone number has been established and posted at the site, and shall provide that telephone number.	CEC
NOISE-2, Noise Complaint Process: Throughout the construction and operation of the project, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent shall: 1. use the Noise Complaint Resolution Form (below), or a functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint; 2. attempt to contact the person(s) making the noise complaint within 24 hours; 3. conduct an investigation to determine the source of noise in the complaint; 4. if the noise is project related, take all feasible measures to reduce the source of the noise; and 5. submit a report documenting the complaint and actions taken. The report shall include: a complaint summary, including the final results of noise reduction efforts and, if obtainable, a signed statement by the complainant stating that the noise problem has been resolved to the complainant's satisfaction.	Within five days of receiving a noise complaint, the project owner shall file a Noise Complaint Resolution Form, shown below, with both the local jurisdiction and the CPM, that documents the resolution of the complaint. If mitigation is required to resolve the complaint, and the complaint is not resolved within a 3-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is performed and complete.	CEC
NOISE-3, Employee Noise Control Program: The project owner shall submit to the CPM for review and approval a noise control program. The noise control program shall be used to reduce employee exposure to high (above permissible) noise levels during construction in accordance to the applicable OSHA and Cal-OSHA standards.	At least 30 days prior to the start of ground disturbance, the project owner shall submit the noise control program to the CPM. The project owner shall make the program available to Cal-OSHA upon request.	CEC
NOISE-4, Noise Restrictions: The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that the operation of the project will not cause the noise levels due to plant operation alone, during the daytime hours of 7 a.m. to 10 p.m. to exceed an average of 42 dBA Leq measured at or near monitoring location LT1. No new pure-tone components shall be caused by the project. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. A. When the project first achieves a sustained output of 85% or greater of rated capacity, the project owner shall conduct a 25 hour community noise survey at monitoring location LT1, or at a closer location acceptable to the CPM. This survey shall also include measurement of one-third octave band sound pressure levels to ensure that no new pure-tone noise components have been caused by the project.	The survey shall take place within 30 days of the project first achieving a sustained output of 85% or greater of rated capacity. Within 15 days after completing the survey, the project owner shall submit a summary report of the survey to the CPM. Included in the survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limit, and a schedule, subject to CPM approval, for implementing these measures. When these measures are in place, the project owner shall repeat the noise survey.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
NOISE (cont.)		
The measurement of power plant noise for the purposes of demonstrating compliance with this condition of certification may alternatively be made at a location, acceptable to the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the affected residence. The character of the plant noise shall be evaluated at the affected receptor locations to determine the presence of pure tones or other dominant sources of plant noise. B. If the results from the noise survey indicate that the power plant noise at the affected receptor site exceeds the above value during the above time period, mitigation measures shall be implemented to reduce noise to a level of compliance with this limit. C. If the results from the noise survey indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.	Within 15 days of completion of the new survey, the project owner shall submit to the CPM a summary report of the new noise survey, performed as described above and showing compliance with this condition.	
NOISE-5, Occupational Noise Survey: Following the project's attainment of a sustained output of 85% or greater of its rated capacity, the project owner shall conduct an occupational noise survey to identify any noise hazardous areas in the facility. The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, sections 5095 5099 (Article 105) and Title 29, Code of Federal Regulations, section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure. The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures to be employed in order to comply with the applicable California and federal regulations.	Within 30 days after completing the survey, the project owner shall submit the noise survey report to the CPM. The project owner shall make the report available to OSHA and Cal-OSHA upon request.	CEC
NOISE-6, Construction Restrictions: Heavy equipment operation and noisy construction work relating to any project features shall be restricted to the times delineated below, unless a special permit has been issued by the County of Riverside: Mondays through Fridays: June through September: 6 a.m. to 7 p.m. October through May: 6 a.m. to 6 p.m. Saturdays: 9 a.m. to 5 p.m. Sundays and Federal holidays: No Construction Allowed Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.	Prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project.	CEC
NOISE-7, High-Pressure Steam Blow Requirements: If a traditional, high-pressure steam blow process is used the project owner shall equip steam blow piping with a temporary silencer that quiets the noise of steam blows to no greater than 89 dBA measured at a distance of 100 feet. The steam blows shall be conducted between 8:00 a.m. and 5:00 p.m. unless arranged with the CPM such that offsite impacts would not cause annoyance to receptors. If a low-pressure, continuous steam blow process is used, the project owner shall submit to the CPM a description of the process, with expected noise levels and planned hours of steam blow operation.	At least 15 days prior to the first steam blow, the project owner shall notify all residents or business owners within one mile of the project site boundary. The notification may be in the form of letters, phone calls, fliers, or other effective means as approved by the CPM. The notification shall include a description of the purpose and nature of the steam blow(s), the planned schedule, expected sound levels, and explanation that it is a one-time activity and not part of normal plant operation.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER		
SOIL&WATER-1, Drainage Erosion and Sedimentation Control Plan (DESCP): Prior to site mobilization, the project owner shall obtain the Compliance Project Manager (CPM) approval of the Drainage Erosion and Sedimentation Control Plan (DESCP) for managing stormwater during Project construction and operations as normally administered by the County of Riverside. The DESCP must ensure proper protection of water quality and soil resources, demonstrate no increase in off-site flooding potential, include provisions for sediment and stormwater retention from both the power block, solar fields and transmission right of way to meet any Riverside County requirements, address exposed soil treatments in the solar fields for both road and non-road surfaces, and identify all monitoring and maintenance activities. The plan must also cover all linear project features such as offsite transmission mains. The DESCP shall contain, at minimum, the elements presented below that outline site management activities and erosion and sediment-control Best Management Practices (BMP) to be implemented during site mobilization, excavation, construction, and post construction (operating) activities. ***A. Vicinity Map*** – A map(s), at a minimum scale 1 inch to 500 feet, shall be provided indicating the location of all Project elements (construction sites, laydown area, pipelines) with depictions of all significant geographic features including swales, storm drains, and sensitive areas. ***B. Site Delineation*** – All areas subject to soil disturbance for the proposed Project (Project phases, laydown area, all linear facilities, landscaping areas, and any other Project elements) shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities. ***C. Watercourses and Critical Areas*** – The DESCP shall show the location of all nearby watercourses including swales, storm drains, and drainage ditches. It shall indicate the proximity of those features to the proposed Project construction, laydown, and landscape areas and all transmission and pipeline construction corridors. a. The DESCP shall describe how the project will avoid or minimize impacts to Palen-McCoy Valley sand corridor, b. All proposed linear features (with the exception of Power Pylons) shall be constructed flush with the surrounding ground surface and without ground level obstructions. ***D. Drainage Map*** – The DESCP shall provide a topographic site map(s), at a minimum scale of 1 inch to 200 feet, showing existing, interim, and proposed drainage swales and drainage systems and drainage-area boundaries. On the map, spot elevations are required where relatively flat conditions exist. The spot elevations and contours shall be extended off site for a minimum distance of 100 feet. ***E. Drainage of Project Site Narrative*** – The DESCP shall include a narrative of the drainage measures necessary to protect the site and potentially affected soil and water resources within the drainage downstream of the site. The narrative shall include the summary pages from the hydraulic analysis prepared by a professional engineer and erosion control specialist. The narrative shall state the watershed size(s) in acres that was used in the calculation of drainage features. ***F. Clearing and Grading Plans*** – The DESCP shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross sections, or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography shall be illustrated by tying in proposed contours with existing topography. ***G. Clearing and Grading Narrative*** – The DESCP shall include a table with the estimated quantities of material excavated or filled for the site and all Project elements (Project site, laydown area, transmission and pipeline corridors, roadways, and bridges) whether such excavation or fill is temporary or permanent, and the amount of such material to be imported or exported.	No later than 30 days prior to start of site mobilization, the Project owner shall submit a copy of the final DESCP to the County of Riverside, he CRBRWQCB, and the CPM for review and comment and to the County of Riverside and the CRBRWQCB if required. The CPM shall consider comments if received by the county and CRBRWQCB before approval of the DESCP. The DESCP shall be consistent with the grading and drainage plan and relevant portions of the DESCP shall clearly show approval by the chief building official. he DESCP shall be a separate plan from the SWPPP developed in conjunction with any National Pollutant Discharge Elimination System (NPDES) permit for construction Activity. The project owner shall provide in the monthly compliance report with a narrative on the effectiveness of the drainage, erosion, and sediment-control measures and the results of monitoring and maintenance activities. Once operational, the project owner shall update and maintain the ESCP for the life of the Project and shall provide in the annual compliance report information on the results of monitoring and maintenance activities.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
H. Soil Wind and Water Erosion Control – The plan shall address exposed soil treatments to be used during construction and operation of the proposed Project for both road and non-road surfaces including specifically identifying all chemical based dust palliatives, soil bonding, and weighting agents appropriate for use at the proposed Project site that would not cause adverse effects to vegetation. BMPs shall include measures designed to prevent wind and water erosion including application of chemical dust palliatives after rough grading to limit water use. All dust palliatives, soil binders, and weighting agents shall be approved by the CPM prior to use. ***I. Best Management Practices Plan –*** The DESCP shall identify on the topographic site map(s) the location of the site specific BMPs to be employed during each phase of construction (initial grading, Project element excavation and construction, and final grading/stabilization). BMPs shall include measures designed to control dust, stabilize construction access roads and entrances, and control stormwater runoff and sediment transport. ***J. Best Management Practices Narrative –*** The DESCP shall show the location (as identified in (I) above), timing, and maintenance schedule of all erosion- and sediment-control BMPs to be used prior to initial grading, during all Project element (site, pipelines) excavations and construction, final grading/stabilization, and operation. Separate BMP implementation schedules shall be provided for each Project element for each phase of construction. The maintenance schedule shall include post-construction maintenance of structural-control BMPs, or a statement provided about when such information would be available. ***K. Project Schedule –*** The DESCP shall identify on the topographic site map the location of the site-specific BMPs to be employed during each phase of construction (initial grading, Project element construction, and final grading/stabilization). Separate BMP implementation schedules shall be provided for each Project element for each phase of construction. ***L. Erosion Control Drawings –*** The erosion-control drawings and narrative shall be designed, stamped and sealed by a professional engineer or erosion control specialist. ***M. Agency Comments –*** The DESCP shall include copies of recommendations, conditions, and provisions from the County of Riverside, California Department of Fish and Game (CDFG), and Colorado River Basin Regional Water Quality Control Board (CRBRWQCB). ***N. Monitoring Plan*****:** Monitoring activities shall include routine measurement of the volume of accumulated sediment in the onsite drainage ditches, and stormwater diversions. The monitoring plan shall be part of the Channel Monitoring and Maintenance Plan, **SOIL&WATER-12**.		
SOIL&WATER-2, Groundwater Wells, Pre-Well Installation: The project owner proposes to construct and operate up to ten (10) onsite groundwater water supply wells that produce water from the CVGB. The project owner shall ensure that the wells are completed in accordance with all applicable state and local water well construction permits and requirements. Prior to initiation of well construction activities, the project owner shall submit for review and comment a well construction packet to the County of Riverside and fees normally required for the county's well permit, with copies to the CPM. The Project shall not construct a well or extract and use groundwater until approval has been issued by the County and the CPM to construct and operate the well. Wells permitted and installed as part of preconstruction field investigations that subsequently are planned for use as project water supply wells require CPM approval prior to their use to supply water to the project. ***Post-Well Installation*****.** The project owner shall provide documentation as required under County permit conditions to the CPM that the well has been properly completed. In accordance with California's Water Code section 13754, the driller of the well shall submit to the DWR a Well Completion Report for each well installed. The project owner shall ensure the Well	The project owner shall do all of the following: a. No later than 60 days prior to the construction of the onsite groundwater production wells, the project owner shall submit to the CPM a copy of the water well construction packet submitted to the County of Riverside. b. No later than 30 days prior to the construction of the onsite groundwater production wells, the project owner shall submit a copy of written concurrence received from the County of Riverside that the proposed well construction activities comply with all county well requirements and meet the requirements established by the county's water	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
Completion reports are submitted. The project owner shall ensure compliance with all county water well standards and the County requirements for the life of the wells, and shall provide the CPM with two (2) copies each of all monitoring or other reports required for compliance with the County of Riverside water well standards and operation requirements, as well as any changes made to the operation of the well.	well permit program. The CPM will provide approval to the project owner of the well location and operation within 10 days of receipt of the County of Riverside's concurrence with the proposed well construction activities. c. No later than 60 days after installation of each well at the Project site, the project owner shall ensure that the well driller submits a Well Completion Report to the DWR with a copy provided to the CPM. The project owner shall submit to the CPM together with the Well Completion Report a copy of well drilling logs, water quality analyses, and any inspection reports. Additionally no later than 60 days after installation of each well (including closure of any associated mud pits) the project owner shall submit documentation to the CPM and the CRBWQCB that well drilling activities were conducted in compliance with Title 23, California Code of Regulations, Chapter 15, Discharges of Hazardous Wastes to Land, (23 CCR, sections 2510 et seq.) and that any onsite drilling sumps used for Project drilling activities were removed in compliance with 23 CCR section 2511(c). d. During well construction and for the operational life of the well, the project owner shall submit two copies each to the CPM of any proposed well construction or operation changes.	
SOIL&WATER-3, Construction and Operation Water Use: The proposed Project's use of groundwater during construction shall not exceed 400 afy (total of 1,130 af during the 34 months) during construction and 201 afy during operation. Water quality used for project construction and operation shall be reported in accordance with Condition of Certification **SOIL&WATER-18** to ensure compliance with this condition. Prior to the use of groundwater for construction, the project owner shall install and maintain metering devices as part of the water supply and distribution system to document Project water use and to monitor and record in gallons per day the total volume(s) of water supplied to the Project from this water source. The metering devices shall be operational for the life of the Project.	At least 60 days prior to the start of construction of the proposed Project, the project owner shall submit to the CPM a copy of evidence that metering devices have been installed and are operational. Beginning six months after the start of construction, the project owner shall prepare a semi-annual summary of amount of water used for construction purposes. The summary shall include the monthly range and monthly average of daily water usage in gallons per day. The project owner shall prepare an annual summary, which shall include daily usage, monthly range and monthly average of daily water usage in gallons per day, and total water used on a monthly and annual basis in acre-feet. For years subsequent to the initial year of operation, the annual summary shall also include the yearly range and yearly average water use by source. For calculating the total water use, the term "year" shall correspond to the date established for the annual compliance report submittal.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
SOIL&WATER-4, Groundwater Level Monitoring, Mitigation and Reporting: The project owner shall submit a Groundwater Level Monitoring, Mitigation, and Reporting Plan to the CPM for review and approval in advance of construction activities and prior to the operation of onsite groundwater supply wells. The Groundwater Level Monitoring, Mitigation, and Reporting Plan shall provide detailed methodology for monitoring background and site groundwater levels. Monitoring shall include pre-construction, construction, and Project operation water use. The plan shall establish pre-construction and Project related groundwater level and water quality trends that can be quantitatively compared against observed and simulated trends near the Project pumping wells and near potentially impacted existing wells. ***A. Prior to Project Construction*** 1. A well reconnaissance shall be conducted to investigate and document the condition of existing water supply wells located within 3 miles of the project site, provided that access is granted by the well owners. The reconnaissance shall include sending notices by registered mail to all property owners within a 3 mile radius of the project area. 2. Monitor to establish preconstruction conditions. The monitoring plan and network of monitoring wells shall make use of existing wells in the basin that would satisfy the requirements for the monitoring program. The monitoring network shall be defined by the groundwater model developed for the AFC as the area predicted to show a water level change of 1 feet or more at the end of construction and at the end of operation and any monitoring wells that are installed to comply with Waste Discharge Requirements issued by the Energy Commission for the evaporation ponds and land treatment unit associated with the Project. The projected area of groundwater drawdown shall be refined on an annual basis during project construction and every three (3) years during project operations using the data acquired as part of Condition of Certification SOIL&WATER-4 as well as the numerical groundwater model developed as part of the AFC and subsequent Data Responses by the applicant. If the area predicted to show a water level change of 1 feet increases, the project owner will be required to submit a revised monitoring plan with additional monitoring wells (if required). 3. Identified additional wells shall be located outside of this area to serve as background monitoring wells. Abandoned wells, or wells no longer in use, that are accessible and provide reliable water level data within the potentially impacted area shall also be included as part of the monitoring network. A site reconnaissance shall be performed to identify wells that could be accessible for monitoring. As access to these wells is available, historic water level, water quality, well construction and well performance information shall be obtained for both pumping and non-pumping conditions. 4. As access allows, measure groundwater levels from the off-site and on-site wells within the network and background wells to provide initial groundwater levels for pre-project trend analysis. 5. Construct water level maps within the CVGB within 5 miles of the site from the groundwater data collected prior to construction. Update trend plots and statistical analyses, as data is available. ***B. During Construction:*** 1. Collect water levels from wells within the monitoring network and flows from seeps and or springs on a quarterly basis throughout the construction period and at the end of the construction period. Perform statistical trend analysis for water levels. Assess the significance of an apparent trend and estimate the magnitude of that trend.	The project owner shall do all of the following: At least 60 days prior to operation of the site groundwater supply wells, the project owner shall submit to the CPM, a comprehensive report presenting all the data and information required in item A above. The CPM will provide comments to the plan 15 days following submittal, and the final plan shall be approved 15 days prior to operation of the site groundwater supply wells. The project owner shall submit to the CPM all calculations and assumptions made in development of the report data and interpretations. During Project construction, the project owner shall submit to the CPM quarterly reports presenting all the data and information required in item B above. The quarterly reports shall be provided 30 days following the end of the quarter. The project owner shall also submit to the CPM all calculations and assumptions made in development of the report data and interpretations. No later than March 31 of each year of construction or 60 days prior to Project operation, the project owner shall provide to the CPM for review and approval, documentation showing that any mitigation to private well owners during Project construction was satisfied, based on the requirements of the property owner as determined by the CPM. During Project operation, the project owner shall submit to the CPM, applicable quarterly, semi-annual and annual reports presenting all the data and information required in item C above. Quarterly reports shall be submitted to the CPM 30 days following the end of the quarter. The fourth quarter report shall serve as the annual report and shall be provided on January 31 in the following year. The project owner shall submit to the CPM all calculations and assumptions made in development of report data and interpretations, calculations, and assumptions used in development of any reports.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
C. During Operation: 1. On a quarterly basis for the first year of operation and semiannually thereafter for the following four years, collect water level measurements from any wells identified in the groundwater monitoring program to evaluate operational influence from the Project. Quarterly operational parameters (i.e., pumping rate) of the water supply wells shall be monitored. Additionally, quarterly groundwater-use in the CVGB shall be estimated based on available data. 2. On an annual basis, perform statistical trend analysis for water levels data and comparison to predicted water level declines due to project pumping. Analysis of the significance of an apparent trend shall be determined and the magnitude of that trend estimated. Based on the results of the statistical trend analyses and comparison to predicted water level declines due to Project pumping, the project owner shall determine the area where the Project pumping has induced a drawdown in the water supply at a level of 5 feet or more below the baseline trend. 3. If water levels have been lowered more than 5 feet below presite operational trends, and monitoring data provided by the project owner show these water level changes are different from background trends and are caused by Project pumping, then the project owner shall provide mitigation to the impacted well owner(s). Mitigation shall be provided to the impacted well owners that experience 5 feet or more of Project-induced drawdown if the CPM's inspection of the well monitoring data confirms changes to water levels and water level trends relative to measured pre-project water levels, and the well (private owners well in question) yield or performance has been significantly affected by Project pumping. The type and extent of mitigation shall be determined by the amount of water level decline induced by the Project, the type of impact, and site specific well construction and water use characteristics. If an impact is determined to be caused by drawdown from more than one source, the level of mitigation provided shall be proportional to the amount of drawdown induced by the Project relative to other sources. In order to be eligible, a well owner must provide documentation of the well location and construction, including pump intake depth, and that the well was constructed and usable before Project pumping was initiated. The mitigation of impacts shall be determined as follows: a. If Project pumping has lowered water levels by 5 feet or more and increased pumping lifts, increased energy costs shall be calculated. Payment or reimbursement for the increased costs shall be provided at the option of the affected well owner on an annual basis. In the absence of specific electrical use data supplied by the well owner, the project owner shall use **SOIL&WATER-5** to calculate increased energy costs. b. If groundwater monitoring data indicate Project pumping has lowered water levels below the top of the well screen, and the well yield is shown to have decreased by 10% or more of the pre-Project average seasonal yield, compensation shall be provided for the diagnosis and maintenance to treat and remove encrustation from the well screen. Reimbursement shall be provided at an amount equal to the customary local cost of performing the necessary diagnosis and maintenance for well screen encrustation. Should the well yield reductions be recurring, the project owner shall provide payment or reimbursement for periodic maintenance throughout the life of the Project. If with treatment the well yield is incapable of meeting 110% of the well owner's maximum daily demand, dry season demand, or annual demand the well owner should be compensated by reimbursement or well replacement as described under Condition 3.c. c. If Project pumping has lowered water levels to significantly impact well yield so that it can no longer meet its intended purpose, causes the well to go dry, or cause casing collapse, payment or reimbursement of an amount equal to the cost of deepening or replacing the well shall be provided to accommodate these effects. Payment or reimbursement shall be at an amount equal to the customary local cost of deepening the existing well or constructing a new well of comparable design and yield (only deeper). The demand for water, which determines the	After the first five year operational and monitoring period, the project owner shall submit a 5 year monitoring report to the CPM that includes all monitoring data collected and a summary of the findings. The CPM will determine if the water level measurements and water quality sampling frequencies should be revised or eliminated.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
required well yield, shall be determined on a per well basis using well owner interviews and field verification of property conditions and water requirements compiled as part of the pre-project well reconnaissance. Well yield shall be considered significantly impacted if it is incapable of meeting 110% of the well owner's maximum daily demand, dry-season demand, or annual demand – assuming the pre-project well yield documented by the initial well reconnaissance met or exceeded these yield levels. d. The project owner shall notify any owners of the impacted wells within one month of the CPM approval of the compensation analysis for increased energy costs. e. Pump lowering – In the event that groundwater is lowered as a result of Project pumping to an extent where pumps are exposed but well screens remain submerged the pumps shall be lowered to maintain production in the well. The Project shall reimburse the impacted well owner for the costs associated with lowering pumps. f. Deepening of wells – If the groundwater is lowered enough as a result of Project pumping that well screens and/or pump intakes are exposed, and pump lowering is not an option, such affected wells shall be deepened or new wells constructed. The project owner shall reimburse the impacted well owner for all costs associated with deepening existing wells or constructing new wells shall be borne by the project owner. 4. After the first five-year operational and monitoring period the CPM shall evaluate the data and determine if the monitoring program for water level measurements should be revised or eliminated. Revision or elimination of any monitoring program elements shall be based on the consistency of the data collected. The determination of whether the monitoring program should be revised or eliminated shall be made by the CPM. 5. If mitigation includes monetary compensation, the project owner shall provide documentation to the CPM that compensation payments have been made by March 31 of each year of Project operation or, if lump-sum payments are made, payment is made by March 31 following the first year of operation only. Within 30 days after compensation is paid, the project owner shall submit to the CPM a compliance report describing compensation for increased energy costs necessary to comply with the provisions of this condition. 6. At the end of every subsequent five-year monitoring period, the collected data shall be evaluated by the CPM and they shall determine if the sampling frequency should be revised or eliminated. 7. During the life of the Project, the project owner shall provide to the CPM all monitoring reports, complaints, studies and other relevant data within 10 days of being received by the project owner.		
SOIL&WATER-5, Increased Energy Costs : Where it is determined that the project owner shall reimburse a private well owner for increased energy costs identified as a result of analysis performed in Condition of Certification **SOIL&WATER-4,** the project owner shall calculate the compensation owed to any owner of an impacted well as described below. Increased Cost for Energy = Change in lift/total system head x total energy consumption x costs/unit of energy Where: Change in lift (ft) = calculated change in water level in the well resulting from project total system head (ft) = elevation head + discharge pressure head elevation head (ft) = difference in elevation between wellhead discharge pressure gauge and water level in well during pumping. discharge pressure head (ft) = pressure at wellhead discharge gauge (psi) X 2.31	The project owner shall do all of the following: 1. No later than 30 days after CPM approval of the well drawdown analysis, the project owner shall submit to the CPM for review and approval all documentation and calculations describing necessary compensation for energy costs associated with additional lift requirements. 2. The project owner shall submit to the CPM all calculations, along with any letters signed by the well owners indicating agreement with the calculations, and the name and phone numbers of those well owners that do not agree with the calculations.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
The project owner shall submit to the CPM for review and approval the documentation showing which well owners must be compensated for increased energy costs and that the proposed amount is sufficient compensation to comply with the provisions of this condition. 1. Any reimbursements (either lump sum or annual) to impacted well owners shall be only to those well owners whose wells were in service within six months of the Commission decision and within a 5-mile radius of the project site. 2. The project owner shall notify all owners of the impacted wells within one month of the CPM approval of the compensation analysis for increase energy costs. 3. Compensation shall be provided on either a one-time lump-sum basis, or on an annual basis, as described below. ***Annual Compensation*:** Compensation provided on an annual basis shall be calculated prospectively for each year by estimating energy costs that will be incurred to provide the additional lift required as a result of the project. With the permission of the impacted well owner, the project owner shall provide energy meters for each well or well field affected by the project. The impacted well owner to receive compensation must provide documentation of energy consumption I the form of meter readings or other verification of fuel consumption. For each year after the first year of operation, the project owner shall include an adjustment for any deviations between projected and actual energy costs for the previous calendar year. ***One-Time Lump-Sum Compensation*:** Compensation provided on a one-time lump-sum basis shall be based on a well-interference analysis, assuming the maximum project-pumping rate of 300 afy. Compensation associated with increased pumping lift for the life of the project shall be estimated as a lump sum payment as follows: 4. The current cost of energy to the affected party considering time of use or tiers of energy cost applicable to the party's billing of electricity from the utility providing electric service, or a reasonable equivalent if the party independently generates their electricity; 5. An annual inflation factor for energy cost of 3%; and 6. A net present value determination assuming a term of 30 years and a discount rate of 9%;	Compensation payments shall be made by March 31 of each year of project operation or, if lump-sum payment is selected, payment shall be made by March 31 of the first year of operation only. Within 30 days after compensation is paid, the project owner shall submit to the CPM a compliance report describing compensation for increased energy costs necessary to comply with the provisions of this condition.	
SOIL&WATER-6, Water Discharge Requirements: The project owner shall comply with the requirements specified in Appendix B, C, and D. These requirements relate to discharges, or potential discharges, of waste that could affect the quality of waters of the state, and were developed in consultation with staff of the State Water Resources Control Board and/or the applicable California Regional Water Quality Control Board (hereafter "Water Boards"). It is the Commission's intent that these requirements be enforceable by both the Commission and the Water Boards. In furtherance of that objective, the Commission hereby delegates the enforcement of these requirements, and associated monitoring, inspection and annual fee collection authority, to the Water Boards. Accordingly, the Commission and the Water Board shall confer with each other and coordinate, as needed, in the enforcement of the requirements. The project owner shall pay the annual waste discharge permit fee associated with this facility to the Water Boards. In addition, the Water Boards may "prescribe" these requirements as waste discharge requirements pursuant to Water Code Section 13263 solely for the purposes of enforcement, monitoring, inspection, and the assessment of annual fees, consistent with Public Resources Code Section 25531, subdivision (c).	The Project owner shall follow the groundwater quality monitoring requirements as provided in SOIL&WATER-18 by providing Groundwater Quality Monitoring and Reporting Plan 90 days prior to operation of water supply wells for construction activities. The plan shall provide methods and procedures for monitoring background water quality, and site groundwater quality related to operation of the waste management units. Well locations, groundwater sampling procedures and analytical methods shall be provided consistent with requirements stipulated in the Waste Discharge Requirements provided in Appendix B, C and D. No later than 60 days prior to any wastewater discharge or use of land treatment units, the project owner shall provide documentation to the CPM, with copies to the CRBRWQCB,	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
	demonstrating compliance with the WDRs established in Appendices B, C, and D. Any changes to the design, construction, or operation of the evaporation basins, treatment units, or storm water system shall be requested in writing to the CPM, with copies to the CRBRWQCB, and approved by the CPM, in consultation with the CRBRWQCB, prior to initiation of any PSPP Soil and Water Opening Testimony Page 5 changes. The project owner shall provide to the CPM, with copies to the CRBRWQCB, all monitoring reports required by the WDRs, and fully explain any violations, exceedances, enforcement actions, or corrective actions related to construction or operation of the evaporation basins or treatment units.	
SOIL&WATER-7, Septic System and Leach Field Requirements: The project owner shall comply with the requirements of the County of Riverside Ordinance Code Title 8, Chapter 8.124 and the California Plumbing Code (California Code of Regulations Title 24, Part 5) regarding sanitary waste disposal facilities such as septic systems and leach fields. The septic system and leach fields shall be designed, operated, and maintained in a manner that ensures no deleterious impact to groundwater or surface water. Compliance shall include an engineering report on the septic system and leach field design, operation, maintenance, and loading impact to groundwater.	The project owner shall submit all necessary information and the appropriate fee to the County of Riverside and the CRBRWQCB to ensure that the project has complied with county and state sanitary waste disposal facilities requirements. Written assessments prepared by the County of Imperial and the CRBRWQCB regarding the project's compliance with these requirements must be submitted to the AO and CPM for review and approval 30-days prior to the start of power plant operation.	CEC
SOIL&WATER-14, Mitigation of Impacts to the Palo Verde Mesa Groundwater Basin: To mitigate the impact from Project pumping, the Project owner shall identify and implement offset measures to mitigate the increase in discharge from surface water to groundwater that affects recharge in the Palo Verde Valley Groundwater Basin (USGS). The project owner shall implement **SOIL&WATER-17** to evaluate the change in recharge over the life of the project including any latency effects from Project pumping. The activities shall include the following water conservation projects: payment for irrigation improvements in Palo Verde Irrigation District, payment for irrigation improvements in Imperial Irrigation District, purchase of water rights within the Colorado River Basin that will be held in reserve, and/or BLM's Tamarisk Removal Program or other proposed mitigation activities acceptable to the CPM. The activities proposed for mitigation shall be outlined in a Water Offset Plan that will be provided to the CPM for review and approval and which shall include the following at a minimum: A. Identification of the water offsets as determined in SOIL&WATER-17; B. Demonstration of the Project owner's ability to conduct the activity; C. Whether any governmental approval of the identified offset will be needed, and if so, whether additional approval will require compliance with CEQA or NEPA; D. Demonstration of how much water is provided by each of the offset measures; E. An estimated schedule for completion of the activities;	The project Owner shall submit a Water Offset Plan to the CPM for review and approval thirty (30) days before the start of extraction of groundwater for construction or operation. The Project owner shall implement the activities reviewed and approved in the Water Offset Plan in accordance with the agreed upon schedule in the Water Offset Plan. If agreement with the CPM on identification or implementation of offset activities cannot be achieved the Project owner shall immediately halt construction or operation until the agreed upon activities can be identified and implemented.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
F. Performance measures that would be used to evaluate the amount of water replaced by the proposed offset measure; and, G. A Monitoring and Reporting Plan outlining the steps necessary and proposed frequency of reporting to show the activities are achieving the intended benefits of the water supply offsets;		
SOIL&WATER-15, Groundwater Production Reporting: The Project is subject to the requirement of Water Code Sections 4999 et. seq. for reporting of groundwater production in excess of 25 acre feet per year.	The project owner shall file an annual "Notice of Extraction and Diversion of Water" with the SWRCB in accordance with Water Code Sections4999 et. seq. The project owner shall include a copy of the filing in the annual compliance report.	CEC
SOIL&WATER 16, Groundwater Subsidence Monitoring and Action Plan: One monument monitoring station per production well or a minimum of three stations shall be constructed to measure potential inelastic subsidence that may alter surface characteristics of the Chuckwalla Valley near the proposed production wells. The applicant shall: A. Prepare and submit a Subsidence Monitoring Plan (SMP). The plan shall include the following elements: 1. Construction diagrams of the proposed monument monitoring station including size and description, planned depth, measuring points, and protection measures; 2. Map depicting locations (minimum of three) of the planned monument monitoring stations; 3. Monitoring program that includes monitoring frequency, thresholds of significance, reporting format. B. Prepare quarterly reports commencing three (3) months following commencement of groundwater production during construction and operations. 1. The reports shall include presentation and interpretation of the data collected including comparison to the thresholds developed in Item C. C. Prepare a Mitigation Action Plan that details the following: 1. Thresholds of significance for implementation of proposed action plan; a. Any subsidence that may occur will not be allowed to damage existing structures either on or off the site or alter the appearance or use of the structure; b. Any subsidence that may occur will not be allowed to alter the natural drainage patterns or permit the formation of playas or lakes; c. Any subsidence that violates (a) or (b) will result in the project owner investigating the need to immediately reduce/cease pumping until the cause is identified or subsidence caused by project pumping abates and the structures and/or drainage patterns are stabilized and corrected. 2. Action Plan that details proposed actions by the applicant in the event thresholds are achieved during the monitoring program. The applicant shall submit the Ground Subsidence Monitoring and Action Plan that is prepared by an Engineering Geologist registered in the State of California 30 days prior to the start of extraction of groundwater for construction or operation.	The project owner shall do all of the following: 1. At least 30 days prior to project construction, the project owner shall submit to the CPM, a comprehensive report presenting all the data and information required in item A above. 2. The project owner shall submit to the CPM all calculations and assumptions made in development of the SMP. 3. During Project construction and operations, the project owner shall submit to the CPM quarterly reports presenting all the data and information required in item B above. 4. The project owner shall submit to the CPM all calculations and assumptions made in development of the report data and interpretations. 5. After the first five years of the monitoring period, the project owner shall submit a 5-year monitoring report to the CPM that submits all monitoring data collected and provides a summary of the findings. The CPM will determine if the Ground Subsidence Monitoring and Action Plan frequencies should be revised or eliminated.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
SOIL&WATER 17, Estimation of Surface Water Impacts: To further assess the impacts from Project pumping, the Project owner shall estimate the increase in discharge from surface water to groundwater that affects recharge in the Palo Verde Valley Groundwater Basin (PVVGB)(USGS). This estimate may be used for determining the appropriate offset volume in accordance with **SOIL&WATER-14**. The Project owner shall do the following to provide an estimate for review and approval by the CPM: 1. The Project owner shall conduct a detailed analysis of the affect from Project pumping on at the end of the 30 year operational period the change in groundwater outflow from the Chuckwalla Valley Groundwater Basin to the Palo Verde Valley and how the change in outflow may affect recharge of surface water to the PVVGB from the Project's groundwater extraction activities. The detailed analysis shall include: a. The conceptual model developed in the AFC and the Staff Assessment, for the Chuckwalla Valley Groundwater Basin and the Palo Verde Valley, and any changes resultant from further analysis in support of numerical modeling; b. The use of an appropriately constructed groundwater model 1.) for the eastern portion of the Chuckwalla Valley Groundwater Basin that describes the effect from Project pumping on the outflow of groundwater to the Palo Verde Valley, and 2.) an appropriately constructed groundwater model of the Palo Verde Valley, inclusive of the mesa and floodplain. The models shall be coupled as appropriate to determine the effect from Project pumping on the surface water recharge in the Palo Verde Valley. Each model shall be constructed in consideration of the following: i. Horizontal and vertical geometry information gained through on- and offsite investigations conducted as part of the hydrogeological field investigations for the AFC, and any subsequently documented investigation performed as part of the model development ; ii. Aquifer properties developed as part of the AFC and any subsequently documented investigations performed as part of the model development, and an assessment of aquifer properties available from other published sources. The properties used shall be representative of the available data; and iii. The modeling effort shall include a sensitivity analysis where in the most sensitive variables will be identified and varied within a reasonable range outside of the calibration value to provide an assessment of the range of potential impacts from the Project pumping on the recharge from the Palo Verde Valley Groundwater Basin. c. Reporting of the results of the modeling effort d. Estimation of the increased contribution of surface water discharge to groundwater and the change in recharge to the Palo Verde Valley Groundwater Basin attributable to Project groundwater pumping. 2. The analysis shall include the following elements: a. The change in groundwater flux to the regional aquifer from surface water sources attributable to Project pumping in afy for the life of the Project (30 years) until pre-project (within 95%) conditions are achieved; b. A sensitivity analysis that would provide a range in the potential changes in flux relative to variation in the key model variables within each model as a result of Project pumping for life of the Project until pre-project (within 95%) conditions are achieved; 3. The project owner shall present the results of the conceptual model, numerical model, transient runs and sensitivity analysis in a report for review and approval by the CPM. The report shall include all pertinent information regarding the development of the numerical models. The report shall include as discussion of the following as appropriate to each model:	Within thirty (30) days following certification of the proposed Project, the project owner shall submit to the CPM for their review and approval a report detailing the results of the modeling effort. The report shall include the estimated amount of change in discharge from surface water to groundwater within the Palo Verde Valley due to Project pumping. This estimate shall be used for determining the appropriate volume of water for offset in accordance with **SOIL&WATER-14**.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
a. Introduction b. Previous Investigations c. Conceptual Model d. Numerical Model and Input Parameters e. Sensitivity Analysis f. Transient Modeling Runs g. Conclusions		
SOIL&WATER-18, Groundwater Quality Monitoring and Reporting Plan: The project owner shall submit a Groundwater Quality Monitoring and Reporting Plan to the CPM for review and approval. The Groundwater Quality Monitoring and Reporting Plan shall provide a description of the methodology for monitoring background and site groundwater quality following the Waste Discharge Requirements of **SOIL&WATER-6**, to assess the effects from pumping on changes in the aquifer water chemistry, and to monitor potential impacts from operation of proposed septic leach fields, if required. The initial background water quality sampling shall be implemented during the background groundwater level monitoring events in accordance with **SOIL&WATER-4**. Prior to project construction, access to offsite wells shall be obtained and samples collected and monitoring wells shall be installed to evaluate background water quality in the shallow and deep regional aquifer in areas that will be affected by Project pumping. These data will be used to establish pre-construction water quality that can be quantitatively compared against data gathered during construction and operation to assess if project pumping or a release from the waste management units (See **SOIL&WATER-6**), or septic systems (if required) has adversely affected the water supply or sensitive receptors. 1. A Groundwater Quality Monitoring and Reporting Plan shall be submitted to the CPM 90 days prior to operation of the water supply wells for construction. The Plan shall include a scaled map showing the site and vicinity, existing well locations, and proposed monitoring locations (both existing wells and new monitoring wells proposed for construction). Additional monitoring wells that shall be installed include wells required in accordance with Condition of Certification **SOIL&WATER-6**, for the evaporation ponds and land treatment unit proposed for the project, and if required for the sanitary leachfield system. The map shall also include relevant natural and man-made features (existing and proposed as part of this project). The plan also shall provide: (1) well construction information and borehole lithology for each existing well proposed for use as a monitoring well; (2) description of proposed drilling and well installation methods; (3) proposed monitoring well design; and, (4) schedule for completion of the work. 2. A Well Monitoring Installation and Groundwater Quality Network Report shall be submitted to the CPM for review and approval in conjunction with Condition of Certification **SOIL&WATER-4** and 60 days prior to operation of the water supply wells. The report shall include a scaled map showing the final monitoring well network. It shall document the drilling methods employed, provide individual well construction as-builds, borehole lithology recorded from the drill cuttings, well development, and well survey results. The well survey shall measure the location and elevation of the top of the well casing and reference point for all water level measurements, and shall include the coordinate system and datum for the survey measurements. Additionally, the report shall describe the water level monitoring equipment employed in the wells and document their deployment and use. 3. As part of the monitoring well network development, all newly constructed monitoring wells shall be constructed consistent with State and Riverside County specifications.	The project owner shall complete the following: At least 90 days prior to construction, a Groundwater Level and Quality Monitoring and Reporting Plan shall be submitted to the CPM for review and approval. At least 60 days prior to construction, a Well Monitoring Installation and Groundwater Level Network Report shall be submitted to the CPM for review and approval. At least 60 days prior to use of any groundwater for construction, all groundwater quality and groundwater level monitoring data shall be reported to the CPM. On a semiannual basis water quality data shall be collected during construction and 5 years following initial operation. The results of the monitoring will be reported on a semiannual basis, one month following the end of the 1st and 3rd quarters.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
4. Prior to use of any groundwater for construction, all groundwater quality and groundwater level monitoring data shall be reported to the CPM in the Well Monitoring Installation and Groundwater Quality Network Report that is due in conjunction with the background water level monitoring report under **SOIL&WATER-4** and 60 days prior to construction. The report shall include the following: a. An assessment of pre-project groundwater levels, a summary of available climatic information (monthly average temperature and rainfall records from the nearest weather station), and a comparison and assessment of water level data relative to the assumptions and spatial trends simulated by the applicant's groundwater model. b. An assessment of pre-project groundwater quality with groundwater samples analyzed for those constituents required under the Waste Discharge Requirements (Appendix B, C and D) and if not included total dissolved solids (TDS), chloride, nitrates, major cations and anions, oxygen-18 and deuterium isotopes, and soluble metals. c. The data shall be tabulated and include the estimated range (minimum and maximum values), average, and median for each constituent analyzed. If a sufficient number of data points are available from the background sampling, the data shall also be analyzed using the Mann-Kendall test for trend at 90% confidence to assess whether pre-project water quality trends, if any, are statistically significant. 5. During project construction and during the first five years of project operations, the project owner shall semi-annually monitor the quality of groundwater and changes in groundwater elevation and submit data semiannually to the CPM one month following the end of the 1st and 3rd quarter and following the operation reporting requirement under **SOIL&WATER-4**. After five years of project operations, the frequency and scope of the monitoring program shall be reassessed by the CPM. The semi-annual report shall document water level monitoring methods, the water level data, water level plots, and a comparison between pre- and post-project start-up water level trends as itemized below. The report shall also include a summary of actual water use conditions, monthly climatic information (temperature and rainfall) from the nearest meteorological monitoring station, and a comparison and assessment of water level data relative to the assumptions and simulated spatial trends predicted by the applicant's groundwater model. a. Groundwater samples from all wells in the monitoring well network shall be analyzed and reported semi-annually for those constituents required in the Waste Discharge Requirements (Appendix B, C and D) and if not included TDS, chloride, nitrates, cations and anions, oxygen-18 and deuterium isotopes. b. For analysis purposes, pre-project water quality shall be defined by samples collected prior to project construction as specified above, and compliance data shall be defined by samples collected after the construction start date to determine the effects from Project pumping and after the installation and operation of the waste management units in compliance with the Waste Discharge Requirements (Appendix B, C and D) and the sanitary leachfields, if required. c. Trends in water quality data shall be analyzed using the Mann- Kendall test for trend at the 90% confidence. Trends in the compliance data shall be compared and contrasted to pre-project trends, if any. d. The contrast between pre-project and compliance mean or median concentrations shall be compared using an Analysis of Variance (ANOVA) or other appropriate statistical method approved by the CRBRWQCB for evaluation of water quality impacts. A parametric ANOVA (for example, an F-test) can be conducted on the two data sets if the residuals between observed and expected values are normally distributed and have equal variance, or the data can be transformed to an approximately normal distribution. If the data cannot be represented by a normal distribution, then a nonparametric ANOVA shall be conducted (for example, the Kruskal-Wallis test). If a statistically significant		

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
SOIL AND WATER (cont.)		
difference is identified at 90% confidence between the two data sets, the monitoring data are inconsistent with random differences between the pre-project and baseline data indicating a significant water quality impact from project pumping may be occurring. e. If compliance data to evaluate the effects from Project pumping or potential impacts from operation of sanitary leachfield indicate that the water supply quality has deteriorated in (exceeds pre-project constituent concentrations in TDS, sodium, chloride, or other constituents identified as part of the monitoring plan and applicable Water Quality Objectives are exceeded for the applicable beneficial uses of the water supply) adjacent water supply wells that can be shown to be adversely influenced by Project Pumping for three consecutive years, the Project owner shall provide well-head treatment or a new water supply to either meet or exceed pre-project water quality conditions to any impacted water supply wells.		
SOIL&WATER-19, Non-Transient, Non-Community Water System: The Project is subject to the requirement of Title 22, Article 3, Sections 64400.80 through 64445 for a non-transient, non-community water system (serving 25 people or more for more than six months). In addition, the system shall require periodic monitoring for various bacteriological, inorganic and organic constituents.	The project owner shall submit the equivalent County of Riverside requirements to operate a non-transient, non-community water system with the County of Riverside at least 60 days prior to commencement of operations at the site. In addition, the project owner shall submit to the CPM a monitoring and reporting plan for production wells operated as part of the domestic water supply system prior to plant operations. The plan shall include reporting requirements including monthly, quarterly and annual submissions. The project owner shall designate a California Certified Water Treatment Plant Operator as well as the technical, managerial and financial requirements as prescribed by State law. The project owner shall supply updates on an annual basis of monitoring requirements, any required submittals equivalent to the County of Riverside requirements including annual renewal requirements.	CEC
SPECIAL DESIGNATIONS		
MM-SD-01: The NPS shall be afforded the opportunity to review and comment on the following pre-construction plans required for the project prior to approval of the plans by the BLM and CPUC: the Weed Management Plan (BIO-14), Dust Control Plans (AQ-SC-3 and AQ-SC-7), and Construction Traffic Control Plan (TRANS-4). Review and comment by the NPS must be within time frames specified by the BLM.	The project owner shall submit the identified plans to NPS for a 30-day review and comment period before BLM may approve the plans. The project owner shall provide a copy of the transmittal to NPS of the plans (with or without attachments) to BLM for verification.	BLM
MM-SD-02: The Applicant shall enter into a funding agreement or other financial mechanism, as may be specified in the ROD or ROW grant, to reimburse the NPS for reasonable costs incurred in the monitoring of the following measures (whether applicant proposed or BLM-recommended) to address temporary indirect impacts on the Joshua Tree National Park:	The project owner shall submit proof that a funding agreement or other financial mechanism has been entered into by and between the project owner and the NPS before the BLM will issue an NTP for the commencement of construction activities at the site.	BLM

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
SPECIAL DESIGNATIONS (cont.)		
1. Fugitive dust: AQ-SC-3 and AQ-SC-7, requiring the development and implementation of dust control plans during construction and operations, and SOIL&WATER-1(H), requiring the development and implementation of measures designed to prevent wind and water erosion including application of chemical dust palliatives after rough grading to limit water use. 2. Noise: NOISE-6, limiting most construction activity to daytime hours. 3. Nighttime lighting: VIS-3, requiring the design and installation of a lighting mitigation plan concerning temporary and permanent exterior lighting.		
MM-SD-03: A Signage and Guidance Plan shall be developed for JTNP by the Applicant and reviewed and approved by both the NPS and the BLM prior to the start of construction of the project. The intent of this plan is to address the potential indirect effects on NPS land as a result of the influx of workers associated with the mobilization, construction, and demobilization of the project. The plan shall include the following elements: 1. Design and installation of directional and informational signage that identify areas of JTNP available for day, overnight, and long-term stays; off-limit areas; and pertinent park rules and regulations; 2. Design and installation of strategically placed gates, bollards, or the like, inside the boundary of JTNP, where deemed necessary, for the purpose of vehicular control on NPS parkland located nearest the project boundary; 3. Educational instruction for project construction workers on park rules and regulations pertinent to JTNP and Joshua Tree Wilderness Area. This instruction shall be integrated into the Worker Environmental Awareness Program; 4. Requirements for the retention and/or removal of any items installed as part of the plan following completion of construction of the project; and, 5. Funding mechanism for implementing the plan. Items installed as part of the plan shall have a nexus to the NPS's need to address the likely impacts associated with above normal numbers of users of JTNP facilities during the mobilization, construction, and demobilization period of the project.	The project owner shall submit to BLM the Signage and Guidance Plan and proof of NPS's approval of it before the BLM will issue an NTP for the commencement of construction activities at the site.	BLM
TRAFFIC AND TRANSPORTATION		
TRANS-1, Regulation Compliance: The project owner shall comply with limitations imposed by Caltrans District 8 and other relevant jurisdictions, including the County of Riverside, on vehicle sizes and weights and driver licensing. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.	In the Monthly Compliance Reports (MCRs), the project owner shall report permits received during that reporting period. In addition, the project owner shall retain copies of permits and supporting documentation on-site for Compliance Project Manager (CPM) inspection if requested.	CEC
TRANS-2, Transport of Hazardous Materials: The project owner shall ensure that permits and/or licenses are secured from the California Highway Patrol and Caltrans for the transport of hazardous materials.	In the MCRs, the project owner shall report permits and/or licenses for hazardous substance transportation received during that reporting period. In addition, the project owner shall retain copies of permits, licenses, and supporting documentation on-site for CPM inspection if requested.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
TRAFFIC AND TRANSPORTATION (cont.)		
TRANS-3, Repair and Restoration of Roads: The project owner shall restore all public roads, easements, and rights-of-way that have been damaged due to project-related construction activities to original or near-original condition in a timely manner, as directed by BLM's Authorized Officer and the CPM. Repair and restoration of access roads may be required at any time during the construction phase of the project to assure safe ingress and egress.	At least 30 days prior to the start of mobilization, the project owner shall photograph or videotape all affected public roads, easements, and right-of-way segments and/or intersections and shall provide the CPM and the affected local jurisdictions and Caltrans (if applicable) with a copy of these images. The project owner shall rebuild, repair and maintain all public roads, easements, and rights-of-way in a usable condition throughout the construction phase of the project. At least 30 days prior to the start of site mobilization, the project owner shall consult with the County of Riverside and Caltrans District 8 and notify them of the proposed schedule for project construction. The purpose of this notification is to request that the County of Riverside and Caltrans consider postponement of public right-of-way repair or improvement activities in areas affected by project construction until construction is completed and to coordinate with the project owner regarding any concurrent construction-related activities that are planned or in progress and cannot be postponed. Within 60 calendar days after completion of construction, the project owner shall meet with the CPM, the County of Riverside, and Caltrans District 8 to identify sections of public right-of-way to be repaired. At that time, the project owner shall establish a schedule to complete the repairs and to receive approval for the action(s). Following completion of any public right-of-way repairs, the project owner shall provide to the CPM a letter signed by the County of Riverside and Caltrans District 8 stating their satisfaction with the repairs.	
TRANS-4, Traffic Control Plan (TCP): Prior to the start of construction of the PSPP, the project owner shall prepare and implement a Traffic Control Plan (TCP) for the PSPP's construction and operations traffic. The TCP shall address the movement of workers, vehicles, and materials, including arrival and departure schedules and designated workforce and delivery routes. The project owner shall consult with the County of Riverside and the California Department of Transportation (Caltrans) District 8 office in the preparation and implementation of the Traffic Control Plan (TCP). The project owner shall submit the proposed TCP to the County of Riverside and the Caltrans District 8 office in sufficient time for review and comment, and to the Energy Commission Compliance Project Manager (CPM) for review and approval prior to the proposed start of construction and implementation of the plan. The CPM shall review and approve the TCP or identify any material deficiencies within thirty (30) days of receipt. The project owner shall provide a copy of any written	At least 60 calendar days prior to the start of construction, including any grading or site remediation on the power plant site or its associated easements, the project owner shall submit the proposed TCP to the County of Riverside and the Caltrans District 8 office for review and comment and to the CPM for review and approval. The project owner shall also provide the CPM with a copy of the transmittal letter to the County of Riverside and the Caltrans District 8 office requesting review and comment.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
TRAFFIC AND TRANSPORTATION (cont.)		
comments from the County of Riverside and the Caltrans District 8 office and any changes to the TCP to the CPM prior to the proposed start of construction. The Traffic Control Plan (TCP) shall include: 1. A work schedule and end-of-shift departure plan designed to ensure that stacking does not occur at intersections necessary to enter and exit the project sites. The project owner shall consider using one or more of the following measures designed to prevent stacking: staggered work shifts, off-peak work schedules, and/or restricting travel to and departures from each project site to 10 or fewer vehicles every three minutes during peak travel hours on I- 10. 2. Provisions for an incentive program, such as employer-sponsored commuter checks, to encourage construction workers to carpool and/or use van or bus service. 3. Limitation of truck deliveries at the project site to only off-peak hours. 4. A heavy-haul plan addressing the transport and delivery of heavy and oversized loads requiring permits from the California Department of Transportation (Caltrans) or other state or federal agencies. 5. Timing of heavy equipment and building material delivery to the sites 6. Parking for workforce and construction vehicles. 7. Emergency vehicle access to the project site. 8. Provisions for redirection of construction traffic with a flag person as necessary to ensure traffic safety and minimize interruptions to non-construction related traffic flow. 9. Placement of signage, lighting, and traffic control devices at the project construction site and laydown areas. 10. Placement of signage along northbound Corn Springs Road and at the entrance of each of the I-10 westbound and eastbound offramps at Corn Springs Road notifying drivers of construction traffic throughout the duration of the construction period. 11. Placement of signage to redirect traffic from Corn Springs Road during construction activities related to roadway realignments and pipeline installation in and across the Corn Springs Road right-of-way 12. Temporary closing of travel lanes, if necessary. 13. Access to adjacent residential and commercial property during the construction of all linears		
TRANS-5, Encroachment Permits: The project owner or contractor shall comply with Caltrans' and other relevant jurisdictions' limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans and any other relevant jurisdictions.	In the MCRs, the project owner shall report permits received during that reporting period. In addition, for at least six months after the start of commercial operation, the project owner shall retain copies of permits and supporting documentation on-site for CPM inspection if requested.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
TRAFFIC AND TRANSPORTATION (cont.)		
TRANS-6, Heliostat Positioning Plan: The project owner shall prepare and implement a Heliostat Positioning Plan that would minimize potential for human health and safety hazards and bird injury or mortality from solar radiation exposure. The Heliostat Positioning Plan shall accomplish the following: 1) Identify the heliostat movements and positions (including reasonably possible malfunctions) that could result in potential exposure of observers at various locations including in aircraft, motorists, pedestrians and hikers in nearby wilderness areas to reflected solar radiation from heliostats; 2) Assess the effects of the potential glint and glare associated with the proposed heliostat positions and movements determined through Item 1. The assessment shall quantify the potential glint and glare effects and determine public health, safety, and visual impacts at KOPs identified in the PSEGS Draft SEIS. In addition, the analysis shall identify the maximum project-related glint and glare that could be experienced by motorists along I-10. The assessment shall be conducted by qualified individuals using appropriate and commonly accepted software and procedures. The assessment results must be made available to the BLM in advance of project approval. If the project design is changed during the siting and design process such that substantial changes to glint and glare effects may occur, glint and glare effects shall be recalculated, and the results shall be made available to BLM; 3) Describe within the HPP how programmed heliostat operation would address potential human health and safety hazards at locations of observers, and would limit or avoid potential for harm to birds; 4) Prepare a monitoring plan that would: a) obtain field measurements in candela per meters squared and watts per meter squared to validate that the Heliostat Positioning Plan would avoid potential for human health and safety hazards consistent with the methodologies detailed in the 2010 Sandia Lab document presented by Clifford Ho, et al1, including those referenced studies and materials within related to ocular damage, and b) provide requirements and procedures to document, investigate and resolve legitimate human health and safety hazard complaints prioritizing localized response (e.g., screening at location of complaint) regarding daytime intrusive light. 5) The monitoring plan should be made available to interested parties including CalTrans, CHP, FAA, and the Department of Defense (DOD) Southwest Renewable Energy Work Group and be updated on an annual basis for the first 5 years, and at 2-year intervals thereafter for the life of the project.	Within 90 days before commercial operation, the project owner shall submit a Heliostat Positioning Plan (HPP) to the CPM for review and approval. The project owner shall also submit the plan to potentially interested parties that may include CalTrans, CHP, FAA, and the Department of Defense (DOD) Southwest Renewable Energy Work Group for review and comment and forward any comments received to the CPM.	
TRANS-7, Power Tower Luminance Monitoring Plan: The project owner shall prepare a Power Tower LMVR Plan to provide procedures to conduct measurements and to document complaints regarding distraction effects to aviation, vehicular and pedestrian traffic associated with the PSEGS solar receiver tower. The Power Tower LMVR Plan shall include provisions for the following: 1) Provide measurement data within 30 days to potentially interested parties that may include CalTrans, CHP, FAA, and the Department of Defense (DOD) Southwest Renewable Energy Work Group for review and comment, and to the CPM for review and approval. 2) Measurement of luminance at the locations where any distraction effects have been reported and at the locations nearest the solar receiver tower from the four sides of the power plant boundary, and the nearest public road, which may be substituted for one of the sides of the solar receiver tower during the time of day when values would be highest; 3) Measurement of luminance using an illuminance meter, photometer, or similar device and reporting of data in photometric units (candelas per meter squared and watts per meter squared); the measurements are intended to	No later than 60 days prior to RSEP commercial operation, the project owner shall provide a Power Tower LMVR Plan applicable to PSEGS for review and approval by the CPM. The plan shall specify procedures to document and investigate complaints regarding intrusive light, and report these to the CPM within 10 days of receiving a complaint. The project owner shall measure the intensity of the luminance of light in candelas per meter squared and watts per meter squared reflected from the solar receiver tower according to the following: A. Within 90 days following commercial operation;	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
TRAFFIC AND TRANSPORTATION (cont.)		
provide a relative and quantifiable measure of luminance that can be associated with any observed and reported distraction effect from the solar receiver tower. 4) Provisions for documenting reported distraction and if the solar receiver tower is identified as a safety concern; the project owner shall consider reasonable localized mitigation measures that are technically and financially feasible. The localized mitigation measures may include signage for or screening of the affected area or other reasonable measures. 5) Post-mitigation verification; Within 30 days following the implementation of mitigation measures designed to reduce localized impact of the solar receiver tower, the project owner shall repeat the luminance measurements to demonstrate the effectiveness of mitigation measures and provide the new measurement data for review and comment by interested parties that may include CalTrans, CHP, FAA, and the Department of Defense (DOD) Southwest Renewable Energy Work Group, and for review and approval by the CPM.	B. If a major design change is implemented that results in an increase of the reflective luminance of the PSEGS solar receiver tower; and C. After receiving a complaint regarding a distraction associated with the central solar receiver from a location where previous measurements were not taken.	
TRANS-8, Solar Receiver Tower Obstruction Marking and Lighting: The project owner shall install obstruction marking and lighting on the solar receiving tower, consistent with both the FAA and DOD requirements, as expressed in the following documents: • FAA Advisory Circular 70/7460-1K, Change 2: Obstruction Marking and Lighting, 24-hour medium-strobes; • Air Force Aviation Safety: Flight Safety Flash 09-01; and • FAA Safety Alert for Operators (SAFO) 09007. Temporary lighting shall be installed on the top of the structure once the construction height has exceeded 200 feet AGL, activated within five days of installation, and maintained in operation 24 hours a day, 7 days a week until construction is complete. Permanent lighting consistent with all requirements shall be installed and activated within five days of completion of construction. Lighting shall be operational 24 hours a day, 7 days a week, for the life of the project and until such time as the tower no longer exists at a height exceeding 200 feet AGL. Upgrades to the required lighting configurations, types, location, or duration shall be implemented consistent with any changes to FAA or DOD obstruction marking and lighting requirements.	At least 60 days prior to the start of construction, the project owner shall submit final design plans for the power plant solar receiving tower that depict the required air traffic obstruction marking and lighting to the CPM for approval. Within five days of completion of the solar receiving tower to a height exceeding 200 feet AGL, the project owner shall install and activate temporary obstruction marking and lighting at the top of the structure and shall maintain temporary lighting at the top of said structure until construction of the tower is complete. The project owner shall inform the CPM in writing within 10 days of the time the lighting is first installed and activated. Within five days of completion of the tower construction, the project owner shall install and activate permanent obstruction marking and lighting consistent with both FAA and DOD requirements and shall inform the CPM in writing within 10 days of installation and activation. The lighting shall be inspected and approved by the CPM (or designate inspector) within 30 days of activation.	
TRANSMISSION LINE SAFETY AND NUISANCE		
TLSN-1, EMF Reduction Guidelines: The project owner shall construct the proposed transmission line (anywhere along the area identified by the applicant as available for its routing) according to the requirements of (a) California Public Utility Commission's GO-95, GO-52, GO-131-D, Title 8, and Group 2, (b) the High Voltage Electrical Safety Orders, sections 2700 through 2974 of the California Code of Regulations, and (3) Southern California Edison's EMF reduction guidelines.	At least 30 days before starting the transmission line or related structures and facilities, the project owner shall submit to the Compliance Project Manager (CPM) a letter signed by a California registered electrical engineer affirming that the lines will be constructed according to the requirements stated in the condition.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
TRANSMISSION LINE SAFETY AND NUISANCE (cont.)		
TLSN-2, Measurements of Electric and Magnetic Fields: The project owner shall use a qualified individual to measure the strengths of the electric and magnetic fields from the line at the points of maximum intensity along the route for which the applicant provided specific estimates. The measurements shall be made before and after energization according to the American National Standard Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) standard procedures. These measurements shall be completed no later than 6 months after the start of operations.	The project owner shall file copies of the pre-and post-energization measurements with the CPM within 60 days after completion of the measurements.	CEC
TLSN-3, Transmission Line Distance from Combustible Material: The project owner shall ensure that the rights-of-way of the proposed transmission line are kept free of combustible material, as required under the provisions of section 4292 of the Public Resources Code and section 1250 of Title 14 of the California Code of Regulations.	During the first five years of plant operation, the project owner shall provide a summary of inspection results and any fire prevention activities carried out along the right-of-way and provide such summaries in the Annual Compliance Report on transmission line safety and nuisance-related requirements.	CEC
TLSN-4, Grounding Permanent Metallic Objects: The project owner shall ensure that all permanent metallic objects within the right-of-way of the project-related lines are grounded according to industry standards regardless of ownership.	At least 30 days before the lines are energized, the project owner shall transmit to the CPM a letter confirming compliance with this condition.	CEC
VISUAL RESOURCES		
VIS-1, Surface Treatment of Project Structures and Buildings: The project owner shall treat the surfaces of all project structures and buildings visible to the public such that a) their colors minimize visual intrusion and contrast by blending with (matching) the existing characteristic landscape colors; b) their colors and finishes do not create excessive glare; and c) their colors and finishes are consistent with local policies and ordinances. The transmission line conductors shall be non-specular and non-reflective, and the insulators shall be non-reflective and non-refractive. Grouped structures shall be painted the same color to reduce visual complexity and color contrast. Following in-field consultation with the Energy Commission/BLM Visual Resources specialist and other representatives as deemed necessary, the project owner shall submit for Compliance Project Manager (CPM) review and approval, a specific Surface Treatment Plan that will satisfy these requirements. The treatment plan shall include: A. A description of the overall rationale for the proposed surface treatment, including the selection of the proposed color(s) and finishes based on the characteristic landscape. Colors will be fielded tested using the actual distances from the KOPs to the proposed structures, using the proposed colors painted on representative surfaces; B. A list of each major project structure, building, tank, pipe, and wall; the transmission line towers and/or poles; and fencing, specifying the color(s) and finish proposed for each. Colors must be identified by vendor, name, and pantone number; or according to a universal designation system; C. One set of color brochures or color chips showing each proposed color and finish; D. A specific schedule for completion of the treatment; and	At least 90 days prior to specifying to the vendor the colors and finishes of the first structures or buildings that are surface treated during manufacture, the project owner shall submit the proposed treatment plan to BLM's Authorized Officer and the CPM for review and approval and simultaneously to Riverside County for review and comment. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a plan with the specified revision(s) for review and approval by BLM's Authorized Officer and the CPM before any treatment is applied. Any modifications to the treatment plan must be submitted to BLM's Authorized Officer and the CPM for review and approval. Prior to the start of commercial operation, the project owner shall notify BLM's Authorized Officer and the CPM that surface treatment of all listed structures and buildings has been completed and they are ready for inspection and shall submit to each one set of electronic color photographs from the same key observation points identified in (d) above. The project owner shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
VISUAL RESOURCES (cont.)		
E. A procedure to ensure proper treatment maintenance for the life of the project. The project owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated in the field, until the project owner receives notification of approval of the treatment plan by BLM's Authorized Officer and the CPM. Subsequent modifications to the treatment plan are prohibited without BLM's Authorized Officer and CPM approval.	The report shall specify a): the condition of the surfaces of all structures and buildings at the end of the reporting year; b) maintenance activities that occurred during the reporting year; and c) the schedule of maintenance activities for the next year.	
VIS-2, Revegetation of Disturbed Soil Areas: The project owner shall revegetate disturbed soil areas to the greatest practical extent, as described in Condition of Certification BIO 8. In order to address specifically visual concerns, the required Closure, Revegetation and Rehabilitation Plan shall include reclamation of the area of disturbed soils used for laydown, project construction, and siting of the substation and other ancillary operation and support structures.	Refer to Condition of Certification BIO 8.	CEC
VIS-3, Temporary and Permanent Exterior Lighting: In addition to measures identified in VIS-6, and to the extent feasible, consistent with safety and security considerations, the project owner shall design and install all permanent exterior lighting and all temporary construction lighting such that a) lamps and reflectors are not visible from beyond the project site, including any off-site security buffer areas; b) lighting does not cause excessive reflected glare; c) direct lighting does not illuminate the nighttime sky, except for required FAA aircraft safety lighting (which should be an on-demand, visual warning system that is triggered by radar technology if allowed by FAA regulations and if the cost is no more than $1 million for both towers); d) illumination of the project and its immediate vicinity is minimized, and e) the plan complies federal and state OSHA and with local policies and ordinances. The project owner shall submit to BLM's Authorized Officer and the CPM for review and approval, and simultaneously to the County of Riverside and NPS Joshua Tree NP (see VIS-6) for review and comment a lighting mitigation plan that includes the following: A. Location and direction of light fixtures shall take the lighting mitigation requirements into account; B. Lighting design shall consider setbacks of project features from the site boundary to aid in satisfying the lighting mitigation requirements; C. Lighting shall incorporate fixture hoods/shielding, with light directed downward or toward the area to be illuminated; D. Light fixtures that are visible from beyond the project boundary shall have cutoff angles that are sufficient to prevent lamps and reflectors from being visible beyond the project boundary, except where necessary for security; E. All lighting shall be of minimum necessary brightness consistent with operational safety and security; and F. Lights in high illumination areas not occupied on a continuous basis (such as maintenance platforms) shall have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied.	At least 90 days prior to ordering any permanent exterior lighting or temporary construction lighting, the project owner shall contact BLM's Authorized Officer the CPM, and NPS Joshua Tree NP to discuss the documentation required in the lighting mitigation plan. At least 60 days prior to ordering any permanent exterior lighting, the project owner shall submit to BLM's Authorized Officer and, the CPM for review and approval and simultaneously to the County of Riverside and NPS Joshua Tree NP for review and comment a lighting mitigation plan. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a revised plan for review and approval by BLM's Authorized Officer and the CPM. The project owner shall not order any exterior lighting until receiving BLM Authorized Officer and CPM approval of the lighting mitigation plan. Prior to commercial operation, the project owner shall notify BLM's Authorized Officer and the CPM that the lighting has been completed and is ready for inspection. If after inspection, BLM's Authorized Officer and the CPM notify the project owner that modifications to the lighting are needed, within 30 days of receiving that notification the project owner shall implement the modifications and notify BLM's Authorized Officer and the CPM that the modifications have been completed and are ready for inspection. Within 48 hours of receiving a lighting complaint, the project owner shall provide BLM's Authorized Officer and the CPM with a complaint resolution form report as specified in the Compliance General Conditions including a proposal to	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
VISUAL RESOURCES (cont.)		
	resolve the complaint, and a schedule for implementation. The project owner shall notify BLM's Authorized Officer and the CPM within 48 hours after completing implementation of the proposal. A copy of the complaint resolution form report shall be submitted to BLM's Authorized Officer and the CPM within 30 days.	
VIS-4, Project Design: To the extent possible, the project owner will use proper design fundamentals to reduce the visual contrast to the characteristic landscape. These include proper siting and location; reduction of visibility; repetition of form, line, color (see VIS 1) and texture of the landscape; and reduction of unnecessary disturbance. Design strategies to address these fundamentals will be based on the following factors: Earthwork: Select locations and alignments that fit into the landforms to minimize the size of cuts and fills. Avoid hauling in or hauling out of excess earth cut or fill. Avoid rounding and/or warping slopes. Retain existing rock formations, vegetation, and drainage. Tone down freshly broken rock faces with emulsions or stains. Use retaining walls to reduce the amount and extent of earthwork. Retain existing vegetation by using retaining walls or fill slopes, reducing surface disturbance, and protecting roots from damage during excavations. Avoid soil types that generate strong color contrasts. Reduce dumping or sloughing of excess earth and rock on downhill slopes. Vegetation Manipulation: Retain as much of the existing vegetation as possible. Use existing vegetation to screen the development from public viewing. Use scalloped, irregular cleared edges to reduce line contrast as determined in VIS-1. Use irregular clearing shapes to reduce form contrast. Feather and thin the edges of cleared areas and retain a representative mix of plant species and sizes. Structures: Minimize the number of structures and combine different activities in one structure. Use natural, self-weathering materials and chemical treatments on surfaces to reduce color contrast. Bury all or part of the structure. Use natural appearing forms to complement the characteristic landscape. Screen the structure from view by using natural land forms and vegetation. Reduce the line contrast created by straight edges. Signs: The use of signs and project construction signs shall be minimized. Necessary signs shall be made of nonglare materials and utilize unobtrusive colors. The reverse sides of signs and mounts shall be painted or coated by using the most suitable color selected from the BLM Standard Environmental Color Chart to reduce color contrasts with the existing landscape; however, placements and design of any signs required by safety regulations must conform to regulatory requirements. Linear Alignments: Use existing topography to hide induced changes associated with roads, lines, and other linear features. Select alignments that follow landscape contours. Avoid fall-line cuts and bisecting ridge tops. Hug vegetation lines and avoid open areas such as valley bottoms. Cross highway corridors and less sharp angles. The visual color contrast of graveled surfaces shall be reduced with approved color treatment practices. Construction: No paint or permanent discoloring agents shall be applied to rocks or vegetation to indicate surveyor construction activity limits. All stakes and flagging shall be removed from the construction area upon completion of construction and disposed of in an approved facility. Reclamation and Restoration: Reduce the amount of disturbed area and blend the disturbed areas into the characteristic landscape. Replace soil, brush, rocks, and natural debris over disturbed area. Newly introduce plant species should be of a form, color, and texture that blends with the landscape.	As early as possible in the site and facility design, the project owner shall meet with the CPM to discuss incorporation of these above factors into the design plans. At least 90 days prior to final site and facility design, the project owner shall contact the CPM to review the incorporation of the above factors into the final facility and site design plans. If the CPM determines that the site and facility plans require revision, the project owner shall provide to the CPM a revised plan for review and approval by the CPM.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
VISUAL RESOURCES (cont.)		
VIS-5 (Previously Identified as BLM-VIS-1), Power Block and Power Tower Appearance: In addition to the measures identified in VIS-1, the project owner shall paint power blocks structures and other vertical construction shadow gray as shown on the BLM Color Chart. The solar tower can be left untreated concrete. The backs of heliostat mirrors shall also be designed to minimize reflectivity.	Refer to VIS-1.	CEC
VIS-6 (Previously Identified as BLM-VIS-2), Consultation with NPS Night Sky Program Manager: In addition to the measures identified in VIS-3, the project owner shall consult with the National Park Service Night Sky Program Manager in the development of the lighting plan, and comply with stricter standards for light intensity. Any such lighting plan shall not conflict with federal requirements for lighting. All permanent light sources shall be below 3,500 Kelvin color temperature (warm white) and shall have cutoff angles not to exceed 45 degrees of nadir. All lights, temporary and permanent, are to be fully shielded such that the emission of light above the horizontal will be prevented. Prior to construction, the Applicant and SCE shall submit to the BLM, CPUC, and NPS Joshua Tree NP for review and approval a Lighting Mitigation Plan that includes the following: 1. Specification that LPS or amber LED lighting will be emphasized, and that white lighting (metal halide) would (a) only be used when necessitated by specific work tasks, (b) not be used for dusk-to-dawn lighting, and (c) would be less than 3500 Kelvin color temperature; 2. Specification and map of all lamp locations, orientations, and intensities, including security, roadway, and task lighting; 3. Specification of each light fixture and each light shield; 4. Total estimated outdoor lighting footprint, expressed as lumens or lumens per acre; 5. Definition of the threshold for substantial contribution to light pollution in JTNP, in coordination with the Night Sky Program Manager (see below); 6. Specifications on the use of portable truck-mounted lighting; 7. Specification of motion sensors and other controls to be used, especially for security lighting; 8. Surface treatment specification that will be employed to minimize glare and skyglow; 9. Results of a Lumen Analysis (based on final lighting plans), in consultation with the NPS Night Sky Program Manager (Chad Moore – (970) 491-3700), in order to determine the extent of night lighting exposures in the surrounding NPS lands. If the lighting exposure on NPS lands exceeds the allowable threshold (which is to be determined in consultation with the NPS Night Sky Program Manager), additional control measures will be instituted to reduce the lighting exposures to levels below the action threshold; and 10. Documentation that the necessary coordination with the NPS Night Sky Program Manager has occurred.	Refer to VIS-3.	CEC
WASTE		
WASTE-1, Training and Reporting Plan: The project owner shall prepare a UXO Identification, Training and Reporting Plan to properly train all site workers in the recognition, avoidance and reporting of military waste debris and ordnance. The project owner shall submit the plan to the Compliance Project Manager (CPM) and BLM Authorized Office (AO) for review and approval prior to the start of construction. The plan shall contain, at a minimum, the following:	The project owner shall submit the UXO Identification, Training and Reporting Plan to the CPM for approval no later than 30 days prior to the start of site mobilization. The results of geophysical surveys shall be submitted to the CPM within 30 days of completion of the surveys.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
WASTE (cont.)		
1. A description of the training program outline and materials, and the qualifications of the trainers; and 2. Identification of available trained experts that will respond to notification of discovery of any ordnance (unexploded or not); and 3. Work plan to recover and remove discovered ordnance, and complete additional field screening, possibly including geophysical surveys to investigate adjacent areas for surface, near surface or buried ordnance in all proposed land disturbance areas.		
WASTE-2, Resume of Professional Engineer or Geologist: The project owner shall provide the résumé of an experienced and qualified Professional Engineer or Professional Geologist to the Compliance Project Manager (CPM) and BLM Authorized Office (AO) for review and approval. The résumé shall show experience in remedial investigation and feasibility studies. This Professional Engineer or Professional Geologist shall be available during site characterization (if needed), excavation, grading, and demolition activities. The Professional Engineer or Professional Geologist shall be given authority by the project owner to oversee any earth-moving activities that have the potential to disturb contaminated soil and impact public health, safety, and the environment.	At least 30 days prior to the start of site mobilization the project owner shall submit the resume to the CPM for review and approval.	CEC
WASTE-3, Inspection and Reporting of Potentially Contaminated Soil: If potentially contaminated soil is identified during site characterization, excavation, grading, or demolition at either the proposed site or linear facilities—as evidenced by discoloration, odor, detection by handheld instruments, or other signs—the Professional Engineer or Professional Geologist shall inspect the site; determine the need for sampling to confirm the nature and extent of contamination; and provide a written report to the project owner, representatives of Department of Toxic Substances Control (DTSC) or Regional Water Quality Control Board (RWQCB), the Compliance Project Manager (CPM) and the BLM Authorized Office (AO) stating the recommended course of action. Depending on the nature and extent of contamination, the Professional Engineer or Professional Geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If in the opinion of the Professional Engineer or Professional Geologist significant remediation may be required, the project owner shall contact the CPM, AO and representatives of the DTSC or RWQCB for guidance and possible oversight.	The project owner shall submit any reports filed by the Professional Engineer or Professional Geologist to the CPM within five days of their receipt. The project owner shall notify the CPM within 24 hours of any orders issued to halt construction.	CEC
WASTE-4, Construction Waste Management Plan: The project owner shall submit a Construction Waste Management Plan to the Compliance Project Manager (CPM) and the BLM Authorized Office (AO) for review and approval prior to the start of construction. The plan shall contain, at a minimum, the following: 1. a description of all construction waste streams, including projections of frequency, amounts generated and hazard classifications; 2. a survey of structures to be demolished that identifies the types of waste to be managed; 3. a reuse/recycling plan for construction and demolition materials that meets or exceeds the 50 percent waste diversion goal established by the Integrated Waste Management Compliance Act; and, 4. management methods to be used for each waste stream, including temporary on-site storage, housekeeping and best management practices to be employed, treatment methods, and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/reduction plans.	The project owner shall submit the Construction Waste Management Plan to the CPM for approval no less than 30 days prior to the initiation of construction activities at the site.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
WASTE (cont.)		
WASTE-5, Hazardous Waste Generator Identification Number: The project owner shall obtain a hazardous waste generator identification number from the United States Environmental Protection Agency (USEPA) prior to generating any hazardous waste during project construction and operations.	The project owner shall keep a copy of the identification number on file at the project site and provide documentation of the hazardous waste generation and notification and receipt of the number to the CPM in the next scheduled Monthly Compliance Report after receipt of the number. Submittal of the notification and issued number documentation to the CPM is only needed once unless there is a change in ownership, operation, waste generation, or waste characteristics that requires a new notification to USEPA. Documentation of any new or revised hazardous waste generation notifications or changes in identification number shall be provided to the CPM in the next scheduled compliance report.	CEC
WASTE-6, Notification of Impending Waste Management-Related Enforcement Action: Upon notification of any impending waste management-related enforcement action by any local, state, or federal authority, the project owner shall notify the Compliance Project Manager (CPM) of any such action taken or proposed against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts, and describe how the violation will be corrected.	The project owner shall notify the CPM in writing within 10 days of receiving written notice from authorities of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required in the way project-related wastes are managed as a result of a finalized action against the project.	CEC
WASTE-7, Operation Waste Management Plan: The project owner shall submit the Operation Waste Management Plan to the CPM for review and approval. The plan shall contain, at a minimum, the following: 1. a detailed description of all operation and maintenance waste streams, including projections of amounts to be generated, frequency of generation, and waste hazard classifications; 2. management methods to be used for each waste stream, including temporary on-site storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to ensure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans; 3. information and summary records of contacts with the local Certified Unified Program Agency and the Department of Toxic Substances Control regarding any waste management requirements necessary for project activities. Copies of all required waste management permits, notices, and/or authorizations shall be included in the plan and updated as necessary; 4. a detailed description of how facility wastes will be managed and any contingency plans to be employed, in the event of an unplanned closure or planned temporary facility closure; and 5. a detailed description of how facility wastes will be managed and disposed upon closure of the facility.	The project owner shall submit the Operation Waste Management Plan to the CPM for approval no later than 30 days prior to the start of project operation. The project owner shall submit any required revisions to the CPM within 20 days of notification from the CPM that revisions are necessary. The project owner shall also document in each Annual Compliance Report the actual volume of wastes generated and the waste management methods used during the year, provide a comparison of the actual waste generation and management methods used to those proposed in the original Operation Waste Management Plan, and update the Operation Waste Management Plan as necessary to address current waste generation and management practices.	CEC
WASTE-9: The project owner shall ensure that all accidental spills or unauthorized releases of hazardous substances, hazardous materials, and hazardous waste are documented and remediated, and that wastes generated from accidental spills and unauthorized releases are properly managed and disposed of in accordance with all applicable federal, state, and local LORS and requirements. For the purpose of this Condition of Certification, “release” shall have the definition in Title 40 of the Code of Federal Regulations, Part 302.3.	No later than 30 days of the date that a project-related hazardous substance release was discovered, the project manager shall provide a copy of the accidental spill or unauthorized release documentation to the CPM.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
WASTE (cont.)		
	The project owner shall document management of all accidental spills and unauthorized releases of hazardous substances, hazardous materials, and hazardous wastes that occur on the project property or related linear facilities. The documentation shall include, at a minimum, the following information: location of release; date and time of release; reason for release; volume released; how release was managed and material cleaned up; amount of contaminated soil and/or cleanup wastes generated; if the release was reported; to whom the release was reported; release corrective action and cleanup requirements placed by regulating agencies; level of cleanup achieved and actions taken to prevent a similar release or spill; and disposition of any hazardous wastes and/or contaminated soils and materials that may have been generated by the release.	
WASTE-10: The project owner shall ensure that **none** of the project's non- hazardous, non-recyclable, and non-reusable construction and operation wastes shall be diverted to or deposited at either the Desert Center Landfill or the Oasis Sanitary Landfill.	The project owner shall provide documentation of all project- related solid waste disposal activities and identify the landfills receiving project- related wastes in the Annual Compliance Report submitted to the CPM.	CEC
WORKER SAFETY		
WORKER SAFETY-1, Project Construction Safety and Health Program: The project owner shall submit to the Compliance Project Manager (CPM) a copy of the Project Construction Safety and Health Program containing the following: 1. a Construction Personal Protective Equipment Program; 2. a Construction Exposure Monitoring Program; 3. a Construction Injury and Illness Prevention Program; 4. a Construction heat stress protection plan that implements and expands on existing Cal OSHA regulations as found in 8 CCR 3395; 5. a Construction Emergency Action Plan; and 6. a Construction Fire Prevention Plan. The Personal Protective Equipment Program, the Exposure Monitoring Program, the Heat Stress Protection Plan, and the Injury and Illness Prevention Program shall be submitted to the CPM for review and approval concerning compliance of the program with all applicable safety orders. The Construction Emergency Action Plan and the Fire Prevention Plan shall be submitted to the Riverside County Fire Department for review and comment prior to submittal to the CPM for approval.	At least 30 days prior to the start of construction, the project owner shall submit to the CPM for review and approval a copy of the Project Construction Safety and Health Program. The project owner shall provide a copy of a letter to the CPM from the Riverside County Fire Department stating the fire department's comments on the Construction Fire Prevention Plan and Emergency Action Plan.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
WORKER SAFETY (cont.)		
WORKER SAFETY-2, Project Operations and Maintenance Safety and Health Program: The project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety and Health Program containing the following: 1. an Operation Injury and Illness Prevention Plan, including measures to present exposure to Valley Fever; 2. an Operation heat stress protection plan that implements and expands on existing Cal OSHA regulations (8 CCR 3395); 3. a Best Management Practices (BMP) for the storage and application of herbicides; 4. an Emergency Action Plan; 5. Hazardous Materials Management Program; 6. Fire Prevention Plan that includes the fuel depot should the project owner elect to maintain and operate the fuel depot during operations (8 Cal Code Regs. § 3221) as well as the fire protection measures described in this Decision and any necessary upgrades required by current applicable LORS; and 7. Personal Protective Equipment Program (8 Cal Code Regs, §§ 3401-3411). The Operation Injury and Illness Prevention Plan, Emergency Action Plan, Heat Stress Protection Plan, BMP for Herbicides, and Personal Protective Equipment Program shall be submitted to the CPM for review and comment concerning compliance of the programs with all applicable safety orders. The Fire Prevention Plan and the Emergency Action Plan shall also be submitted to the Riverside County Fire Department for review and comment.	At least 30 days prior to the start of first-fire or commissioning, the project owner shall submit to the CPM for approval a copy of the Project Operations and Maintenance Safety and Health Program. The project owner shall provide a copy of a letter to the CPM from the Riverside County Fire Department stating the fire department's comments on the Operations Fire Prevention Plan and Emergency Action Plan.	CEC
WORKER SAFETY-3, Construction Safety Supervisor: The project owner shall provide a site Construction Safety Supervisor (CSS) who, by way of training and/or experience, is knowledgeable of power plant construction activities and relevant laws, ordinances, regulations, and standards; is capable of identifying workplace hazards relating to the construction activities; and has authority to take appropriate action to assure compliance and mitigate hazards. The CSS shall: 1. have overall authority for coordination and implementation of all occupational safety and health practices, policies, and programs; 2. assure that the safety program for the project complies with Cal/OSHA and federal regulations related to power plant projects; 3. assure that all construction and commissioning workers and supervisors receive adequate safety training; 4. complete accident and safety-related incident investigations and emergency response reports for injuries and inform the CPM of safety-related incidents; and 5. assure that all the plans identified in Conditions of Certification **Worker Safety-1** and **-2** are implemented.	At least 30 days prior to the start of site mobilization, the project owner shall submit to the CPM the name and contact information for the Construction Safety Supervisor (CSS). The contact information of any replacement CSS shall be submitted to the CPM within one business day. The CSS shall submit in the Monthly Compliance Report a monthly safety inspection report to include: A. A record of all employees trained for that month (all records shall be kept on site for the duration of the project); B. A summary report of safety management actions and safety-related incidents that occurred during the month; C. A report of any continuing or unresolved situations and incidents that may pose danger to life or health; and D. A report of accidents and injuries that occurred during the month.	CEC

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
WORKER SAFETY (cont.)		
WORKER SAFETY-4, Safety Monitor: The project owner shall make payments to the Chief Building Official (CBO) for the services of a Safety Monitor based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. Those services shall be in addition to other work performed by the CBO. The Safety Monitor shall be selected by and report directly to the CBO and will be responsible for verifying that the Construction Safety Supervisor, as required in Condition of Certification **WORKER SAFETY-3**, implements all appropriate Cal/OSHA and Energy Commission safety requirements. The Safety Monitor shall conduct on-site (including linear facilities) safety inspections at intervals necessary to fulfill those responsibilities.	At least 30 days prior to the start of construction, the project owner shall provide proof of its agreement to fund the Safety Monitor services to the CPM for review and approval.	CEC
WORKER SAFETY-5, Automatic External Defibrillator (AED): The project owner shall ensure that a portable automatic external defibrillator (AED) is located on site during construction and operations and shall implement a program to ensure that workers are properly trained in its use and that the equipment is properly maintained and functioning at all times. During construction and commissioning, the following persons shall be trained in its use and shall be on site whenever the workers that they supervise are on site: the Construction Project Manager or delegate, the Construction Safety Supervisor or delegate, and all shift foremen. During operations, all power plant employees shall be trained in its use. The training program shall be submitted to the CPM for review and approval.	At least 60 days prior to the start of site mobilization, the project owner shall submit to the CPM proof that a portable automatic external defibrillator (AED) exists on site and a copy of the training and maintenance program for review and approval.	CEC
WORKER SAFETY-6, Emergency Access Point: The project owner shall: A. Provide a secondary site access gate for emergency personnel to enter the site. This secondary site access gate shall be at least one-quarter mile from the main gate. B. Provide a second access road which provides entry to the site. This road shall be at a minimum an all-weather gravel road, at least 20 feet wide, and shall come from the Interstate-10 right-of-way to the project site at the location of where the fence line of the eastern solar field comes the nearest to the I-10 right-of-way, if approved by Caltrans, a locked gate shall be placed in the I-10 right-of-way fence. The RCFD, the California Highway Patrol, and the Riverside County Sheriff's Department shall be given access to the gate. C. Maintain the main access road and provide a plan for construction and implementation. Plans for the secondary access gate, the method of gate operation, and maintenance of the roads shall be submitted to the Riverside County Fire Department for review and comment and to the CPM for review and approval.	At least 60 days prior to the start of site mobilization, the project owner shall submit to the RCFD and the CPM preliminary plans showing the location of a secondary site access gate to the site, a description of how the secondary site access gate will be opened by the fire department and other emergency services, and a description and map showing the location, dimensions, and composition of the main road, and the gravel road to the secondary site access gate. At least 30 days prior to the start of site mobilization, the project owner shall submit the secondary site access gate final plans plus the road maintenance plan to the CPM for review and approval. The final plan submittal shall also include a letter containing comments from the Riverside County Fire Department or a statement that no comments were received.	
WORKER SAFETY-7, Fire Protection/Response Infrastructure: [To be replaced with a condition that summarizes the agreement with Riverside County that will be finalized after the fire needs assessment is preformed and submitted to Riverside County for review.]		
WORKER SAFETY-9, Dust Control Plan: The project owner shall develop and implement an enhanced Dust Control Plan that includes the requirements described in Conditions **AQ-SC3** and **AQ-SC4**, and additionally requires: A. Site worker use of dust masks (NIOSH N-95 or better) whenever visible dust is present; B. Implementation of Rule 402 of the Kern County Air Pollution Control District (as amended Nov. 3, 2004); and	At least 30 days prior to the commencement of site mobilization, the enhanced Dust Control Plan shall be provided to the CPM for review and approval.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
WORKER SAFETY (cont.)		
C. Implementation of enhanced dust control methods (increased frequency of watering, use of dust suppression chemicals, etc. consistent with **AQ-SC4**) immediately whenever visible dust persists in the breathing zone of the workers, or when PM10 measurements obtained when implementing B (above) indicate an increase in PM10 concentrations due to project activities of 50 µg/m3 or more.		
WORKER SAFETY-10, Joint Training with RCFD: The project owner shall participate in annual joint training exercises with the Riverside County Fire Department (RCFD). The project owner shall coordinate this training with other Energy Commission-licensed solar power plants within Riverside County such that this project shall host the annual training on a rotating yearly basis with the other solar power plants.	At least 10 days prior to the start of commissioning, the project owner shall submit to the CPM proof that a joint training program with the RCFD is established. In each January Monthly Compliance Report during construction and the Annual Compliance Report during operation, the project owner shall include the date, list of participants, training protocol, and location of the annual joint training.	
GEOLOGY, PALEONTOLOGY, AND MINERALS		
GEO-1, Soils Engineering Report: The Soils Engineering Report required by Section 1802A of the 2007 CBC should specifically include laboratory test data, associated geotechnical engineering analyses, and a thorough discussion of potential hydrocompaction or dynamic compaction; the presence of expansive clay soils; and the presence of corrosive soils. The report should also include recommendations for ground improvement and/or foundation systems necessary to mitigate these potential geologic hazards, if present.	The project owner shall include in the application for a grading permit a copy of the Soils Engineering Report which addresses the potential for liquefaction; settlement due to compressible soils, ground water withdrawal, hydro-compaction, or dynamic compaction; and the possible presence of expansive clay soils, and a summary of how the results of the analyses were incorporated into the project foundation and grading plan design for review and comment by the Chief Building Official (CBO). A copy of the Soils Engineering Report, application for grading permit and any comments by the CBO are to be provided to BLM's Authorized Officer and the CPM at least 30 days prior to grading.	
PAL-1, Paleontological Resources Specialist (PRS): The project owner shall provide the compliance project manager (CPM) with the resume and qualifications of its paleontological resource specialist (PRS) for review and approval. If the approved PRS is replaced prior to completion of project mitigation and submittal of the Paleontological Resources Report, the project owner shall obtain CPM approval of the replacement PRS. The project owner shall keep resumes on file for qualified paleontological resource monitors (PRMs). If a PRM is replaced, the resume of the replacement PRM shall also be provided to the CPM. The PRS resume shall include the names and phone numbers of references. The resume shall also demonstrate to the satisfaction of the CPM the appropriate education and experience to accomplish the required paleontological resource tasks. As determined by the CPM, the PRS shall meet the minimum qualifications for a vertebrate paleontologist as described in the Society of Vertebrate Paleontology (SVP) guidelines of 1995. The experience of the PRS shall include the following: 1. Institutional affiliations, appropriate credentials, and college degree; 2. Ability to recognize and collect fossils in the field;	(1) At least 60 days prior to the start of ground disturbance, the project owner shall submit a resume and statement of availability of its designated PRS for on-site work. (2) At least 20 days prior to ground disturbance, the PRS or project owner shall provide a letter with resumes naming anticipated monitors for the project, stating that the identified monitors meet the minimum qualifications for paleontological resource monitoring required by the condition. If additional monitors are obtained during the project, the PRS shall provide additional letters and resumes to the CPM. The letter shall be provided to the CPM no later than one week prior to the monitor's beginning on-site duties.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
GEOLOGY, PALEONTOLOGY, AND MINERALS (cont.)		
3. Local geological and biostratigraphic expertise; 4. Proficiency in identifying vertebrate and invertebrate fossils; and 5. At least three years of paleontological resource mitigation and field experience in California and at least one year of experience leading paleontological resource mitigation and field activities. The project owner shall ensure that the PRS obtains qualified paleontological resource monitors to monitor as he or she deems necessary on the project. Paleontologic resource monitors (PRMs) shall have the equivalent of the following qualifications: 1. BS or BA degree in geology or paleontology and one year of experience monitoring in California; or 2. AS or AA in geology, paleontology, or biology and four years' experience monitoring in California; or 3. Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.	(3) Prior to the termination or release of a PRS, the project owner shall submit the resume of the proposed new PRS to the CPM for review and approval.	
PAL-2, Materials for PRS and CPM: The project owner shall provide to the PRS and the CPM, for approval, maps and drawings showing the footprint of the power plant, construction lay-down areas, and all related facilities. Maps shall identify all areas of the project where ground disturbance is anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and plan and profile drawings for the utility lines would be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and be at a scale between 1 inch = 40 feet and 1 inch = 100 feet. If the footprint of the project or its linear facilities changes, the project owner shall provide maps and drawings reflecting those changes to the PRS and CPM. If construction of the project proceeds in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the PRS and CPM. Before work commences on affected phases, the project owner shall notify the PRS and CPM of any construction phase scheduling changes. At a minimum, the project owner shall ensure that the PRS or PRM consults weekly with the project superintendent or construction field manager to confirm area(s) to be worked the following week and until ground disturbance is completed.	(1) At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings to the PRS and CPM. (2) If there are changes to the footprint of the project, revised maps and drawings shall be provided to the PRS and CPM at least 15 days prior to the start of ground disturbance. (3) If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within 5 days of identifying the changes.	
PAL-3, Paleontological Resources Monitoring and Mitigation Plan (PRMMP): The project owner shall ensure that the PRS prepares, and the project owner submits to the CPM for review and approval, a paleontological resources monitoring and mitigation plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for monitoring, collecting, and sampling activities and may be modified with CPM approval. This document shall be used as the basis of discussion when on-site decisions or changes are proposed. Copies of the PRMMP shall reside with the PRS, each monitor, the project owner's on-site manager, and the CPM. The PRMMP shall be developed in accordance with the guidelines of the Society of Vertebrate Paleontology (SVP 1995) and shall include, but not be limited, to the following: 1. Assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking, construction monitoring, mapping and data recovery, fossil preparation and collection, identification and inventory, preparation of final reports, and transmittal of materials for curation will be performed according to PRMMP procedures;	At least 30 days prior to ground disturbance, the project owner shall provide a copy of the PRMMP to the CPM. The PRMMP shall include an affidavit of authorship by the PRS and acceptance of the PRMMP by the project owner evidenced by a signature.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
GEOLOGY, PALEONTOLOGY, AND MINERALS (cont.)		
2. Identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and the conditions of certification; 3. A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units; 4. An explanation of why, how, and how much sampling is expected to take place and in what units. Include descriptions of different sampling procedures that shall be used for fine-grained and coarse-grained units; 5. A discussion of the locations of where the monitoring of project construction activities is deemed necessary, and a proposed plan for monitoring and sampling; 6. A discussion of procedures to be followed in the event of a significant fossil discovery, halting construction, resuming construction, and how notifications will be performed; 7. A discussion of equipment and supplies necessary for collection of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits; 8. Procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meet the Society of Vertebrate Paleontology's standards and requirements for the curation of paleontological resources; 9. Identification of the institution that has agreed to receive data and fossil materials collected, requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution; and 10. A copy of the paleontological conditions of certification.		
PAL-4, Approved Weekly Training Pertaining to Ground Disturbance: Prior to ground disturbance and for the duration of construction activities involving ground disturbance, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for the following workers: project managers, construction supervisors, foremen, and general workers involved with or who operate ground-disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving CPM-approved worker training. Worker training shall consist of an initial in-person PRS training or may utilize a CPM-approved video or other presentation format during the project kick off for those mentioned above. Following initial training, a CPM-approved video or other approved training presentation/materials, or in-person training may be used for new employees. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or other areas of interest or concern. No ground disturbance shall occur prior to CPM approval of the Worker Environmental Awareness Program (WEAP), unless specifically approved by the CPM. The WEAP shall address the possibility of encountering paleontological resources in the field, the sensitivity and importance of these resources, and legal obligations to preserve and protect those resources. The training shall include: 1. A discussion of applicable laws and penalties under the law;	(1) At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP, including the brochure, with the set of reporting procedures for workers to follow. (2) At least 30 days prior to ground disturbance, the project owner shall submit the training program presentation/materials to the CPM for approval if the project owner is planning to use a presentation format other than an in-person trainer for training. (3) If the owner requests an alternate paleontological trainer, the resume and qualifications of the trainer shall be submitted to the CPM for review and approval prior to installation of an alternate trainer. Alternate trainers shall not conduct training prior to CPM authorization.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
GEOLOGY, PALEONTOLOGY, AND MINERALS (cont.)		
2. Good quality photographs or physical examples of vertebrate fossils for project sites containing units of high paleontologic sensitivity; 3. Information that the PRS or PRM has the authority to halt or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource; 4. Instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the PRS or PRM; 5. An informational brochure that identifies reporting procedures in the event of a discovery; 6. A WEAP certification of completion form signed by each worker indicating that he/she has received the training; and 7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.	(4) In the monthly compliance report (MCR), the project owner shall provide copies of the WEAP certification of completion forms with the names of those trained and the trainer or type of training (in-person or other approved format) offered that month. The MCR shall also include a running total of all persons who have completed the training to date.	
PAL-5, Paleontological Monitoring Activities: The project owner shall ensure that the PRS and PRM(s) monitor consistent with the PRMMP all construction-related grading, excavation, trenching, and augering in areas where potential fossil-bearing materials have been identified, both at the site and along any constructed linear facilities associated with the project. In the event that the PRS determines full-time monitoring is not necessary in locations that were identified as potentially fossil bearing in the PRMMP, the project owner shall notify and seek the concurrence of the CPM. The project owner shall ensure that the PRS and PRM(s) have the authority to halt or redirect construction if paleontological resources are encountered. The project owner shall ensure that there is no interference with monitoring activities unless directed by the PRS. Monitoring activities shall be conducted as follows: 1. Any change of monitoring from the accepted schedule in the PRMMP shall be proposed in a letter or email from the PRS and the project owner to the CPM prior to the change in monitoring and will be included in the monthly compliance report. The letter or email shall include the justification for the change in monitoring and be submitted to the CPM for review and approval. 2. The project owner shall ensure that the PRM(s) keep a daily monitoring log of paleontological resource activities. The PRS may informally discuss paleontological resource monitoring and mitigation activities with the CPM at any time. 3. The project owner shall ensure that the PRS notifies the CPM within 24 hours of the occurrence of any incidents of non-compliance with any paleontological resources conditions of certification. The PRS shall recommend corrective action to resolve the issues or achieve compliance with the conditions of certification. 4. For any significant paleontological resources encountered, either the project owner or the PRS shall notify the CPM within 24 hours, or Monday morning in the case of a weekend event, where construction has been halted because of a paleontological find. The project owner shall ensure that the PRS prepares a summary of monitoring and other paleontological activities placed in the monthly compliance reports. The summary will include the name(s) of PRS or PRM(s) active during the month; general descriptions of training and monitored construction activities; and general locations of excavations, grading, and other activities. A section of the report shall include the geologic units or subunits encountered, descriptions of samplings within each unit, and a list of identified fossils. A final section of the report will address any issues or concerns about the project relating to paleontologic monitoring, including any incidents of non-compliance or any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the report shall include an explanation in the summary as to why monitoring was not conducted.	The project owner shall ensure that the PRS submits the summary of monitoring and paleontological activities in the MCR. When feasible, the CPM shall be notified 10 days in advance of any proposed changes in monitoring different from the plan identified in the PRMMP. If there is any unforeseen change in monitoring, the notice shall be given as soon as possible prior to implementation of the change.	

APPLICANT PROPOSED MEASURES

Conditions of Certification	Verification	Responsible Agency
GEOLOGY, PALEONTOLOGY, AND MINERALS (cont.)		
PAL-6, Implementation of PRMMP: The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed including collection of fossil materials, preparation of fossil materials for analysis, analysis of fossils, identification and inventory of fossils, the preparation of fossils for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during project construction.	The project owner shall maintain in his/her compliance file copies of signed contracts or agreements with the designated PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after project completion and approval of the CPM-approved paleontological resource report (see Condition of Certification **PAL-7**). The project owner shall be responsible for paying any curation fees charged by the museum for fossils collected and curated as a result of paleontological mitigation. A copy of the letter of transmittal submitting the fossils to the curating institution shall be provided to the CPM.	
PAL-7, Paleontological Resources Report (PRR): The project owner shall ensure preparation of a Paleontological Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground-disturbing activities. The PRR shall include an analysis of the collected fossil materials and related information and submit it to the CPM for review and approval. The report shall include, but is not limited to, a description and inventory of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated below the level of significance.	Within 90 days after completion of ground-disturbing activities, including landscaping, the project owner shall submit the PRR under confidential cover to the CPM.	

APPENDIX D

Air Quality Laws, Regulations, and Policies

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS

AIR QUALITY	
Federal	
40 CFR Part 52	Nonattainment New Source Review (NSR) requires a permit, Best Available Control Technology (BACT) and Offsets. Permitting and enforcement is delegated to the Mojave Desert Air Quality Management District (MDAQMD). Prevention of Significant Deterioration (PSD) requires major sources or major modifications to major sources to obtain permits for attainment pollutants. The PSPP is a new source that does not have a rule listed emission source; thus, the PSD trigger levels are 250 tons per year for NOx, VOC, SOx, PM10 PM2.5 and CO.
40 CFR Part 60	New Source Performance Standards (NSPS), Subpart Dc Standards of Performance for Small Industrial-Commercial-Institutional Steam Generation Units. Establishes recordkeeping and reporting requirements for natural gas-fired steam-generating units. Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Establishes emission standards for compression-ignition internal combustion engines, including emergency generator and fire water pump engines.
40 CFR Part 93	General Conformity requires a determination of conformity with the State Implementation Plan for a project that requires a Federal approval if the project's annual emissions are above specified levels.
State	
California Health & Safety Code §§ 40910-40930	Permitting of source needs to be consistent with Air Resource Board (ARB) approved Clean Air Plans.
Health & Safety Code § 41700	Restricts emissions that would cause nuisance or injury.
Title 17 California Code of Regulations (CCR) § 93115	Airborne Toxic Control Measure for Stationary Compression Ignition Engines limits the types of fuels allowed, establishes maximum emission rates, and establishes recordkeeping requirements on stationary compression ignition engines, including emergency generator and fire water pump engines.
Rule 201 and 203 Permits Required	Requires a Permit to Construct before construction of an emission source occurs. Prohibits operation of any equipment that emits or controls an air pollutant without first obtaining a permit to operate.
Local (South Coast Air Quality Management District, SCAQMD)	
Regulation XIII-NSR	Requires pre-construction review for all proposed new or modified stationary sources. Review includes a BACT determination, mitigation analysis, air quality impact analysis, etc.
Regulation XIV-Rule 1401-Toxics NSR	Requires pre-construction review for all proposed new or modified stationary sources emitting toxic pollutants. Establishes risk significance levels and review procedures.
Regulation XXX-Title V	Implements the provisions of the federal operating permits program and the requirements of the CAA Title V.
Regulation XXXI-Acid Rain Permit Program	Implements the provisions of the federal Acid Rain Program. See rule provisions Subpart A-I.
Rule 401-Visible Emissions	Limits visible emissions from applicable processes to values no darker than Ringelmann #1 for periods greater than 3 minutes in any hour.
Rule 402-Nuisance	Prohibits emissions in quantities that would adversely affect public health, other businesses, or property.
Rule 403-Fugitive Dust	Limits fugitive PM emissions from construction and construction related activities.
Rule 404-Particulate Matter	Limits PM concentration in exhaust from boilers, heaters, IC engines, etc.
Rule 409-Combustion Contaminants	Limits PM emissions from combustion sources.
Rule 429-Nox Exemptions for Startup/Shutdown	Provides NOx emissions exemptions for boiler subject to Rule 1146 for periods of startup and shutdown.

APPLICABLE LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS (Continued)

Applicable LORS	Description
AIR QUALITY (cont.)	
Local (South Coast Air Quality Management District, SCAQMD) (cont.)	
Rule 431-Sulfur Content of Fuels (431.1-431.3)	Limits the sulfur content of fuels combusted in stationary sources.
Rule 433-Natural Gas Quality	Applies to all natural gas distribution system operators that convey natural gas to end users within the District.
Rule 442-Organic Solvents	Limits emissions of VOC from materials or processes using VOC containing products.
Rule 463-Storage of Organic Liquids	Limits VOC emissions from the storage and transfer of VOC containing materials.
Rule 474-Fuel Burning Equipment-NOx	Limits NOx emissions from non-mobile fuel burning equipment.
Regulation IX-NSPS	New Source Performance Standards (NSPS) Potentially applicable Subparts: Db, Dc, IIII.
Rule 1110.2-Gaseous and Liquid Fueled Engines	Limits NOx, VOC, and CO emissions from gaseous and liquid fueled IC engines.
Rule 1121-NOx Control from NG Fired Water Heaters	Limits NOx emissions from natural gas fired residential type water heaters.
Rule 1146-NOx Emissions from IIC Boilers and Process Heaters	Limits NOx from boilers, steam generators, and heaters rated at greater than 5 mmbtu/hr.
Rule 1171-Solvent Cleaning Operations	Limits VOC, TAC, and SODS emissions from solvent use in cleaning operations activities.
Regulation XIX-Federal Conformity	Implements the General Conformity requirements of 40 CFR Parts 6 and 51.

Table 4.1E-5 Construction Emissions Estimates (33 Pages)

Document: 459892-PSEGS-DOC-005
Client: BrightSource Industries Israel
Project: Palen Solar Electric Generating Facility

Const Months: 33
Workdays per month: 21

Qty	Equipment	Fuel	HP	Usage Factor	Load Factor	Daily Operation	Total Equip Months
Solar Field Assembly and Installation (total for 2 plants)							
2 ea	ISO Carrier	Diesel	290 hp	80%	57%	8 hrs/day	48
2 ea	10,000 lb Forklift	Diesel	90 hp	80%	30%	16 hrs/day	48
2 ea	300 cfm Air Compressor	Diesel	140 hp	80%	48%	16 hrs/day	48
2 ea	Yard Tractors	Diesel	250 hp	80%	60%	16 hrs/day	52
6 ea	Grader (CAT 160M AWD)	Diesel	215 hp	80%	61%	8 hrs/day	86
16 ea	Farm Tractors	Diesel	75 hp	80%	55%	8 hrs/day	392
2 ea	35 ton Rough Terrain Crane	Diesel	160 hp	80%	43%	8 hrs/day	52
4 ea	Pylon Insertion Rigs	Diesel	670 hp	80%	62%	8 hrs/day	96
Site Road Work							
2 ea	Grader (CAT 160M AWD)	Diesel	215 hp	80%	61%	8 hrs/day	12
4 ea	Elevating Scraper (CAT)	Diesel	330 hp	80%	72%	8 hrs/day	20
1 ea	Compactor (CAT CP74)	Diesel	160 hp	80%	50%	8 hrs/day	5
1 ea	Paver	Diesel	220 hp	80%	62%	6 hrs/day	4
Concrete Batch Plant							
1 ea	Front End Loader (CAT 980K)	Diesel	369 hp	80%	55%	8 hrs/day	14
20 ea	Concrete Transit Mix Trucks	Diesel	400 hp	80%	62%	8 hrs/day	218
Tower and Boiler Erection (total for 2 plants)							
2 ea	Strand Jack System	Diesel	670 hp	80%	62%	5 hrs/day	12
2 ea	888 Manitowoc Crawler Crane	Diesel	330 hp	80%	43%	8 hrs/day	16
2 ea	120 ton Rough Terrain Picker	Diesel	300 hp	80%	43%	8 hrs/day	18
4 ea	50 ton Rough Terrain Picker	Diesel	190 hp	80%	43%	8 hrs/day	33
2 ea	10,000 lb Forklift	Diesel	90 hp	80%	30%	8 hrs/day	18
8 ea	400 amp Diesel Welders	Diesel	40 hp	80%	45%	8 hrs/day	54
8 ea	300 cfm Air Compressor	Diesel	140 hp	80%	48%	8 hrs/day	66
12 ea	125 ft Manlift	Diesel	75 hp	80%	46%	8 hrs/day	102
4 ea	Semi Tractor	Diesel	250 hp	80%	62%	8 hrs/day	36
ACC Erection (total for 2 plants)							
2 ea	888 Manitowoc Crawler Crane	Diesel	330 hp	80%	43%	8 hrs/day	16
4 ea	50 ton Rough Terrain Picker	Diesel	190 hp	80%	43%	8 hrs/day	44
2 ea	50,000 lb Forklift	Diesel	230 hp	80%	30%	8 hrs/day	18
2 ea	10,000 lb Forklift	Diesel	90 hp	80%	30%	8 hrs/day	20
4 ea	40 ft Manlift	Diesel	50 hp	80%	46%	8 hrs/day	39
4 ea	60 ft Manlift	Diesel	50 hp	80%	46%	8 hrs/day	39
4 ea	85 ft Manlift	Diesel	75 hp	80%	46%	8 hrs/day	42
2 ea	400 amp Diesel Welders	Diesel	40 hp	80%	45%	8 hrs/day	20
2 ea	Semi Tractor	Diesel	250 hp	80%	62%	8 hrs/day	26
4 ea	300 cfm Air Compressor	Diesel	140 hp	80%	48%	8 hrs/day	40
Power Block Erection (total for 2 plants)							
2 ea	888 Manitowoc Crawler Crane	Diesel	330 hp	80%	43%	8 hrs/day	10
2 ea	65 ton Rough Terrain Crane	Diesel	250 hp	80%	43%	8 hrs/day	36
4 ea	35 ton Rough Terrain Crane	Diesel	160 hp	80%	43%	8 hrs/day	93
2 ea	Front End Loader (CAT 980K)	Diesel	369 hp	80%	55%	8 hrs/day	14
2 ea	Excavator, Hydraulic (CAT 318E)	Diesel	120 hp	40%	70%	8 hrs/day	14
2 ea	Compactor (CAT CP74)	Diesel	160 hp	80%	50%	8 hrs/day	12
4 ea	400 amp Diesel Welders	Diesel	40 hp	80%	45%	8 hrs/day	92
4 ea	300 cfm Air Compressor	Diesel	140 hp	80%	48%	8 hrs/day	92
4 ea	40 ft Manlift	Diesel	50 hp	80%	46%	8 hrs/day	88
8 ea	60 ft Manlift	Diesel	50 hp	80%	46%	8 hrs/day	114
4 ea	85 ft Manlift	Diesel	75 hp	80%	46%	8 hrs/day	53
4 ea	10,000 lb Forklift	Diesel	90 hp	80%	30%	8 hrs/day	55
4 ea	Semi Tractor	Diesel	250 hp	80%	62%	8 hrs/day	55
Common Area and Switchyard							
1 ea	35 ton Rough Terrain Crane	Diesel	160 hp	80%	43%	8 hrs/day	11
1 ea	Excavator, Hydraulic (CAT 318E)	Diesel	120 hp	40%	70%	8 hrs/day	8
1 ea	Trencher (Vermeer T555)	Diesel	185 hp	35%	60%	8 hrs/day	5
1 ea	Elevating Scraper (CAT)	Diesel	330 hp	80%	72%	8 hrs/day	5
1 ea	Bulldozer (CAT D6N)	Diesel	150 hp	40%	60%	8 hrs/day	9
1 ea	Compactor (CAT CP74)	Diesel	160 hp	80%	50%	8 hrs/day	7
1 ea	10,000 lb Forklift	Diesel	90 hp	80%	30%	8 hrs/day	6
2 ea	60 ft Manlift	Diesel	50 hp	80%	46%	8 hrs/day	22
1 ea	400 amp Diesel Welders	Diesel	40 hp	80%	45%	8 hrs/day	4
1 ea	300 cfm Air Compressor	Diesel	140 hp	80%	48%	8 hrs/day	4
Miscellaneous							
6 ea	Water Trucks (4,000 gallon)	Diesel	250 hp	60%	41%	8 hrs/day	159
6 ea	Dump Truck, 12-16 YD	Diesel	325 hp	40%	38%	8 hrs/day	57
8 ea	Pickup Trucks	Gasoline	250 hp	25%	60%	8 hrs/day	248
12 ea	AWD Gators	Gasoline	25 hp	25%	50%	8 hrs/day	326
2 ea	Diesel Generator, 500 kW	Diesel	730 hp	45%	50%	8 hrs/day	18
8 ea	Diesel Generator, 1250 kW	Diesel	1,750 hp	45%	50%	8 hrs/day	56

Any equip type described under Load Factor as "On Road" on Table E.5-7 were assigned Usage Factors and Load Factors based on the SCAQMD CEQA Handbook data tables.
Load and use factors not counted in Hp-Hr calculations, since these parameters are accounted for in the SCAQMD emissions factors (2013).

Total Equip Days	Hp-Hrs per Day	Total Period Hp-Hrs	Emissions Factors (SCAQMD Offroad Database for 2013)						
						lbs/hp-hr			
			VOC	CO	Nox	SOx	PM10/2.5	CO2	CH4
1008	2320	2338560	0.0006235	0.00433151	0.00586838	8.0426E-06	0.00034397	0.71478726	7.4303E-05
1008	1440	1451520	0.00036498	0.0018134	0.00232311	3.0524E-06	0.0002009	0.26020763	3.2932E-05
1008	2240	2257920	0.00068712	0.00270913	0.00415922	4.5896E-06	0.00037965	0.39125195	6.1998E-05
1092	4000	4368000	0.00065653	0.0018763	0.00578114	5.8697E-06	0.0002405	0.52166926	5.9238E-05
1806	1720	3106320	0.00083826	0.00419732	0.00639624	7.9676E-06	0.0003608	0.70812305	7.5635E-05
8232	600	4939200	0.00176099	0.00599226	0.01030696	9.1632E-06	0.0008983	0.75114508	0.00015689
1092	1280	1397760	0.00058936	0.00275489	0.00443923	5.1658E-06	0.00025438	0.45911188	5.3177E-05
2016	5360	10805760	0.00040205	0.00430746	0.00396039	9.0706E-06	0.00017232	0.80615095	3.6276E-05
17262	*18960*	*30665040*							
252	1720	433440	0.00083826	0.00419732	0.00639624	7.9676E-06	0.0003608	0.70812305	7.5635E-05
420	2640	1108800	0.00090099	0.00256338	0.00819244	9.4276E-06	0.00031628	0.83788089	8.1295E-05
105	1280	134400	0.00072034	0.00327316	0.0053333	6.168E-06	0.00031386	0.54818254	6.4995E-05
84	1320	110880	0.00082868	0.00243221	0.00778747	8.7481E-06	0.00030225	0.77746782	7.477E-05
861	*6960*	*1787520*							
294	2952	867888	0.00050341	0.00147381	0.00484993	6.705E-06	0.00016676	0.59590672	4.5422E-05
4578	3200	14649600	0.00042696	0.00127675	0.0041284	5.2102E-06	0.00013865	0.53082357	3.8524E-05
4872	*6152*	*15517488*							
252	3350	844200	0.00034199	0.00145324	0.00311683	8.2461E-06	9.5303E-05	0.82012413	3.0858E-05
336	2640	887040	0.00041613	0.00117911	0.00397901	5.0479E-06	0.00014037	0.44863548	3.7547E-05
378	2400	907200	0.00046486	0.00202084	0.00313134	3.7217E-06	0.00024895	0.31726514	4.1944E-05
693	1520	1053360	0.00046486	0.00202084	0.00313134	3.7217E-06	0.00024895	0.31726514	4.1944E-05
378	720	272160	0.00036498	0.0018134	0.00232311	3.0524E-06	0.0002009	0.26020763	3.2932E-05
1134	320	362880	0.00195865	0.00550649	0.00506942	6.7115E-06	0.0004794	0.5191612	0.00017673
1386	1120	1552320	0.00068712	0.00270913	0.00415922	4.5896E-06	0.00037965	0.39125195	6.1998E-05
2142	600	1285200	0.00118313	0.00351491	0.00367918	5.0709E-06	0.00031107	0.39225519	0.00010675
756	2000	1512000	0.00055989	0.00153465	0.00494923	7.4957E-06	0.00016495	0.66618161	5.0518E-05
7455	*14670*	*8676360*							
336	2640	887040	0.00041613	0.00117911	0.00397901	5.0479E-06	0.00014037	0.44863548	3.7547E-05
924	1520	1404480	0.00046486	0.00202084	0.00313134	3.7217E-06	0.00024895	0.31726514	4.1944E-05
378	1840	695520	0.00022802	0.00064556	0.00211258	3.471E-06	5.7036E-05	0.30848706	2.0574E-05
420	720	302400	0.00036498	0.0018134	0.00232311	3.0524E-06	0.0002009	0.26020763	3.2932E-05
819	400	327600	0.00118313	0.00351491	0.00367918	5.0709E-06	0.00031107	0.39225519	0.00010675
819	400	327600	0.00118313	0.00351491	0.00367918	5.0709E-06	0.00031107	0.39225519	0.00010675
882	600	529200	0.00118313	0.00351491	0.00367918	5.0709E-06	0.00031107	0.39225519	0.00010675
420	320	134400	0.00195865	0.00550649	0.00506942	6.7115E-06	0.0004794	0.5191612	0.00017673
546	2000	1092000	0.00055989	0.00153465	0.00494923	7.4957E-06	0.00016495	0.66618161	5.0518E-05
840	1120	940800	0.00068712	0.00270913	0.00415922	4.5896E-06	0.00037965	0.39125195	6.1998E-05
6384	*11560*	*6641040*							
210	2640	554400	0.00041613	0.00117911	0.00397901	5.0479E-06	0.00014037	0.44863548	3.7547E-05
756	2000	1512000	0.00041613	0.00117911	0.00397901	5.0479E-06	0.00014037	0.44863548	3.7547E-05
1953	1280	2499840	0.00058936	0.00275489	0.00443923	5.1658E-06	0.00025438	0.45911188	5.3177E-05
294	2952	867888	0.00050341	0.00147381	0.00484993	6.705E-06	0.00016676	0.59590672	4.5422E-05
294	960	282240	0.0009053	0.00431384	0.0056594	7.197E-06	0.0004886	0.61352552	8.1684E-05
252	1280	322560	0.00072034	0.00327316	0.0053333	6.168E-06	0.00031386	0.54818254	6.4995E-05
1932	320	618240	0.00195865	0.00550649	0.00506942	6.7115E-06	0.0004794	0.5191612	0.00017673
1932	1120	2163840	0.00068712	0.00270913	0.00415922	4.5896E-06	0.00037965	0.39125195	6.1998E-05
1848	400	739200	0.00118313	0.00351491	0.00367918	5.0709E-06	0.00031107	0.39225519	0.00010675
2394	400	957600	0.00118313	0.00351491	0.00367918	5.0709E-06	0.00031107	0.39225519	0.00010675
1113	600	667800	0.00118313	0.00351491	0.00367918	5.0709E-06	0.00031107	0.39225519	0.00010675
1155	720	831600	0.00036498	0.0018134	0.00232311	3.0524E-06	0.0002009	0.26020763	3.2932E-05
1155	2000	2310000	0.00055989	0.00153465	0.00494923	7.4957E-06	0.00016495	0.66618161	5.0518E-05
15288	*16672*	*14327208*							
231	1280	295680	0.00058936	0.00275489	0.00443923	5.1658E-06	0.00025438	0.45911188	5.3177E-05
168	960	161280	0.0009053	0.00431384	0.0056594	7.197E-06	0.0004886	0.61352552	8.1684E-05
105	1480	155400	0.00111695	0.00493278	0.00886838	9.252E-06	0.00048506	0.62227397	0.00010078
105	2640	277200	0.00090099	0.00256338	0.00819244	9.4276E-06	0.00031628	0.83788089	8.1295E-05
189	1200	226800	0.00095837	0.00425626	0.00715924	7.7918E-06	0.00040754	0.69250166	8.6291E-05
147	1280	188160	0.00072034	0.00327316	0.0053333	6.168E-06	0.00031386	0.54818254	6.4995E-05
126	720	90720	0.00036498	0.0018134	0.00232311	3.0524E-06	0.0002009	0.26020763	3.2932E-05
462	400	184800	0.00118313	0.00351491	0.00367918	5.0709E-06	0.00031107	0.39225519	0.00010675
84	320	26880	0.00195865	0.00550649	0.00506942	6.7115E-06	0.0004794	0.5191612	0.00017673
84	1120	94080	0.00068712	0.00270913	0.00415922	4.5896E-06	0.00037965	0.39125195	6.1998E-05
1701	*11400*	*1701000*							
3339	2000	6678000	0.00055989	0.00153465	0.00494923	7.4957E-06	0.00016495	0.66618161	5.0518E-05
1197	2600	3112200	0.00055989	0.00153465	0.00494923	7.4957E-06	0.00016495	0.66618161	5.0518E-05
5208	2000	10416000	0.00003402	0.0004062	0.00004104	0.0000006	0.00000642	0.065358	0
6846	200	1369200	0.0003402	0.004062	0.0004104	0.000006	0.0000642	0.65358	0
378	5840	2207520	0.00040461	0.0015561	0.00531507	7.2902E-06	0.00015125	0.72505326	3.6508E-05
1176	14000	16464000	0.00040461	0.0015561	0.00531507	7.2902E-06	0.00015125	0.72505326	3.6508E-05
18144	*26640*	*40246920*							
							Construction Totals		lbs/period
									tons/period

Emissions, lbs/construction period						
VOC	CO	Nox	SOx	PM10/2.5	CO2	CH4
1925.8	10129.5	13770.3	18.8	804.4	1671572.9	173.8
529.8	2632.2	3372.0	4.4	291.6	377686.6	47.8
1551.5	6117.0	9391.2	10.4	857.2	883415.6	140.0
2867.7	8195.7	25252.0	25.6	1050.5	2278551.3	258.8
2603.9	13036.2	19868.8	24.7	1120.8	2199656.8	234.9
8597.9	29596.9	50908.2	45.3	4436.9	3858231.8	784.8
823.6	3850.7	6205.0	7.2	355.6	841728.2	74.3
4344.4	46545.3	42795.0	98.0	1862.0	8711073.7	392.0
23344.795	*120105.54*	*171562.51*	*234.48431*	*10778.963*	*20622027*	*2106.3633*
363.3	1819.3	2772.4	3.5	156.4	306928.9	32.8
999.0	2842.3	9083.8	10.5	350.7	929042.3	90.1
96.8	439.9	716.8	0.8	42.2	73675.7	8.7
91.9	269.7	863.5	1.0	33.5	86207.8	8.3
1551.0568	*5371.1571*	*13436.432*	*15.705761*	*582.77505*	*1395854.8*	*139.94939*
436.9	1279.1	4209.2	5.8	144.7	517180.3	39.4
6254.8	18703.9	60479.4	76.3	2031.2	7776353.0	564.4
6691.7488	*19982.964*	*64688.642*	*82.146619*	*2175.9376*	*8293533.2*	*603.78573*
288.7	1226.8	2631.2	7.0	80.5	692348.8	26.0
369.1	1045.9	3529.5	4.5	124.5	397957.6	33.3
421.7	1833.3	2840.7	3.4	225.8	267822.9	38.1
469.7	2126.7	3298.4	3.9	262.2	334194.4	44.2
99.3	493.5	632.3	0.8	54.7	70818.1	9.0
710.8	1996.2	1839.6	2.4	174.0	188393.2	64.1
1066.6	4205.4	6456.4	7.1	589.3	607348.2	96.2
1520.6	4517.4	4728.5	6.5	399.8	504126.4	137.2
846.6	2320.4	7483.2	11.3	249.4	1007266.8	76.4
5813.0571	*19769.657*	*33439.948*	*46.976929*	*2160.2161*	*4090276.3*	*524.50284*
369.1	1045.9	3529.5	4.5	124.5	397957.6	33.3
652.9	2838.2	4397.9	5.2	349.6	445592.5	58.9
158.6	449.0	1469.3	2.4	46.6	214558.9	14.3
110.4	548.4	702.5	0.9	60.8	78686.8	10.0
387.6	1151.5	1205.3	1.7	101.9	128502.8	35.0
387.6	1151.5	1205.3	1.7	101.9	128502.8	35.0
626.1	1880.1	1947.0	2.7	164.6	207581.4	56.5
263.2	740.1	681.3	0.9	64.4	69775.3	23.8
611.4	1675.8	5404.6	8.2	180.1	727470.3	55.2
646.4	2548.8	3913.0	4.3	357.2	388089.8	58.3
4213.3606	*14009.25*	*24455.799*	*32.453068*	*1551.6944*	*2766718.3*	*380.16479*
230.7	653.7	2206.0	2.8	77.8	248723.5	20.8
629.2	1782.6	6016.3	7.6	212.2	678336.8	56.8
1473.3	6886.8	11097.4	12.9	635.9	1147706.2	132.9
436.9	1279.1	4209.2	5.8	144.7	517180.3	39.4
255.5	1217.5	1597.3	2.0	137.9	173161.4	23.1
232.4	1055.8	1720.3	2.0	101.2	176821.8	21.0
1210.9	3404.3	3134.1	4.1	296.4	320966.2	109.3
1486.8	5862.1	8999.9	9.9	821.5	846606.6	134.2
874.6	2598.2	2719.7	3.7	229.9	289955.0	78.9
1133.0	3365.9	3523.2	4.9	297.9	375623.6	102.2
790.1	2347.3	2457.0	3.4	207.7	261948.0	71.3
303.5	1508.0	1931.9	2.5	167.1	216388.7	27.4
1293.3	3545.0	11432.7	17.3	381.0	1538879.5	116.7
10350.183	*35506.605*	*51044.81*	*79.109081*	*3711.3815*	*6792297.7*	*933.88047*
174.3	814.6	1312.6	1.5	75.2	135750.2	15.7
146.0	695.7	912.7	1.2	78.8	98949.4	13.2
173.6	766.6	1378.1	1.4	75.4	127781.4	15.7
249.8	710.6	2270.9	2.6	87.7	232260.6	22.5
216.9	965.3	1623.7	1.8	92.4	157059.4	19.6
135.5	615.9	1003.5	1.2	59.1	103146.0	12.2
33.1	164.5	210.8	0.3	18.2	23606.0	3.0
218.6	649.6	679.9	0.9	57.5	72488.8	19.7
52.6	148.0	136.3	0.2	12.9	13955.1	4.8
64.6	254.9	391.3	0.4	35.7	36809.0	5.8
1465.0858	*5785.5771*	*9919.8879*	*11.493198*	*592.87159*	*1001805.8*	*132.19235*
3738.9	10248.4	33051.0	50.1	1101.5	4448760.8	337.4
1742.5	4776.1	15403.0	23.3	513.4	2073290.4	157.2
354.4	4231.0	427.5	6.2	66.9	680768.9	0.0
465.8	5561.7	561.9	8.2	87.9	894881.7	0.0
893.2	3435.1	11733.1	16.1	333.9	1600569.6	80.6
6661.6	25619.7	87507.3	120.0	2490.2	11937276.9	601.1
13856.33	*53872.015*	*148683.8*	*223.96838*	*4593.7977*	*21635548*	*1176.2335*
67285.6	274402.8	527231.8	726.3	26147.6	66598061.5	5997.1
33.64	137.20	263.62	0.36	13.07	33299.03	3.00

Emissions, lbs/construction month						
VOC	CO	Nox	SOx	PM10/2.5	CO2	CH4
58.4	307.0	417.3	0.6	24.4	50653.7	5.3
16.1	79.8	102.2	0.1	8.8	11445.4	1.4
47.0	185.4	284.6	0.3	26.0	26770.2	4.2
86.9	248.4	765.2	0.8	31.8	69050.0	7.8
78.9	395.1	602.1	0.7	34.0	66656.3	7.1
263.6	896.9	1542.7	1.4	134.5	116916.1	23.8
25.0	116.7	188.0	0.2	10.8	19446.3	2.3
131.6	1410.5	1296.8	3.0	56.4	263971.9	11.9
707.41802	*3639.5619*	*5198.8639*	*7.1055851*	*326.63525*	*624909.91*	*63.829192*
11.0	55.1	84.0	0.1	4.7	9300.9	1.0
30.3	86.1	275.3	0.3	10.6	28152.8	2.7
2.9	13.3	21.7	0.0	1.3	2232.6	0.3
2.8	8.2	26.2	0.0	1.0	2612.4	0.3
47.001721	*162.76234*	*407.16462*	*0.4759322*	*17.65985*	*42298.629*	*4.2408905*
13.2	38.8	127.6	0.2	4.4	15672.1	1.2
189.5	566.8	1832.7	2.3	61.6	235647.1	17.1
202.78027	*605.54437*	*1960.2619*	*2.4892915*	*65.937502*	*251319.19*	*18.296537*
8.7	37.2	79.7	0.2	2.4	20980.3	0.8
11.2	31.7	107.0	0.1	3.8	12059.3	1.0
12.8	55.6	86.1	0.1	6.8	8721.9	1.2
14.8	64.5	100.0	0.1	7.9	10127.1	1.3
3.0	15.0	19.2	0.0	1.7	2146.0	0.3
21.5	60.6	55.7	0.1	5.3	5708.9	1.9
32.3	127.4	195.6	0.2	17.9	18404.5	2.9
46.1	136.9	143.3	0.2	12.1	15276.6	4.2
25.7	70.3	226.6	0.3	7.6	30523.2	2.3
176.15325	*599.08053*	*1013.3317*	*1.4235433*	*65.461094*	*123947.77*	*15.894025*
11.2	31.7	107.0	0.1	3.8	12059.3	1.0
19.8	86.0	133.3	0.2	10.6	13502.8	1.8
4.8	13.6	44.5	0.1	1.4	6501.8	0.4
3.3	16.6	21.3	0.0	1.8	2384.4	0.3
11.7	34.9	36.5	0.1	3.1	3894.0	1.1
11.7	34.9	36.5	0.1	3.1	3894.0	1.1
19.0	56.4	59.0	0.1	5.0	6290.3	1.7
8.0	22.4	20.6	0.0	2.0	2114.4	0.7
10.5	50.8	163.8	0.2	5.5	22044.6	1.7
19.6	77.2	118.6	0.1	10.8	11154.2	1.8
127.67759	*424.52271*	*741.08482*	*0.9834263*	*47.021042*	*83839.95*	*11.520145*
7.0	19.8	66.8	0.1	2.4	7537.1	0.6
19.1	54.0	182.3	0.2	6.4	20555.7	1.7
44.6	208.7	336.3	0.4	19.3	34779.0	4.0
13.2	38.8	127.6	0.2	4.4	15672.1	1.2
7.7	36.9	48.4	0.1	4.2	5247.3	0.7
7.0	32.0	52.1	0.1	3.1	5358.2	0.6
36.7	103.2	95.0	0.1	9.0	9726.2	3.3
45.1	177.6	272.7	0.3	24.9	25654.7	4.1
26.5	78.7	82.4	0.1	7.0	8786.5	2.4
34.3	102.0	106.8	0.1	9.0	11382.5	3.1
23.9	71.1	74.5	0.1	6.3	7937.8	2.2
9.2	45.7	58.5	0.1	5.1	6557.2	0.8
39.2	107.4	346.4	0.5	11.5	46632.7	3.5
313.64191	*1075.9577*	*1849.6427*	*2.3972449*	*112.46611*	*205827.2*	*28.299408*
5.3	24.7	39.8	0.0	2.3	4113.6	0.5
4.4	21.1	27.7	0.0	2.4	2998.5	0.4
5.3	23.2	41.8	0.0	2.3	3872.2	0.5
7.6	21.5	68.8	0.1	2.7	7038.2	0.7
6.6	29.3	49.2	0.1	2.8	4759.4	0.6
4.1	18.7	30.4	0.0	1.8	3125.6	0.4
1.0	5.0	6.4	0.0	0.6	715.3	0.1
6.6	19.7	20.6	0.0	1.7	2196.6	0.6
1.8	4.5	4.1	0.0	0.4	422.9	0.1
2.0	7.7	11.9	0.0	1.1	1115.4	0.2
44.39654	*175.32052*	*300.60266*	*0.3482787*	*17.965806*	*30357.751*	*4.0058289*
113.3	310.6	1001.5	1.5	33.4	134810.9	10.2
52.8	144.7	486.8	0.7	15.6	62827.0	4.8
10.7	128.2	13.0	0.2	2.0	20629.4	0.0
14.1	168.5	17.0	0.2	2.7	27117.6	0.0
27.1	104.1	355.5	0.5	10.1	48502.1	2.4
201.9	776.4	2651.7	3.8	75.5	361735.7	18.2
419.6888	*1632.4853*	*4505.5696*	*6.7869205*	*139.20599*	*655622.68*	*35.64344*
2039.0	8315.2	15976.7	22.0 lbs/month	792.4	2018123.1	181.7

Emissions, lbs/construction day						
VOC	CO	Nox	SOx	PM10/2.5	CO2	CH4
2.8	14.6	19.9	0.0	1.2	2412.1	0.3
0.8	3.8	4.9	0.0	0.4	545.0	0.1
2.2	8.8	13.6	0.0	1.2	1274.8	0.2
4.1	11.8	36.4	0.0	1.5	3288.1	0.4
3.6	18.8	28.7	0.0	1.6	3174.1	0.3
12.6	42.7	73.5	0.1	6.4	5567.4	1.1
1.2	5.6	9.0	0.0	0.5	926.0	0.1
6.3	67.2	61.8	0.1	2.7	12570.1	0.6
33.686572	*173.31247*	*247.56495*	*0.3383612*	*15.55406*	*29757.615*	*3.0394853*
0.5	2.6	4.0	0.0	0.2	442.9	0.0
1.4	4.1	13.1	0.0	0.5	1340.6	0.1
0.1	0.6	1.0	0.0	0.1	106.3	0.0
0.1	0.4	1.2	0.0	0.0	124.4	0.0
2.2381772	*7.7505874*	*19.388791*	*0.0226634*	*0.8409452*	*2014.2204*	*0.2019472*
0.6	1.8	6.1	0.0	0.2	746.3	0.1
9.0	27.0	87.3	0.1	2.9	11221.3	0.8
9.6562031	*28.835446*	*93.345804*	*0.1185377*	*3.1398811*	*11967.58*	*0.8712637*
0.4	1.8	3.8	0.0	0.1	999.1	0.0
0.5	1.5	5.1	0.0	0.2	574.3	0.0
0.6	2.6	4.1	0.0	0.3	415.3	0.1
0.7	3.1	4.8	0.0	0.4	482.2	0.1
0.1	0.7	0.9	0.0	0.1	102.2	0.0
1.0	2.9	2.7	0.0	0.3	271.9	0.1
1.5	6.1	9.3	0.0	0.9	876.4	0.1
2.2	6.5	6.8	0.0	0.6	727.5	0.2
1.2	3.3	10.6	0.0	0.4	1453.5	0.1
8.3882498	*28.527644*	*48.253893*	*0.0677878*	*3.117195*	*5902.2746*	*0.7566584*
0.5	1.5	5.1	0.0	0.2	574.3	0.0
0.9	4.1	6.3	0.0	0.5	643.0	0.1
0.2	0.6	2.1	0.0	0.1	309.6	0.0
0.2	0.8	1.0	0.0	0.1	113.5	0.0
0.6	1.7	1.7	0.0	0.1	185.4	0.1
0.6	1.7	1.7	0.0	0.1	185.4	0.1
0.9	2.7	2.8	0.0	0.2	299.5	0.1
0.4	1.1	1.0	0.0	0.1	100.7	0.0
0.9	2.4	7.8	0.0	0.3	1049.7	0.1
0.9	3.7	5.6	0.0	0.5	531.2	0.1
6.0798854	*20.215367*	*35.289753*	*0.0466298*	*2.2390973*	*3992.3786*	*0.5485783*
0.3	0.9	3.2	0.0	0.1	358.9	0.0
0.9	2.6	8.7	0.0	0.3	978.8	0.1
2.1	9.9	16.0	0.0	0.9	1656.1	0.2
0.6	1.8	6.1	0.0	0.2	746.3	0.1
0.4	1.8	2.3	0.0	0.2	249.9	0.0
0.3	1.5	2.5	0.0	0.1	255.2	0.0
1.7	4.9	4.5	0.0	0.4	463.2	0.2
2.1	8.5	13.0	0.0	1.2	1221.7	0.2
1.3	3.7	3.9	0.0	0.3	418.4	0.1
1.6	4.9	5.1	0.0	0.4	542.0	0.1
1.1	3.4	3.5	0.0	0.3	378.0	0.1
0.4	2.2	2.8	0.0	0.2	312.2	0.0
1.9	5.1	16.5	0.0	0.5	2220.8	0.2
14.935329	*51.236083*	*88.087749*	*0.1141545*	*5.3555289*	*9801.2954*	*1.3475909*
0.3	1.2	1.9	0.0	0.1	195.9	0.0
0.2	1.0	1.3	0.0	0.1	142.8	0.0
0.3	1.1	2.0	0.0	0.1	184.4	0.0
0.4	1.0	3.3	0.0	0.1	335.2	0.0
0.3	1.4	2.3	0.0	0.1	226.6	0.0
0.2	0.9	1.4	0.0	0.1	148.8	0.0
0.0	0.2	0.3	0.0	0.0	34.1	0.0
0.3	0.9	1.0	0.0	0.1	104.6	0.0
0.1	0.2	0.2	0.0	0.0	20.1	0.0
0.1	0.4	0.6	0.0	0.1	53.1	0.0
2.114121	*8.3485961*	*14.314413*	*0.0165847*	*0.8555146*	*1445.6072*	*0.1907538*
5.4	14.8	47.7	0.1	1.6	6419.6	0.5
2.5	6.9	22.2	0.0	0.7	2991.8	0.2
0.5	6.1	0.6	0.0	0.1	982.4	0.0
0.7	8.0	0.8	0.0	0.1	1291.3	0.0
1.3	5.0	16.9	0.0	0.5	2309.6	0.1
9.6	37.0	126.3	0.2	3.6	17225.5	0.9
19.994705	*77.737395*	*214.55093*	*0.3231867*	*6.6286566*	*31220.128*	*1.6973067*
97.1	396.0	760.8	1.0	37.7	96101.1	6.7
			lbs/day			

Gasoline Vehicle Conversion from Lbs/VMT to Lbs/Hp-hr

Type	HP	Fuel	Avg Speed Onsite mph	Avg VMT/hr	lbsVMT VOC	lbsVMT CO	lbsVMT Nox	lbsVMT SOx	lbsVMT PM10/2.5	lbsVMT CO2
							EMFAC V2.3, 2007			
Pickup Trucks	250	Gasoline	15	15	0.000567	0.00677	0.000684	0.00001	0.000107	1.0893
AWD Gators	25	Gasoline	15	15	0.000567	0.00677	0.000684	0.00001	0.000107	1.0893

	lbs/hr VOC	lbs/hr CO	lbs/hr Nox	lbs/hr SOx	lbs/hr PM10/2.5	lbs/hr CO2
Pickup Trucks	0.008505	0.10155	0.01026	0.00015	0.001605	16.3395
AWD Gators	0.008505	0.10155	0.01026	0.00015	0.001605	16.3395

	lbs/hp-hr	lbs/hp-hr	lbs/hp-hr	lbs/hp-hr	lbs/hp-hr	lbs/hp-hr
Pickup Trucks	0.00003402	0.0004062	0.00004104	0.0000006	0.00000642	0.065358
AWD Gators	0.0003402	0.004062	0.0004104	0.000006	0.0000642	0.65358

CONSTRUCTION PHASE - Site Prep (Grading) for Both Power Blocks and Solar Field Roads (All Phases)

MRI Level 2 Analysis (Refs 1, 3-7)

Acres Subject to Construction Grading/Earthwork Disturbance Activites:		337.2	
Max Acres Subject to Construction Disturbance Activites on any day:		34	
Emissions Factor for PM10 Uncontrolled, tons/acre/month:		0.0144	
PM2.5 fraction of PM10 (per CARB CEIDARS Profiles):		0.21	
Activity Levels:	Hrs/Day:	10	
	Days/Wk:	5	
	Days/Month:	21	
	Const Period, Months:	16	1.3 years
	Const Period, Days:	336	
Wet Season Adjustment:	(Per AP-42, Section 13.2.2, Figure 13.2.2-1, 12/03)		
	Mean # days/year with rain >= 0.01 inch:	20	
	Mean # months/yr with rain >= 0.01 inch:	0.67	
	Adjusted Const Period, Months:	15.11	
	Adjusted Const Period, Days:	309	
Controls for Fugitive Dust:			
	Proposed watering cycle:	3	times per day

SCAQMD Mitigation Measures, Table XI-A, 4/07

3 watering cycles/10 hour construction shift yields a 61% reduction, 2 watering cycles/10 hour shift should yield a 40%+ reduction.

Speed control of onsite const traffic from 35 to 15 mph yields a 57% reduction (use 50% control as conservative in desert area).

Calculated % control based on mitigations proposed:	81	% control
Conservative control % used for emissions estimates:	80	% control
	0.2	release fraction

Emissions: Controlled	PM10	PM2.5
tons/month	0.098	0.021
tons/period	1.480	0.311
Max lbs/day	9.3	1.958

Soil Handling Emissions (Cut and Fill): (2)

Total cu.yds of soil handled:	213067		Mean annual wind speed, mph:		7.8
Total tons of soil handled:	550991.262		Avg. Soil moisture, %:		5
Total days soil handled:	309		Avg. Soil density, tons/cu.yd:		1.3
Tons soil/day:	1781		k factor for PM10:		0.35
Control Eff, watering, %	80		Number of Drops per ton:		2
Release Fraction:	0.2		Calc 1	wind	1.783
			Calc 2	moisture	3.607
			Calc 3	int	0.494
			Calc 4 PM10	lb/ton	0.0006
			PM2.5 fraction of PM10:		0.210

Emissions:	PM10	PM2.5
tons/period	0.03	0.01
tons/month	0.00	0.00
max lbs/day	0.20	0.04

Emissions Totals:

	PM10	**PM2.5**
tons/period	**1.5110**	**0.3173**
tons/month	**0.1000**	**0.0210**
max lbs/day	**9.52**	**2.00**

Methodology References:

(1) MRI Report, South Coast AQMD Project No. 95040, March 1996, Level 2 Analysis Procedure.
MRI Report factor of 0.011 tons/acre/month is based on 168 hours per month of const activity.
For an activity rate of 210 hrs/month, the adjusted EF would be 0.0144 tons/acre/month.
(2) Soil Handling (Cut and Fill), EPA, AP-42, Section 13.2.4., 11/06, and Appendix E-2, Palen Solar PP, 8/09.
(3) URBEMIS, Version 9.2.4, User's Manual Appendix A, page A-6.
(4) CARB Area Source Methodology, Section 7.7, 9/02.
(5) WRAP Fugitive Dust Handbook, 9/06.
(6) USEPA, AP-42, Section 13.2.3, 2/10.
(7) Estimating PM Emissions from Construction Operations, USEPA, MRI, 9/99.
(8) Wind speed data for Blythe AP, 2002-2004.
(9) Soil data: AECOM BSPP, App E.2, 8/09. DR-Air-3, 1-6-10, Silt content-18% avg
(10) Soil Moisture; 5% avg, USGS, OFR-02-348, ADRS, 2002.

CONSTRUCTION PHASE- Erection Phase for Both Power Blocks and Fields (No earthmoving activity)

MRI Level 2 Analysis (Refs 1, 3-7)

Acres Subject to Construction Disturbance Activites:		260	
Max Acres Subject to Construction Disturbance Activites on any day:		26	
Emissions Factor for PM10 Uncontrolled, tons/acre/month:		0.023	
PM2.5 fraction of PM10 (per CARB CEIDARS Profiles):		0.21	
Activity Levels:	Hrs/Day:	16	
	Days/Wk:	5	
	Days/Month:	21	
	Const Period, Months:	30	2.5 years
	Const Period, Days:	630	
Wet Season Adjustment:	(Per AP-42, Section 13.2.2, Figure 13.2.2-1, 12/03)		
	Mean # days/year with rain > = 0.01 inch:	20	
	Mean # months/yr with rain > = 0.01 inch:	0.67	
	Adjusted Const Period, Months:	28.33	
	Adjusted Const Period, Days:	580	
Controls for Fugitive Dust:			
	Proposed watering cycle:	3	times per day

SCAQMD Mitigation Measures, Table XI-A, 4/07

3 watering cycles/10 hour construction shift yields a 61% reduction, 2 watering cycles/10 hour shift should yield a 40%+ reduction.

Speed control of onsite const traffic from 35 to 15 mph yields a 57% reduction (use 50% control as conservative in desert area).

Calculated % control based on mitigations proposed:	81	% control
Conservative control % used for emissions estimates:	80	% control
	0.2	release fraction

Emissions: Controlled	PM10	PM2.5
tons/month	0.120	0.025
tons/period	3.389	0.712
Max lbs/day	11.4	2.392

Soil Handling Emissions (Cut and Fill): (2)

Total cu.yds of soil handled:		0	Mean annual wind speed, mph:			7.8
Total tons of soil handled:		0	Avg. Soil moisture, %:			5
Total days soil handled:		580	Avg. Soil density, tons/cu.yd:			1.3
Tons soil/day:		0	k factor for PM10:			0.35
Control Eff, watering, %		80	Number of Drops per ton:			4
Release Fraction:		0.2	Calc 1	wind		1.783
			Calc 2	moisture		3.607
Emissions:	PM10	PM2.5	Calc 3	int		0.494
tons/period	0.00	0.00	Calc 4	PM10	lb/ton	0.0006
tons/month	0.00	0.00	PM2.5 fraction of PM10:			0.210
max lbs/day	0.00	0.00				

Emissions Totals:

	PM10	**PM2.5**
tons/period	**3.3887**	**0.7116**
tons/month	**0.1196**	**0.0251**
max lbs/day	**11.39**	**2.39**

Methodology References:

(1) MRI Report, South Coast AQMD Project No. 95040, March 1996, Level 2 Analysis Procedure.
MRI Report factor of 0.011 tons/acre/month is based on 168 hours per month of const activity.
For an activity rate of 336 hrs/month, the adjusted EF would be 0.023 tons/acre/month.
(2) Soil Handling (Cut and Fill), EPA, AP-42, Section 13.2.4., 11/06, and Appendix E-2, Palen Solar PP, 8/09.
(3) URBEMIS, Version 9.2.4, User's Manual Appendix A, page A-6.
(4) CARB Area Source Methodology, Section 7.7, 9/02.
(5) WRAP Fugitive Dust Handbook, 9/06.
(6) USEPA, AP-42, Section 13.2.3, 2/10.
(7) Estimating PM Emissions from Construction Operations, USEPA, MRI, 9/99.
(8) Wind speed data for Blythe AP, 2002-2004.
(9) Soil data: AECOM BSPP, App E.2, 8/09. DR-Air-3, 1-6-10, Silt content-18% avg
(10) Soil Moisture; 5% avg, USGS, OFR-02-348, ADRS, 2002.

CONSTRUCTION PHASE - Access Road Construction

MRI Level 2 Analysis (Refs 1, 3-7)

Acres Subject to Construction Disturbance Activites:		7.6	1.25 mi length by 50 ft ROW
Max Acres Subject to Construction Disturbance Activites on any day:		1.00	
Emissions Factor for PM10 Uncontrolled, tons/acre/month:		0.0144	
PM2.5 fraction of PM10 (per CARB CEIDARS Profiles):		0.21	
Activity Levels:	Hrs/Day:	10	
	Days/Wk:	5	
	Days/Month:	21	
	Const Period, Months:	6	0.5 years
	Const Period, Days:	126	
Wet Season Adjustment:	(Per AP-42, Section 13.2.2, Figure 13.2.2-1, 12/03)		
	Mean # days/year with rain > = 0.01 inch:	20	
	Mean # months/yr with rain > = 0.01 inch:	0.67	
	Adjusted Const Period, Months:	5.67	
	Adjusted Const Period, Days:	116	
Controls for Fugitive Dust:			
	Proposed watering cycle:	3	times per day

SCAQMD Mitigation Measures, Table XI-A, 4/07

3 watering cycles/10 hour construction shift yields a 61% reduction, 2 watering cycles/10 hour shift should yield a 40%+ reduction.

Speed control of onsite const traffic from 35 to 15 mph yields a 57% reduction (use 50% control as conservative in desert area).

	Calculated % control based on mitigations proposed:	81	% control
	Conservative control % used for emissions estimates:	80	% control
		0.2	release fraction

Emissions: Controlled	PM10	PM2.5
tons/month	0.003	0.001
tons/period	0.016	0.003
Max lbs/day	0.3	0.058

Soil Handling Emissions (Cut and Fill): (2)

Total cu.yds of soil handled:		0	Mean annual wind speed, mph:			7.8
Total tons of soil handled:		0	Avg. Soil moisture, %:			5
Total days soil handled:		116	Avg. Soil density, tons/cu.yd:			1.3
Tons soil/day:		0	k factor for PM10:			0.35
Control Eff, watering, %		80	Number of Drops per ton:			2
Release Fraction:		0.2	Calc 1	wind		1.783
			Calc 2	moisture		3.607
Emissions: PM10	PM2.5		Calc 3	int		0.494
tons/period 0.00	0.00		Calc 4	PM10	lb/ton	0.0006
tons/month 0.00	0.00		PM2.5 fraction of PM10:			0.210
max lbs/day 0.00	0.00					

Emissions Totals:	**PM10**	**PM2.5**
tons/period	**0.0163**	**0.0034**
tons/month	**0.0029**	**0.0006**
max lbs/day	**0.27**	**0.06**

Methodology References:

(1) MRI Report, South Coast AQMD Project No. 95040, March 1996, Level 2 Analysis Procedure.
MRI Report factor of 0.011 tons/acre/month is based on 168 hours per month of const activity.
For an activity rate of 210 hrs/month, the adjusted EF would be 0.0144 tons/acre/month.
(2) Soil Handling (Cut and Fill), EPA, AP-42, Section 13.2.4., 11/06, and Appendix E-2, Palen Solar PP, 8/09.
(3) URBEMIS, Version 9.2.4, User's Manual Appendix A, page A-6.
(4) CARB Area Source Methodology, Section 7.7, 9/02.
(5) WRAP Fugitive Dust Handbook, 9/06.
(6) USEPA, AP-42, Section 13.2.3, 2/10.
(7) Estimating PM Emissions from Construction Operations, USEPA, MRI, 9/99.
(8) Wind speed data for Blythe AP, 2002-2004.
(9) Soil data: AECOM BSPP, App E.2, 8/09. DR-Air-3, 1-6-10, Silt content-18% avg
(10) Soil Moisture; 5% avg, USGS, OFR-02-348, ADRS, 2002.
(11) paved road will be 2-12 ft lanes, 24 ft wide with minimal shoulders in a 50 ft ROW

CONSTRUCTION PHASE - Underground Gas Line

MRI Level 2 Analysis (Refs 1, 3-7)

Acres Subject to Construction Disturbance Activites:		3.82	
Max Acres Subject to Construction Disturbance Activites on any day:		0.38	
Emissions Factor for PM10 Uncontrolled, tons/acre/month:		0.0144	
PM2.5 fraction of PM10 (per CARB CEIDARS Profiles):		0.21	
Activity Levels:	Hrs/Day:	10	
	Days/Wk:	5	
	Days/Month:	21	
	Const Period, Months:	8	0.7 years
	Const Period, Days:	168	
Wet Season Adjustment:	(Per AP-42, Section 13.2.2, Figure 13.2.2-1, 12/03)		
	Mean # days/year with rain >= 0.01 inch:	20	
	Mean # months/yr with rain >= 0.01 inch:	0.67	
	Adjusted Const Period, Months:	7.56	
	Adjusted Const Period, Days:	155	
Controls for Fugitive Dust:			
	Proposed watering cycle:	3	times per day

SCAQMD Mitigation Measures, Table XI-A, 4/07

3 watering cycles/10 hour construction shift yields a 61% reduction, 2 watering cycles/10 hour shift should yield a 40% + reduction.

Speed control of onsite const traffic from 35 to 15 mph yields a 57% reduction (use 50% control as conservative in desert area).

Calculated % control based on mitigations proposed:	81	% control
Conservative control % used for emissions estimates:	80	% control
	0.2	release fraction

Emissions: Controlled	PM10	PM2.5
tons/month	0.001	0.000
tons/period	0.008	0.002
Max lbs/day	0.1	0.022

Soil Handling Emissions (Cut and Fill): (2)

Total cu.yds of soil handled:	5400		Mean annual wind speed, mph:		7.8
Total tons of soil handled:	13964.4		Avg. Soil moisture, %:		5
Total days soil handled:	155		Avg. Soil density, tons/cu.yd:		1.3
Tons soil/day:	90		k factor for PM10:		0.35
Control Eff, watering, %	80		Number of Drops per ton:		2
Release Fraction:	0.2		Calc 1	wind	1.783
			Calc 2	moisture	3.607
Emissions: PM10 PM2.5			Calc 3	int	0.494
tons/period 0.00 0.00			Calc 4	PM10 lb/ton	0.0006
tons/month 0.00 0.00			PM2.5 fraction of PM10:		0.210
max lbs/day 0.01 0.00					

Fraction of gas line onsite: 0.97

Emissions Totals:	**PM10**	**PM2.5**
tons/period	**0.0091**	**0.0019**
tons/month	**0.0012**	**0.0003**
max lbs/day	**0.11**	**0.02**

Methodology References:

(1) MRI Report, South Coast AQMD Project No. 95040, March 1996, Level 2 Analysis Procedure.
MRI Report factor of 0.011 tons/acre/month is based on 168 hours per month of const activity.
For an activity rate of 210 hrs/month, the adjusted EF would be 0.0144 tons/acre/month.
(2) Soil Handling (Cut and Fill), EPA, AP-42, Section 13.2.4., 11/06, and Appendix E-2, Palen Solar PP, 8/09.
(3) URBEMIS, Version 9.2.4, User's Manual Appendix A, page A-6.
(4) CARB Area Source Methodology, Section 7.7, 9/02.
(5) WRAP Fugitive Dust Handbook, 9/06.
(6) USEPA, AP-42, Section 13.2.3, 2/10.
(7) Estimating PM Emissions from Construction Operations, USEPA, MRI, 9/99.
(8) Wind speed data for Blythe AP, 2002-2004.
(9) Soil data: AECOM BSPP, App E.2, 8/09. DR-Air-3, 1-6-10, Silt content-18% avg
(10) Soil Moisture; 5% avg, USGS, OFR-02-348, ADRS, 2002.
(11) acreage based on trench ROW dimensions, cut and fill based on trench dimensions

CONSTRUCTION PHASE - Underground T-Line

MRI Level 2 Analysis (Refs 1, 3-7)

Acres Subject to Construction Disturbance Activites:		3.35	
Max Acres Subject to Construction Disturbance Activites on any day:		0.34	
Emissions Factor for PM10 Uncontrolled, tons/acre/month:		0.0144	
PM2.5 fraction of PM10 (per CARB CEIDARS Profiles):		0.21	
Activity Levels:	Hrs/Day:	10	
	Days/Wk:	5	
	Days/Month:	21	
	Const Period, Months:	11	0.9 years
	Const Period, Days:	231	
Wet Season Adjustment:	(Per AP-42, Section 13.2.2, Figure 13.2.2-1, 12/03)		
	Mean # days/year with rain > = 0.01 inch:	20	
	Mean # months/yr with rain > = 0.01 inch:	0.67	
	Adjusted Const Period, Months:	10.39	
	Adjusted Const Period, Days:	213	
Controls for Fugitive Dust:			
	Proposed watering cycle:	3	times per day

SCAQMD Mitigation Measures, Table XI-A, 4/07

3 watering cycles/10 hour construction shift yields a 61% reduction, 2 watering cycles/10 hour shift should yield a 40% + reduction.

Speed control of onsite const traffic from 35 to 15 mph yields a 57% reduction (use 50% control as conservative in desert area).

Calculated % control based on mitigations proposed:	81	% control
Conservative control % used for emissions estimates:	80	% control
	0.2	release fraction

Emissions: Controlled	PM10	PM2.5
tons/month	0.001	0.000
tons/period	0.010	0.002
Max lbs/day	0.1	0.020

Soil Handling Emissions (Cut and Fill): (2)

Total cu.yds of soil handled:		49363	Mean annual wind speed, mph:		7.8
Total tons of soil handled:		127652.718	Avg. Soil moisture, %:		5
Total days soil handled:		213	Avg. Soil density, tons/cu.yd:		1.3
Tons soil/day:		600	k factor for PM10:		0.35
Control Eff, watering, %		80	Number of Drops per ton:		2
	Release Fraction:	0.2	Calc 1	wind	1.783
			Calc 2	moisture	3.607
Emissions: PM10	PM2.5		Calc 3	int	0.494
tons/period 0.01	0.00		Calc 4	PM10 lb/ton	0.0006
tons/month 0.00	0.00		PM2.5 fraction of PM10:		0.210
max lbs/day 0.07	0.01				

Fraction of T-line onsite: 1.00

Emissions Totals:	**PM10**	**PM2.5**
tons/period	**0.0174**	**0.0037**
tons/month	**0.0017**	**0.0004**
max lbs/day	**0.16**	**0.03**

Methodology References:

(1) MRI Report, South Coast AQMD Project No. 95040, March 1996, Level 2 Analysis Procedure.
MRI Report factor of 0.011 tons/acre/month is based on 168 hours per month of const activity.
For an activity rate of 210 hrs/month, the adjusted EF would be 0.0144 tons/acre/month.
(2) Soil Handling (Cut and Fill), EPA, AP-42, Section 13.2.4., 11/06, and Appendix E-2, Palen Solar PP, 8/09.
(3) URBEMIS, Version 9.2.4, User's Manual Appendix A, page A-6.
(4) CARB Area Source Methodology, Section 7.7, 9/02.
(5) WRAP Fugitive Dust Handbook, 9/06.
(6) USEPA, AP-42, Section 13.2.3, 2/10.
(7) Estimating PM Emissions from Construction Operations, USEPA, MRI, 9/99.
(8) Wind speed data for Blythe AP, 2002-2004.
(9) Soil data: AECOM BSPP, App E.2, 8/09. DR-Air-3, 1-6-10, Silt content-18% avg
(10) Soil Moisture; 5% avg, USGS, OFR-02-348, ADRS, 2002.
(11) acreage based on trench ROW dimensions, cut and fill based on trench dimensions

OFFSITE PAVED ROAD FUGITIVE DUST EMISSIONS
(associated with delivery truck and worker vehicle traffic on I-10 and plant access road)

Average mileage for construction related vehicles:		75	miles, roundtrip distance***		
Avg weight of vehicular equipment on road:		3.5	tons (range 2 - 42 tons)		
Road surface silt loading factor:		0.03	g/m2 (range 0.03 - 400 g/m2)		
			Limited Access Freeway >10,000 ADT (I-10)		
Particle size multiplier factors:	PM10	0.016	lb/VMT		
	PM2.5	0.0024	lb/VMT		
C factors (brake and tire wear):	PM10	0.00047	lb/VMT		
	PM2.5	0.00036	lb/VMT		
Avg vehicle speed on road:		65	mph		
Number of vehicles per day:		621	*	VMT/day:	46575
				VMT/month:	978075
Number of work days per month:		21		VMT/period:	30515940
	Total vehicles per month:	13041			
Number of work months:		31.2	adjusted for precip events		
	Total vehicles per const period:	406879.2			

	PM10	
Calc 1	0.035	
Calc 2	1.131	
Calc 3	0.0002	lb/VMT

Emissions	PM10	PM2.5
lbs/day	7.40	1.25
lbs/month	155.37	26.26
lbs/period	4847.61	819.25
tons/period	2.42	0.41

*see vehicle total on Weight tab
EPA, AP-42, Section 13.2.1, March 2006, updated 9/2008.
PM2.5 fraction of PM10 per CARB CEIDARs is 0.169
*** Note: avg roundtrip distance traveled by delivery or worker vehicles on limited access freeways (I-10)
Delivery Route: from Blythe urban area or Blythe ATSF railyard to site, includes plant paved access road

ONSITE PAVED ROAD FUGITIVE DUST EMISSIONS

(associated with construction equipment traffic)

Length of Paved Road used for/by Construction Access:		6.3	miles*		
Avg weight of construction vehicular equipment on road:		10	tons (range 2 - 42 tons)		
Road surface silt loading factor:		0.06	g/m2 (range 0.03 - 400 g/m2)		
Particle size multiplier factors:	PM10	0.016	lb/VMT		
	PM2.5	0.0024	lb/VMT		
C factors (brake and tire wear):	PM10	0.00047	lb/VMT		
	PM2.5	0.00036	lb/VMT		
Avg construction vehicle speed on onsite road:		15	mph (range 10-55 mph)		
Number of construction vehicles per day:		80	**	VMT/day:	504
				VMT/month:	10584
Number of construction work days per month:		21		VMT/period:	330220.8
Total vehicles per month:		1680			
Number of construction work months:		31.2	adjusted for precip events		
Total vehicles per const period:		52416			

	PM10	
Calc 1	0.060	
Calc 2	2.620	
Calc 3	0.0021	lb/VMT

Emissions	PM10	PM2.5
lbs/day	1.04	0.18
lbs/month	21.86	3.70
lbs/period	682.18	115.29
tons/period	0.34	0.06

*total mileage of onsite paved roads. Since these roads will be used to access the power block areas and portions of the heliostat fields under installation, it was assumed that all of these roads would be used on an average daily basis.
** delivery vehicles plus onsite const support equipment, worker vehicles will not be traversing the site
EPA, AP-42, Section 13.2.1, March 2006, updated 9/2008.
PM2.5 fraction of PM10 per CARB CEIDARs is 0.169

Fugitive Dust from Wind Erosion of Soil Storage Piles

Grading Phase Only for both Power Blocks and Solar Fields

Avg acres of soil storage piles exposed per day:	5	*	
Soil silt content, %:	18.3		0.183
Number of days/year with precipitation >0.01 inches:	20		
Annual % of time wind speed greater than 12 mph:	20.6		0.206
Watering control efficiency, %:	80		0.8
PM10 aerodynamic factor:	0.5		
PM2.5 aerodynamic factor:	0.2		
Total construction period exposure time, days:	336		

	lb/acre-day	lbs/day	lbs/period	tons/period
PM10	0.104	0.520	174.6	0.087
PM2.5	0.042	0.208	69.9	0.035

MDAQMD, Emissions Inventory Guidance, Mineral Handling and Processing Industries, April 2000.
USEPA, AP-42, Section 13.2.2, Unpaved Roads, Figure 13.2.2-1, Thornethwaite Precipitation Data.
*soil storage areas only, open cut and fill areas are not soil storage areas.

ONSITE UNPAVED ROAD FUGITIVE DUST

Length of Unpaved Road used for/by Construction Access: (in the heliostat fields)		2	miles*			
Avg weight of construction vehicular equipment on road:		10	tons (range 2 - 42 tons)			
Road surface silt content:		18	% (range 1.8 - 35%)			
Road surface material moisture content:		5	% (range 0.03 - 13%)			
		k	a	c	d	
Particle size multiplier factors:	PM10	1.8	1	0.2	0.5	
	PM2.5	0.18	1	0.2	0.5	
C factors (brake and tire wear):	PM10	0.00047	lb/VMT			
	PM2.5	0.00036	lb/VMT			
Avg construction vehicle speed on road:		5	mph (range 5-55 mph)			
Number of construction vehicles per day:		25	**	VMT/day:	50	
				VMT/month:	1050	
Number of construction work days per month:		21		VMT/period:	29746.5	
Total vehicles per month:		525				
Number of construction work months:		28.33	adjusted for precipitation events			
Total vehicles per const period:		14873.25				
Control reduction due to watering, speed control, etc. =		80				
		0.8				
Release Fraction =		0.2				

	PM10	PM2.5
Calc 1	1.500	1.500
Calc 2	0.408	0.408
Calc 3	1.585	1.585
Calc 4	0.695	0.070
Uncontrolled lb/VMT	0.695	0.069

Emissions	PM10	PM2.5
lbs/day	6.95	0.69
lbs/month	145.95	14.53
lbs/period	4134.86	411.62
tons/period	2.07	0.21

EPA, AP-42, Section 13.2.2, March 2006
Soil Moisture; 5% avg, USGS, OFR-02-348, ADRS, 2002.
Soil data: AECOM BSPP, App E.2, 8/09. DR-Air-3, 1-6-10, Silt content-18% avg, for road sfc used 8.5% per EPA-AP42
*total mileage of onsite unpaved roads is 19.8 miles, but less than 10% will be used on any given day during installation
** heliostat installation equipment, avg daily value

OFFSITE UNPAVED ROAD FUGITIVE DUST

Length of Unpaved Road used for/by Construction Access:		0	miles*			
Avg weight of construction vehicular equipment on road:		0	tons (range 2 - 42 tons)			
Road surface silt content:		18	% (range 1.8 - 35%), rolled gravel surface			
Road surface material moisture content:		5	% (range 0.03 - 13%)			
		k	a	c	d	
Particle size multiplier factors:	PM10	1.8	1	0.2	0.5	
	PM2.5	0.18	1	0.2	0.5	
C factors (brake and tire wear):	PM10	0.00047	lb/VMT			
	PM2.5	0.00036	lb/VMT			
Avg construction vehicle speed on road:		15	mph (range 10-55 mph)			
Number of construction vehicles per day:		0	**	VMT/day:	0	
				VMT/month:	0	
Number of construction work days per month:		0		VMT/period:	0	
Total vehicles per month:		0				
Number of construction work months:		0				
Total vehicles per const period:		0				
Control reduction due to watering, speed control, etc. =		80				
		0.8				
Release Fraction =		0.2				

	PM10	PM2.5	**Emissions**	PM10	PM2.5
Calc 1	1.500	1.500	lbs/day	0.00	0.00
Calc 2	0.707	0.707	lbs/month	0.00	0.00
Calc 3	1.585	1.585	lbs/period	0.00	0.00
Calc 4	1.205	0.120	tons/period	0.00	0.00
Uncontrolled lb/VMT	1.204	0.120			

EPA, AP-42, Section 13.2.2, March 2006
Soil Moisture; 5% avg, USGS, OFR-02-348, ADRS, 2002.
Soil data: AECOM BSPP, App E.2, 8/09. DR-Air-3, 1-6-10, Silt content-18% avg
*no offsite unpaved roads will be used during construction
** delivery and worker vehicles plus support staff

CONSTRUCTION PHASE - Trackout Emissions

Paved Road Length (miles):	0.1	estimated roundtrip trackout distance			
Daily # of Vehicles:	50				
Avg Vehicle Weight (tons):	23.0		**PM10**	**PM2.5***	
Total Unadjusted VMT/day	5.0		0.361		
Particle Size Multipliers	PM10		5.101		
lb/VMT	0.023		0.008	0.0014	lb/VMT
C factor, lb/VMT	0.00047		0.293	0.0496	**lbs/day**
Road Sfc Silt Loading (g/m^2):	0.56	local X 2	0.003	0.0005	**tons/month**
# of Active Trackout Points:	1	**	0.10	0.0162	**tons/period**
Added Trackout Miles:	PM10				
Trackout VMT/day:	30		*Default Silt Load Values for Paved Road Types*		
Final Adjusted VMT/day	35		Freeway	0.02 g/m2	
Final Adjusted VMT/month	735		Arterial	0.036 g/m2	
Final Adjusted VMT/period	22932		Collector	0.036 g/m2	
Construction days/month:	21		Local	0.28 g/m2	
Adj. Construction months/period:	31.20		Rural	1.6 g/m2	
Control Applied to Trackout:	Sweeping and Cleaning (water washing)				
Control Efficiency, %	80	0.8	Release Factor =	0.2	

* PM2.5 fraction of PM10 assumed to be 0.169 (CARB CEIDARS updated fraction values) for paved roads.
** 1 controlled ingress/egress point is planned for site construction
EPA, AP-42, Section 13.2.1, Proposed revisions dated 9/2008.
Use silt loading factor from default values for road type if no site specific data is available.
Trackout effects approximately 0.05 mi. of roadway arriving and departing from the site access point.
Plant access road will be paved prior to main site construction period.
Vehicle count = delivery trucks plus 10 misc support vehicles X 2
Worker vehicles not counted for trackout, as they do not access main site.

Onsite Concrete Batch Plant Emissions Estinates

Ref: AP-42, Section 11.12, June 2006
EFs from Table 11.12-6, Central Mix Plant Type

Months concrete batch plant onsite:	14	months 4-17	
Avg workdays per month:	21		
Total concrete production workdays/period:	294		
Total deliveries per period:	3488		
Avg truck capacity, cu.yds:	9		
Total concrete produced onsite per period:	31392	cu.yds.	
Proposed controls: water spray, drop point enclosures, covered conveyors			
Controlled PM10 EF for raw materials input:	0.0153	lbs/cu.yd	
Central Mix Plant EF:	0.0043146	lbs/cu.yd	Eq. 11.12-2

Total EF: 0.0196 lbs/cu.yd.

			PM2.5
Period PM10 Emissions:	615.7	lbs	62.8
	0.31	tons	0.03

			PM2.5
Avg daily PM10 Emissions:	2.09	lbs	0.21

Total site concrete requirements:	58000	cu.yds.
Onsite:	31392	cu.yds.
Offsite:	26608	cu.yds.

CONSTRUCTION PHASE - Truck Hauling/Delivery and Site Support Vehicle Emissions

All Phases

Delivery/Hauling Vehicle Use Rates

Delivery Roundtrip Distance:	75	miles
Const Days per Period:	693	
Avg Deliveries per Day:	15	
Fraction of Deliveries-Diesel:	0.85	HDDT
Fraction of Deliveries-Gas:	0.15	MDGT
Total Delivery VMT:	779625	
Total Daily VMT-Diesel	956	
Total Daily VMT-Gasoline	169	
Total Period VMT-Diesel	662681.25	
Total Period VMT-Gasoline	116943.75	

Emissions Factors (lbs/vmt)

NOx	CO	VOC	SOx	PM10	CO2	
0.020568	0.006521	0.001482	0.000037	0.000958	4.0073	HDDT
0.001246	0.00818	0.000772	0.000015	0.000108	1.4979	MDGT

Daily Emissions (lbs)

NOx	CO	VOC	SOx	PM10	CO2	PM2.5	
19.668	**6.236**	**1.417**	**0.035**	**0.916**	**3831.981**	**0.908**	HDDT
0.210	1.380	0.130	0.003	0.018	252.771	0.018	MDGT

Tons per Const Period

6.815	2.161	0.491	0.012	0.317	1327.8	0.315	HDDT
0.073	0.478	0.045	0.001	0.006	87.6	0.006	MDGT

Construction Site Support Vehicle Use Rates (LDTs)

Gasoline Vehicle VMT Period:	166320
Avg Daily Gasoline VMT:	240
Diesel Vehicle VMT Period:	34650
Avg Daily Diesel VMT:	50
Total Phase Const Days:	693

Daily Emissions, lbs

NOx	CO	VOC	SOx	PM10	CO2			PM2.5
0.000684	0.00677	0.000567	0.00001	0.000107	1.0893	lbs/vmt*	LDT gasoline	
0.000035	0.000013	0.000002	0.000001	0.000002	0.0084	lbs/vmt*	LDT diesel	
0.1642	**1.6248**	**0.1361**	**0.0024**	**0.0257**	**261.4320**	**lbs/day**	**gasoline**	**0.0256**
0.0018	**0.0007**	**0.0001**	**0.0001**	**0.0001**	**0.4200**	**lbs/day**	**diesel**	**0.0001**

Tons per Const Period

0.0569	0.5630	0.0472	0.0008	0.0089	90.6	**tons/period**	**gasoline**	0.0089
0.0006	0.0002	0.0000	0.0000	0.0000	0.1	**tons/period**	**diesel**	0.0000

Ref: Riverside County, Emfac 2007, V2.3, Nov 2006
On-Road Heavy Duty Diesels (1970-2014)
On Road Medium Duty Gas (1970-2014)
LDTs (1970-2014)

Notes ***

VMT for delivery/hauling for all vehicles includes: (1) materials deliveries to site, (2) materials removal from site, other VMT as specified below.
Support Vehicle VMT: best estimate at time of filing, 8 gasoline LDTs at 30 miles per day each, and 2 diesel LDTs at 25 miles per day each.
Delivery Route: Blythe urban or railyard area to site, 75 miles roundtrip.
CARB-CEIDARS, Updated Fractions for PM Profiles: PM2.5 = 0.991 of PM10 for Diesel Exhaust, and 0.998 for Gasoline Vehicles.
Const days per period: 21 days per month at 33 months = 693

CONSTRUCTION PHASE - Worker Travel - Emissions

Ref: Riverside County, Emfac 2007, V2.3, Nov 2006
On Road Vehicles (1970-2014)
LDP/LDT Weighted Avg Efs

All Phases

Worker Travel to Site

Avg Occupancy/Vehicle:	1									
Avg Roundtrip Distance, miles:	75									
Avg # of Worker Vehicles, per day:	596	*				Emissions Factors (lbs/VMT)				
Avg Daily Worker VMT:	44700			NOx	CO	VOC	SOx	PM10	CO2	
Max # of Worker Vehicles, per day:	1380	*		0.00049	0.00548	0.00047	0.00001	0.00009	0.95934	
Max Daily Worker VMT:	103500					Daily Emissions (lbs)				
Total Const Days:	693			NOx	CO	VOC	SOx	PM10	CO2	PM2.5
Total Const Period Worker VMT:	30977100		Avg	21.90	244.96	21.01	0.45	4.02	42882.50	4.01
			Max	50.72	567.18	48.65	1.04	9.32	99291.69	9.30
						Tons per Const Period				
			Avg	7.589	84.877	7.280	0.155	1.394	14858.8	1.391

Worker Travel by Busing from Staging Area

Total Bus VMT/Const Period:	0	Bus Round Trips/Day:	0	max	Ref: Riverside County, Emfac 2007, V2.3, Nov 2006
Avg Bus VMT/Const Day:	0	Bus Occupancy/Trip:	0		On Road Vehicles (1970-2014)
Max Bus VMT/Const Day:	0				Bus Carriers
Distance to site from Bus staging area:	0	miles (roundtrip)			
(AFC Traffic and Transportation Section)					

			Emissions Factors (lbs/VMT)				
	NOx	CO	VOC	SOx	PM10	CO2	
	0.019574	0.033191	0.003404	0.000426	0.000426	3.4043	

Round trip distance: 75 miles from the Blythe urban area.

			Daily Emissions (lbs)				
	NOx	**CO**	**VOC**	**SOx**	**PM10**	**CO2**	**PM2.5**
Avg	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Tons per Const Period				
Avg	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CO2e Emissions Estimates

	Total All Construction Phases	
For CO2 Estimated Emissions Only	1551	
Total CO2 emisisons from diesel combustion:	34629.9	tons/period
Total CO2 emissions from gasoline combustion:	15037	tons/period
Approximate methane fraction of CO2 for diesel combustion:		0.000051
Approximate N2O fraction of CO2 for diesel combustion:		0.000032
Approximate methane fraction of CO2 for gasoline combustion:		0.000213
Approximate N2O fraction of CO2 for gasoline combustion:		0.000113
Estimated methane from diesel combustion:	1.7661249	tons/period
Estimated N2O from diesel combustion:	1.1081568	tons/period
Estimated methane from gasoline combustion:	3.202881	tons/period
Estimated N2O from diesel combustion:	1.699181	tons/period
Estimated methane CO2e from diesel combustion:	37.088623	tons/period
Estimated N2O CO2e from diesel combustion:	343.52861	tons/period
Estimated methane CO2e from gasoline combustion:	67.260501	tons/period
Estimated N2O CO2e from gasoline combustion:	526.74611	tons/period

Partial CO2e emissions from construction: 50642 tons/period

For GHG Where All Species are Estimated

CO2	0	tons/period
CH4	3	tons/period
N2O	0	tons/period

Adjusted GWP Rates

CO2	0	tons/period
CH4	63	tons/period
N2O	0	tons/period
CO2e	63	tons/period

Total CO2e emissions from construction: 50705 tons/period
46095 metric tons/period

CCAR General Protocol, January 2009, Version 3.1.
IPCC SAR values for methane and N2O.

Average Vehicle Weight Estimate for Construction Period

Vehicle Type	Weight tons	# Vehicles per day	Frac. of total vehicles	
Passenger LDP/LDT	2.5	606	0.953	Worker and support travel vehicles
HDD Loaded	35	13	0.020	
HDD Unloaded	15	13	0.020	Materials delivery trucks, service
MDGT Loaded	15	2	0.003	trucks, fuel trucks, other misc trucks.
MDGT Unloaded	5	2	0.003	
		636	1.000	
Vehicle Total		621		

Weighted Avg Vehicle Weight, tons : **3.5**

Ref: AP-42, Section 13.2.2, 11/06, mean vehicle weight guidance, p.13.2.2-6.

Delivery Vehicles Only			
HDD Loaded	35	13	0.433
HDD Unloaded	15	13	0.433
MDGT Loaded	15	2	0.067
MDGT Unloaded	5	2	0.067
		30	1

Weighted Avg Vehicle Weight, tons : **23**

Fleet Average Emission Factors (Diesel)

2013

Air Basin	SC

		(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	LBS/HP-HR						
Equipment	MaxHP	ROG	CO	NOX	SOX	PM	CO2	CH4	ROG	CO	NOX	SOX	PM	CO2	CH4
Aerial Lifts	15	0.0101	0.0528	0.0637	0.0001	0.0027	8.7	0.0009	0.0007	0.0035	0.0042	0.000009	0.0002	0.5768	0.000061
	25	0.0166	0.0503	0.0937	0.0001	0.0051	11.0	0.0015	0.0007	0.0020	0.0037	0.000006	0.0002	0.4384	0.000060
	50	0.0592	0.1757	0.1840	0.0003	0.0156	19.6	0.0053	0.0012	0.0035	0.0037	0.000005	0.0003	0.3923	0.000107
	120	0.0558	0.2425	0.3758	0.0004	0.0299	38.1	0.0050	0.0005	0.0020	0.0031	0.000004	0.0002	0.3173	0.000042
	500	0.1191	0.4671	1.5310	0.0021	0.0448	213	0.0107	0.0002	0.0009	0.0031	0.000004	0.0001	0.4257	0.000021
	750	0.2221	0.8443	2.8534	0.0039	0.0825	385	0.0200	0.0003	0.0011	0.0038	0.000005	0.0001	0.5130	0.000027
Aerial Lifts Total		0.0529	0.1925	0.3059	0.0004	0.0202	34.7	0.0048							
Air Compressors	15	0.0122	0.0484	0.0732	0.0001	0.0048	7.2	0.0011	0.0008	0.0032	0.0049	0.000007	0.0003	0.4815	0.000073
	25	0.0266	0.0744	0.1306	0.0002	0.0081	14.4	0.0024	0.0011	0.0030	0.0052	0.000007	0.0003	0.5778	0.000096
	50	0.0921	0.2546	0.2221	0.0003	0.0220	22.3	0.0083	0.0018	0.0051	0.0044	0.000006	0.0004	0.4454	0.000166
	120	0.0825	0.3251	0.4991	0.0006	0.0456	47.0	0.0074	0.0007	0.0027	0.0042	0.000005	0.0004	0.3913	0.000062
	175	0.1059	0.5054	0.8385	0.0010	0.0472	88.5	0.0096	0.0006	0.0029	0.0048	0.000006	0.0003	0.5056	0.000055
	250	0.1007	0.2955	1.1320	0.0015	0.0347	131	0.0091	0.0004	0.0012	0.0045	0.000006	0.0001	0.5249	0.000036
	500	0.1626	0.5399	1.7639	0.0023	0.0570	232	0.0147	0.0003	0.0011	0.0035	0.000005	0.0001	0.4635	0.000029
	750	0.2547	0.8344	2.8139	0.0036	0.0898	358	0.0230	0.0003	0.0011	0.0038	0.000005	0.0001	0.4775	0.000031
	1000	0.4190	1.4213	5.0841	0.0049	0.1474	486	0.0378	0.0004	0.0014	0.0051	0.000005	0.0001	0.4864	0.000038
Air Compressors Total		0.0913	0.3376	0.6065	0.0007	0.0434	63.6	0.0082							
Bore/Drill Rigs	15	0.0120	0.0632	0.0754	0.0002	0.0029	10.3	0.0011	0.0008	0.0042	0.0050	0.000011	0.0002	0.6897	0.000072
	25	0.0193	0.0658	0.1226	0.0002	0.0049	16.0	0.0017	0.0008	0.0026	0.0049	0.000008	0.0002	0.6395	0.000070
	50	0.0289	0.2282	0.2568	0.0004	0.0120	31.0	0.0026	0.0006	0.0046	0.0051	0.000008	0.0002	0.6207	0.000052
	120	0.0447	0.4698	0.4583	0.0009	0.0257	77.1	0.0040	0.0004	0.0039	0.0038	0.000008	0.0002	0.6427	0.000034
	175	0.0704	0.7538	0.6931	0.0016	0.0302	141	0.0063	0.0004	0.0043	0.0040	0.000009	0.0002	0.8062	0.000036
	250	0.0795	0.3429	0.7632	0.0021	0.0221	188	0.0072	0.0003	0.0014	0.0031	0.000008	0.0001	0.7524	0.000029
	500	0.1295	0.5517	1.1717	0.0031	0.0361	311	0.0117	0.0003	0.0011	0.0023	0.000006	0.0001	0.6226	0.000023
	750	0.2565	1.0899	2.3376	0.0062	0.0715	615	0.0231	0.0003	0.0015	0.0031	0.000008	0.0001	0.8201	0.000031
	1000	0.4163	1.6675	5.9553	0.0093	0.1544	928	0.0376	0.0004	0.0017	0.0060	0.000009	0.0002	0.9283	0.000038
Bore/Drill Rigs Total		0.0786	0.5044	0.8125	0.0017	0.0302	165	0.0071							
Cement and Mortar	15	0.0074	0.0386	0.0470	0.0001	0.0021	6.3	0.0007	0.0005	0.0026	0.0031	0.000007	0.0001	0.4213	0.000045
	25	0.0270	0.0813	0.1510	0.0002	0.0083	17.6	0.0024	0.0011	0.0033	0.0060	0.000009	0.0003	0.7022	0.000098
Cement and Mortar Mixers Total		0.0091	0.0421	0.0556	0.0001	0.0026	7.2	0.0008							
Concrete/Industrial	25	0.0199	0.0678	0.1257	0.0002	0.0049	16.5	0.0018	0.0008	0.0027	0.0050	0.000008	0.0002	0.6591	0.000072
	50	0.0955	0.2918	0.2858	0.0004	0.0247	30.2	0.0086	0.0019	0.0058	0.0057	0.000008	0.0005	0.6042	0.000172
	120	0.1065	0.4836	0.7154	0.0009	0.0589	74.1	0.0096	0.0009	0.0040	0.0060	0.000007	0.0005	0.6179	0.000080
	175	0.1569	0.8701	1.3612	0.0018	0.0706	160	0.0142	0.0009	0.0050	0.0078	0.000010	0.0004	0.9154	0.000081
Concrete/Industrial Saws Total		0.1002	0.4088	0.5572	0.0007	0.0452	58.5	0.0090							
Cranes	50	0.1015	0.2892	0.2394	0.0003	0.0239	23.2	0.0092	0.0020	0.0058	0.0048	0.000006	0.0005	0.4637	0.000183
	120	0.0919	0.3618	0.5508	0.0006	0.0493	50.1	0.0083	0.0008	0.0030	0.0046	0.000005	0.0004	0.4179	0.000069
	175	0.1031	0.4821	0.7769	0.0009	0.0445	80.3	0.0093	0.0006	0.0028	0.0044	0.000005	0.0003	0.4591	0.000053
	250	0.1040	0.2948	0.9948	0.0013	0.0351	112	0.0094	0.0004	0.0012	0.0040	0.000005	0.0001	0.4486	0.000038
	500	0.1551	0.5292	1.4230	0.0018	0.0518	180	0.0140	0.0003	0.0011	0.0028	0.000004	0.0001	0.3602	0.000028
	750	0.2625	0.8887	2.4614	0.0030	0.0885	303	0.0237	0.0003	0.0012	0.0033	0.000004	0.0001	0.4041	0.000032
	9999	0.9491	3.3249	10.3665	0.0098	0.3189	971	0.0856							
Cranes Total		0.1348	0.4737	1.1934	0.0014	0.0508	129	0.0122							

Crawler Tractors	50	0.1176	0.3246	0.2627	0.0003	0.0270	24.9	0.0106	0.0024	0.0065	0.0053	0.000006	0.0005	0.4976	0.000212
	120	0.1293	0.4858	0.7686	0.0008	0.0677	65.8	0.0117	0.0011	0.0040	0.0064	0.000006	0.0006	0.5484	0.000097
	175	0.1674	0.7448	1.2529	0.0014	0.0713	121	0.0151	0.0010	0.0043	0.0072	0.000008	0.0004	0.6925	0.000086
	250	0.1764	0.5000	1.5945	0.0019	0.0613	166	0.0159	0.0007	0.0020	0.0064	0.000007	0.0002	0.6645	0.000064
	500	0.2542	0.9504	2.2389	0.0025	0.0868	259	0.0229	0.0005	0.0019	0.0045	0.000005	0.0002	0.5185	0.000046
	750	0.4574	1.6983	4.1042	0.0047	0.1573	465	0.0413	0.0006	0.0023	0.0055	0.000006	0.0002	0.6196	0.000055
	1000	0.6901	2.6950	7.3731	0.0066	0.2361	658	0.0623	0.0007	0.0027	0.0074	0.000007	0.0002	0.6581	0.000062
Crawler Tractors Total		0.1584	0.5900	1.1593	0.0013	0.0697	114	0.0143							
Crushing/Proc. Equ	50	0.1741	0.5009	0.4359	0.0006	0.0422	44.0	0.0157	0.0035	0.0100	0.0087	0.000011	0.0008	0.8803	0.000314
	120	0.1402	0.5764	0.8552	0.0010	0.0779	83.1	0.0127	0.0012	0.0048	0.0071	0.000008	0.0006	0.6928	0.000105
	175	0.1942	0.9615	1.5237	0.0019	0.0864	167	0.0175	0.0011	0.0055	0.0087	0.000011	0.0005	0.9558	0.000100
	250	0.1848	0.5425	2.0202	0.0028	0.0620	245	0.0167	0.0007	0.0022	0.0081	0.000011	0.0002	0.9781	0.000067
	500	0.2608	0.8480	2.7097	0.0037	0.0884	374	0.0235	0.0005	0.0017	0.0054	0.000007	0.0002	0.7473	0.000047
	750	0.4147	1.3191	4.4498	0.0059	0.1418	589	0.0374	0.0006	0.0018	0.0059	0.000008	0.0002	0.7851	0.000050
	9999	1.1270	3.6752	13.3218	0.0131	0.3880	1,308	0.1017							
Crushing/Proc. Equipment Total		0.1733	0.6773	1.1752	0.0015	0.0748	132	0.0156							
Dumpers/Tenders	25	0.0097	0.0320	0.0601	0.0001	0.0029	7.6	0.0009	0.0004	0.0013	0.0024	0.000004	0.0001	0.3050	0.000035
Dumpers/Tenders Total		0.0097	0.0320	0.0601	0.0001	0.0029	7.6	0.0009							
Excavators	25	0.0198	0.0677	0.1253	0.0002	0.0047	16.4	0.0018	0.0008	0.0027	0.0050	0.000008	0.0002	0.6576	0.000072
	50	0.0816	0.2841	0.2458	0.0003	0.0212	25.0	0.0074	0.0016	0.0057	0.0049	0.000006	0.0004	0.5004	0.000147
	120	0.1086	0.5177	0.6791	0.0009	0.0586	73.6	0.0098	0.0009	0.0043	0.0057	0.000007	0.0005	0.6135	0.000082
	175	0.1208	0.6668	0.8932	0.0013	0.0512	112	0.0109	0.0007	0.0038	0.0051	0.000007	0.0003	0.6413	0.000062
	250	0.1242	0.3541	1.1360	0.0018	0.0372	159	0.0112	0.0005	0.0014	0.0045	0.000007	0.0001	0.6347	0.000045
	500	0.1735	0.5271	1.4763	0.0023	0.0516	234	0.0157	0.0003	0.0011	0.0030	0.000005	0.0001	0.4675	0.000031
	750	0.2895	0.8731	2.5290	0.0039	0.0871	387	0.0261	0.0004	0.0012	0.0034	0.000005	0.0001	0.5166	0.000035
Excavators Total		0.1220	0.5338	0.9071	0.0013	0.0481	120	0.0110							
Forklifts	50	0.0445	0.1623	0.1431	0.0002	0.0121	14.7	0.0040	0.0009	0.0032	0.0029	0.000004	0.0002	0.2934	0.000080
	120	0.0438	0.2176	0.2788	0.0004	0.0241	31.2	0.0040	0.0004	0.0018	0.0023	0.000003	0.0002	0.2602	0.000033
	175	0.0572	0.3307	0.4261	0.0006	0.0246	56.1	0.0052	0.0003	0.0019	0.0024	0.000004	0.0001	0.3203	0.000030
	250	0.0570	0.1614	0.5281	0.0009	0.0168	77.1	0.0051	0.0002	0.0006	0.0021	0.000003	0.0001	0.3085	0.000021
	500	0.0781	0.2208	0.6592	0.0011	0.0228	111	0.0070	0.0002	0.0004	0.0013	0.000002	0.0000	0.2220	0.000014
Forklifts Total		0.0541	0.2235	0.3950	0.0006	0.0204	54.4	0.0049							
Generator Sets	15	0.0149	0.0684	0.1016	0.0002	0.0058	10.2	0.0013	0.0010	0.0046	0.0068	0.000011	0.0004	0.6805	0.000090
	25	0.0266	0.0908	0.1594	0.0002	0.0091	17.6	0.0024	0.0011	0.0036	0.0064	0.000009	0.0004	0.7053	0.000096
	50	0.0872	0.2639	0.2847	0.0004	0.0234	30.6	0.0079	0.0017	0.0053	0.0057	0.000008	0.0005	0.6125	0.000157
	120	0.1106	0.4905	0.7587	0.0009	0.0590	77.9	0.0100	0.0009	0.0041	0.0063	0.000008	0.0005	0.6496	0.000083
	175	0.1347	0.7388	1.2314	0.0016	0.0592	142	0.0122	0.0008	0.0042	0.0070	0.000009	0.0003	0.8113	0.000069
	250	0.1277	0.4365	1.6763	0.0024	0.0464	213	0.0115	0.0005	0.0017	0.0067	0.000010	0.0002	0.8500	0.000046
	500	0.1818	0.7230	2.3955	0.0033	0.0690	337	0.0164	0.0004	0.0014	0.0048	0.000007	0.0001	0.6737	0.000033
	750	0.3035	1.1671	3.9863	0.0055	0.1134	544	0.0274	0.0004	0.0016	0.0053	0.000007	0.0002	0.7251	0.000037
Generator Sets Total		0.0767	0.3045	0.5430	0.0007	0.0324	61.0	0.0069							
Graders	50	0.1080	0.3263	0.2772	0.0004	0.0262	27.5	0.0097	0.0022	0.0065	0.0055	0.000007	0.0005	0.5508	0.000195
	120	0.1254	0.5310	0.7729	0.0009	0.0676	75.0	0.0113	0.0010	0.0044	0.0064	0.000007	0.0006	0.6247	0.000094
	175	0.1467	0.7345	1.1193	0.0014	0.0631	124	0.0132	0.0008	0.0042	0.0064	0.000008	0.0004	0.7081	0.000076
	250	0.1492	0.4331	1.4184	0.0019	0.0494	172	0.0135	0.0006	0.0017	0.0057	0.000008	0.0002	0.6885	0.000054
	500	0.1855	0.6289	1.6842	0.0023	0.0608	229	0.0167	0.0004	0.0013	0.0034	0.000005	0.0001	0.4590	0.000033
	750	0.3952	1.3289	3.6674	0.0049	0.1306	486	0.0357	0.0005	0.0018	0.0049	0.000007	0.0002	0.6477	0.000048
Graders Total		0.1446	0.6053	1.1663	0.0015	0.0593	133	0.0130							

Off-Highway Tracto	120	0.2113	0.7191	1.2368	0.0011	0.1078	93.7	0.0191	0.0018	0.0060	0.0103	0.000009	0.0009	0.7811	0.000159
	175	0.2045	0.8335	1.5337	0.0015	0.0871	130	0.0185	0.0012	0.0048	0.0088	0.000008	0.0005	0.7452	0.000105
	250	0.1641	0.4691	1.4453	0.0015	0.0601	130	0.0148	0.0007	0.0019	0.0058	0.000006	0.0002	0.5217	0.000059
	750	0.6538	2.8815	5.8130	0.0057	0.2353	568	0.0590	0.0009	0.0038	0.0078	0.000008	0.0003	0.7575	0.000079
	1000	0.9818	4.4978	10.0554	0.0082	0.3436	814	0.0886	0.0010	0.0045	0.0101	0.000008	0.0003	0.8143	0.000089
Off-Highway Tractors Total		0.2077	0.7649	1.7062	0.0017	0.0818	151	0.0187							
Off-Highway Trucks	175	0.1441	0.7580	1.0305	0.0014	0.0602	125	0.0130	0.0008	0.0043	0.0059	0.000008	0.0003	0.7148	0.000074
	250	0.1400	0.3837	1.2373	0.0019	0.0412	167	0.0126	0.0006	0.0015	0.0049	0.000007	0.0002	0.6662	0.000051
	500	0.2170	0.6362	1.7865	0.0027	0.0634	272	0.0196	0.0004	0.0013	0.0036	0.000005	0.0001	0.5447	0.000039
	750	0.3542	1.0311	2.9938	0.0044	0.1046	442	0.0320	0.0005	0.0014	0.0040	0.000006	0.0001	0.5890	0.000043
	1000	0.5484	1.6691	5.9808	0.0063	0.1796	625	0.0495	0.0005	0.0017	0.0060	0.000006	0.0002	0.6247	0.000049
Off-Highway Trucks Total		0.2141	0.6361	1.8543	0.0027	0.0644	260	0.0193							
Other Construction	15	0.0118	0.0617	0.0737	0.0002	0.0029	10.1	0.0011	0.0008	0.0041	0.0049	0.000010	0.0002	0.6738	0.000071
	25	0.0160	0.0544	0.1013	0.0002	0.0041	13.2	0.0014	0.0006	0.0022	0.0041	0.000007	0.0002	0.5287	0.000058
	50	0.0753	0.2653	0.2585	0.0004	0.0205	28.0	0.0068	0.0015	0.0053	0.0052	0.000007	0.0004	0.5598	0.000136
	120	0.1006	0.5277	0.7025	0.0009	0.0567	80.9	0.0091	0.0008	0.0044	0.0059	0.000008	0.0005	0.6738	0.000076
	175	0.0935	0.5873	0.8011	0.0012	0.0420	107	0.0084	0.0005	0.0034	0.0046	0.000007	0.0002	0.6087	0.000048
	500	0.1452	0.5234	1.5187	0.0025	0.0491	254	0.0131	0.0003	0.0010	0.0030	0.000005	0.0001	0.5085	0.000026
Other Construction Equipment To		0.0872	0.3765	0.7938	0.0013	0.0330	123	0.0079							
Other General Indu	15	0.0066	0.0391	0.0466	0.0001	0.0018	6.4	0.0006	0.0004	0.0026	0.0031	0.000007	0.0001	0.4264	0.000040
	25	0.0185	0.0632	0.1170	0.0002	0.0044	15.3	0.0017	0.0007	0.0025	0.0047	0.000008	0.0002	0.6140	0.000067
	50	0.0980	0.2738	0.2243	0.0003	0.0232	21.7	0.0088	0.0020	0.0055	0.0045	0.000006	0.0005	0.4349	0.000177
	120	0.1177	0.4487	0.6789	0.0007	0.0644	62.0	0.0106	0.0010	0.0037	0.0057	0.000006	0.0005	0.5170	0.000089
	175	0.1261	0.5728	0.9333	0.0011	0.0549	95.9	0.0114	0.0007	0.0033	0.0053	0.000006	0.0003	0.5482	0.000065
	250	0.1174	0.3177	1.2013	0.0015	0.0380	136	0.0106	0.0005	0.0013	0.0048	0.000006	0.0002	0.5423	0.000042
	500	0.2135	0.6384	2.0642	0.0026	0.0693	265	0.0193	0.0004	0.0013	0.0041	0.000005	0.0001	0.5308	0.000039
	750	0.3546	1.0522	3.5146	0.0044	0.1165	437	0.0320	0.0005	0.0014	0.0047	0.000006	0.0002	0.5833	0.000043
	1000	0.5246	1.6793	6.0067	0.0056	0.1805	560	0.0473	0.0005	0.0017	0.0060	0.000006	0.0002	0.5596	0.000047
Other General Industrial Equipme		0.1542	0.5159	1.3484	0.0016	0.0580	152	0.0139							
Other Material Han	50	0.1361	0.3789	0.3119	0.0004	0.0323	30.3	0.0123	0.0027	0.0076	0.0062	0.000008	0.0006	0.6067	0.000246
	120	0.1144	0.4370	0.6628	0.0007	0.0628	60.7	0.0103	0.0010	0.0036	0.0055	0.000006	0.0005	0.5056	0.000086
	175	0.1591	0.7257	1.1860	0.0014	0.0696	122	0.0144	0.0009	0.0041	0.0068	0.000008	0.0004	0.6976	0.000082
	250	0.1241	0.3385	1.2829	0.0016	0.0405	145	0.0112	0.0005	0.0014	0.0051	0.000007	0.0002	0.5801	0.000045
	500	0.1521	0.4596	1.4883	0.0019	0.0498	192	0.0137	0.0003	0.0009	0.0030	0.000004	0.0001	0.3833	0.000027
Other Material Handling Equipmer		0.1473	0.4951	1.3132	0.0015	0.0562	141	0.0133							
Pavers	25	0.0247	0.0799	0.1500	0.0002	0.0075	18.7	0.0022	0.0010	0.0032	0.0060	0.000009	0.0003	0.7464	0.000089
	50	0.1366	0.3592	0.2948	0.0004	0.0308	28.0	0.0123	0.0027	0.0072	0.0059	0.000007	0.0006	0.5598	0.000246
	120	0.1387	0.5057	0.8357	0.0008	0.0729	69.2	0.0125	0.0012	0.0042	0.0070	0.000007	0.0006	0.5766	0.000104
	175	0.1777	0.7784	1.3769	0.0014	0.0769	128	0.0160	0.0010	0.0044	0.0079	0.000008	0.0004	0.7331	0.000092
	250	0.2072	0.6081	1.9469	0.0022	0.0756	194	0.0187	0.0008	0.0024	0.0078	0.000009	0.0003	0.7775	0.000075
	500	0.2275	0.9254	2.1080	0.0023	0.0818	233	0.0205	0.0005	0.0019	0.0042	0.000005	0.0002	0.4665	0.000041
Pavers Total		0.1511	0.5357	0.8542	0.0009	0.0603	77.9	0.0136							
Paving Equipment	25	0.0153	0.0520	0.0968	0.0002	0.0039	12.6	0.0014	0.0006	0.0021	0.0039	0.000006	0.0002	0.5051	0.000055
	50	0.1166	0.3049	0.2514	0.0003	0.0263	23.9	0.0105	0.0023	0.0061	0.0050	0.000006	0.0005	0.4785	0.000210
	120	0.1087	0.3958	0.6561	0.0006	0.0574	54.5	0.0098	0.0009	0.0033	0.0055	0.000005	0.0005	0.4542	0.000082
	175	0.1387	0.6079	1.0816	0.0011	0.0602	101	0.0125	0.0008	0.0035	0.0062	0.000006	0.0003	0.5773	0.000072
	250	0.1277	0.3763	1.2206	0.0014	0.0467	122	0.0115	0.0005	0.0015	0.0049	0.000006	0.0002	0.4892	0.000046
Paving Equipment Total		0.1142	0.4316	0.7709	0.0008	0.0536	68.9	0.0103							
Plate Compactors	15	0.0050	0.0263	0.0314	0.0001	0.0012	4.3	0.0005	0.0003	0.0018	0.0021	0.000004	0.0001	0.2876	0.000030
Plate Compactors Total		0.0050	0.0263	0.0314	0.0001	0.0012	4.3	0.0005							

Pressure Washers	15	0.0071	0.0328	0.0487	0.0001	0.0028	4.9	0.0006	0.0005	0.0022	0.0032	0.000005	0.0002	0.3260	0.000043
	25	0.0108	0.0368	0.0646	0.0001	0.0037	7.1	0.0010	0.0004	0.0015	0.0026	0.000004	0.0001	0.2859	0.000039
	50	0.0315	0.1037	0.1284	0.0002	0.0094	14.3	0.0028	0.0006	0.0021	0.0026	0.000004	0.0002	0.2859	0.000057
	120	0.0302	0.1443	0.2235	0.0003	0.0157	24.1	0.0027	0.0003	0.0012	0.0019	0.000002	0.0001	0.2006	0.000023
Pressure Washers Total		0.0159	0.0619	0.0878	0.0001	0.0058	9.4	0.0014							
Pumps	15	0.0125	0.0497	0.0752	0.0001	0.0049	7.4	0.0011	0.0008	0.0033	0.0050	0.000008	0.0003	0.4949	0.000075
	25	0.0359	0.1004	0.1761	0.0002	0.0109	19.5	0.0032	0.0014	0.0040	0.0070	0.000010	0.0004	0.7795	0.000129
	50	0.1052	0.3116	0.3228	0.0004	0.0275	34.3	0.0095	0.0021	0.0062	0.0065	0.000009	0.0005	0.6867	0.000190
	120	0.1149	0.4984	0.7706	0.0009	0.0617	77.9	0.0104	0.0010	0.0042	0.0064	0.000008	0.0005	0.6496	0.000086
	175	0.1385	0.7405	1.2344	0.0016	0.0611	140	0.0125	0.0008	0.0042	0.0071	0.000009	0.0003	0.8007	0.000071
	250	0.1266	0.4210	1.6140	0.0023	0.0457	201	0.0114	0.0005	0.0017	0.0065	0.000009	0.0002	0.8055	0.000046
	500	0.1952	0.7595	2.4849	0.0034	0.0734	345	0.0176	0.0004	0.0015	0.0050	0.000007	0.0001	0.6904	0.000035
	750	0.3326	1.2556	4.2353	0.0057	0.1235	571	0.0300	0.0004	0.0017	0.0056	0.000008	0.0002	0.7609	0.000040
Pumps Total		0.0748	0.2926	0.4705	0.0006	0.0323	49.6	0.0067							
Rollers	15	0.0074	0.0386	0.0461	0.0001	0.0018	6.3	0.0007	0.0005	0.0026	0.0031	0.000007	0.0001	0.4213	0.000044
	25	0.0161	0.0549	0.1023	0.0002	0.0041	13.3	0.0015	0.0006	0.0022	0.0041	0.000007	0.0002	0.5337	0.000058
	50	0.1025	0.2911	0.2583	0.0003	0.0245	26.0	0.0092	0.0020	0.0058	0.0052	0.000007	0.0005	0.5197	0.000185
	120	0.0986	0.4063	0.6253	0.0007	0.0534	59.0	0.0089	0.0008	0.0034	0.0052	0.000006	0.0004	0.4916	0.000074
	175	0.1247	0.6199	1.0114	0.0012	0.0550	108	0.0113	0.0007	0.0035	0.0058	0.000007	0.0003	0.6180	0.000064
	250	0.1262	0.3887	1.3124	0.0017	0.0451	153	0.0114	0.0005	0.0016	0.0052	0.000007	0.0002	0.6124	0.000046
	500	0.1654	0.6313	1.6820	0.0022	0.0593	219	0.0149	0.0003	0.0013	0.0034	0.000004	0.0001	0.4382	0.000030
Rollers Total		0.0973	0.4060	0.6546	0.0008	0.0453	67.1	0.0088							
Rough Terrain Fork	50	0.1181	0.3778	0.3316	0.0004	0.0300	33.9	0.0107	0.0024	0.0076	0.0066	0.000009	0.0006	0.6772	0.000213
	120	0.0955	0.4327	0.5995	0.0007	0.0529	62.4	0.0086	0.0008	0.0036	0.0050	0.000006	0.0004	0.5204	0.000072
	175	0.1352	0.7256	1.0448	0.0014	0.0592	125	0.0122	0.0008	0.0041	0.0060	0.000008	0.0003	0.7137	0.000070
	250	0.1294	0.3798	1.2955	0.0019	0.0416	171	0.0117	0.0005	0.0015	0.0052	0.000008	0.0002	0.6832	0.000047
	500	0.1824	0.5717	1.7096	0.0025	0.0584	257	0.0165	0.0004	0.0011	0.0034	0.000005	0.0001	0.5131	0.000033
Rough Terrain Forklifts Total		0.1009	0.4642	0.6526	0.0008	0.0532	70.3	0.0091							
Rubber Tired Doze	175	0.2119	0.8457	1.5561	0.0015	0.0893	129	0.0191	0.0012	0.0048	0.0089	0.000008	0.0005	0.7399	0.000109
	250	0.2435	0.6833	2.0817	0.0021	0.0881	183	0.0220	0.0010	0.0027	0.0083	0.000008	0.0004	0.7339	0.000088
	500	0.3211	1.4228	2.7305	0.0026	0.1133	265	0.0290	0.0006	0.0028	0.0055	0.000005	0.0002	0.5297	0.000058
	750	0.4843	2.1329	4.1797	0.0040	0.1716	399	0.0437	0.0006	0.0028	0.0056	0.000005	0.0002	0.5317	0.000058
	1000	0.7496	3.4322	7.4509	0.0060	0.2591	592	0.0676	0.0007	0.0034	0.0075	0.000006	0.0003	0.5919	0.000068
Rubber Tired Dozers Total		0.2986	1.1749	2.5452	0.0025	0.1064	239	0.0269							
Rubber Tired Load	25	0.0204	0.0697	0.1292	0.0002	0.0050	16.9	0.0018	0.0008	0.0028	0.0052	0.000009	0.0002	0.6772	0.000074
	50	0.1200	0.3641	0.3118	0.0004	0.0292	31.1	0.0108	0.0024	0.0073	0.0062	0.000008	0.0006	0.6230	0.000216
	120	0.0971	0.4152	0.6015	0.0007	0.0525	58.9	0.0088	0.0008	0.0035	0.0050	0.000006	0.0004	0.4909	0.000073
	175	0.1238	0.6274	0.9501	0.0012	0.0535	106	0.0112	0.0007	0.0036	0.0054	0.000007	0.0003	0.6075	0.000064
	250	0.1259	0.3685	1.2125	0.0017	0.0417	149	0.0114	0.0005	0.0015	0.0048	0.000007	0.0002	0.5959	0.000045
	500	0.1867	0.6397	1.7158	0.0023	0.0613	237	0.0168	0.0004	0.0013	0.0034	0.000005	0.0001	0.4740	0.000034
	750	0.3850	1.3084	3.6184	0.0049	0.1276	486	0.0347	0.0005	0.0017	0.0048	0.000007	0.0002	0.6474	0.000046
	1000	0.5190	1.8389	5.9660	0.0060	0.1795	594	0.0468	0.0005	0.0018	0.0060	0.000006	0.0002	0.5939	0.000047
Rubber Tired Loaders Total		0.1195	0.4763	0.9346	0.0012	0.0508	109	0.0108							
Scrapers	120	0.1877	0.6943	1.1141	0.0011	0.0983	93.9	0.0169	0.0016	0.0058	0.0093	0.000009	0.0008	0.7825	0.000141
	175	0.2070	0.9107	1.5564	0.0017	0.0884	148	0.0187	0.0012	0.0052	0.0089	0.000010	0.0005	0.8461	0.000107
	250	0.2252	0.6408	2.0481	0.0024	0.0791	209	0.0203	0.0009	0.0026	0.0082	0.000009	0.0003	0.8379	0.000081
	500	0.3186	1.2113	2.8288	0.0032	0.1099	321	0.0287	0.0006	0.0024	0.0057	0.000006	0.0002	0.6429	0.000057
	750	0.5525	2.0861	4.9949	0.0056	0.1918	555	0.0499	0.0007	0.0028	0.0067	0.000007	0.0003	0.7404	0.000066
Scrapers Total		0.2783	1.0395	2.4118	0.0027	0.1005	262	0.0251							

Signal Boards	15	0.0072	0.0377	0.0450	0.0001	0.0018	6.2	0.0006	0.0005	0.0025	0.0030	0.000006	0.0001	0.4113	0.000043
	50	0.1151	0.3456	0.3415	0.0005	0.0296	36.2	0.0104	0.0023	0.0069	0.0068	0.000009	0.0006	0.7238	0.000208
	120	0.1176	0.5214	0.7807	0.0009	0.0644	80.2	0.0106	0.0010	0.0043	0.0065	0.000008	0.0005	0.6684	0.000088
	175	0.1535	0.8341	1.3333	0.0017	0.0685	155	0.0139	0.0009	0.0048	0.0076	0.000010	0.0004	0.8831	0.000079
	250	0.1632	0.5350	1.9963	0.0029	0.0580	255	0.0147	0.0007	0.0021	0.0080	0.000011	0.0002	1.0212	0.000059
Signal Boards Total		0.0192	0.0934	0.1399	0.0002	0.0077	16.7	0.0017							
Skid Steer Loaders	25	0.0202	0.0620	0.1166	0.0002	0.0063	13.8	0.0018	0.0008	0.0025	0.0047	0.000007	0.0003	0.5518	0.000073
	50	0.0517	0.2263	0.2279	0.0003	0.0157	25.5	0.0047	0.0010	0.0045	0.0046	0.000007	0.0003	0.5104	0.000093
	120	0.0429	0.2748	0.3267	0.0005	0.0245	42.8	0.0039	0.0004	0.0023	0.0027	0.000004	0.0002	0.3563	0.000032
Skid Steer Loaders Total		0.0468	0.2309	0.2522	0.0004	0.0179	30.3	0.0042							
Surfacing Equipme	50	0.0477	0.1403	0.1359	0.0002	0.0119	14.1	0.0043	0.0010	0.0028	0.0027	0.000004	0.0002	0.2822	0.000086
	120	0.0970	0.4215	0.6523	0.0007	0.0517	63.8	0.0088	0.0008	0.0035	0.0054	0.000006	0.0004	0.5314	0.000073
	175	0.0894	0.4730	0.7742	0.0010	0.0392	85.8	0.0081	0.0005	0.0027	0.0044	0.000006	0.0002	0.4901	0.000046
	250	0.1025	0.3374	1.1177	0.0015	0.0376	135	0.0092	0.0004	0.0013	0.0045	0.000006	0.0002	0.5395	0.000037
	500	0.1532	0.6418	1.6597	0.0022	0.0567	221	0.0138	0.0003	0.0013	0.0033	0.000004	0.0001	0.4424	0.000028
	750	0.2443	1.0046	2.6697	0.0035	0.0900	347	0.0220	0.0003	0.0013	0.0036	0.000005	0.0001	0.4627	0.000029
Surfacing Equipment Total		0.1277	0.5182	1.2760	0.0017	0.0468	166	0.0115							
Sweepers/Scrubbe	15	0.0124	0.0729	0.0870	0.0002	0.0034	11.9	0.0011	0.0008	0.0049	0.0058	0.000012	0.0002	0.7959	0.000074
	25	0.0237	0.0808	0.1496	0.0002	0.0058	19.6	0.0021	0.0009	0.0032	0.0060	0.000010	0.0002	0.7845	0.000085
	50	0.1048	0.3425	0.3055	0.0004	0.0271	31.6	0.0095	0.0021	0.0068	0.0061	0.000008	0.0005	0.6310	0.000189
	120	0.1107	0.5147	0.6989	0.0009	0.0622	75.0	0.0100	0.0009	0.0043	0.0058	0.000007	0.0005	0.6253	0.000083
	175	0.1439	0.7997	1.1204	0.0016	0.0637	139	0.0130	0.0008	0.0046	0.0064	0.000009	0.0004	0.7943	0.000074
	250	0.1146	0.3382	1.1784	0.0018	0.0362	162	0.0103	0.0005	0.0014	0.0047	0.000007	0.0001	0.6481	0.000041
Sweepers/Scrubbers Total		0.1148	0.5145	0.6862	0.0009	0.0510	78.5	0.0104							
Tractors/Loaders/B	25	0.0195	0.0657	0.1237	0.0002	0.0056	15.9	0.0018	0.0008	0.0026	0.0049	0.000008	0.0002	0.6345	0.000070
	50	0.0893	0.3199	0.2893	0.0004	0.0238	30.3	0.0081	0.0018	0.0064	0.0058	0.000008	0.0005	0.6069	0.000161
	120	0.0694	0.3529	0.4565	0.0006	0.0383	51.7	0.0063	0.0006	0.0029	0.0038	0.000005	0.0003	0.4311	0.000052
	175	0.0988	0.5861	0.7696	0.0011	0.0428	101	0.0089	0.0006	0.0033	0.0044	0.000007	0.0002	0.5794	0.000051
	250	0.1204	0.3666	1.1658	0.0019	0.0370	172	0.0109	0.0005	0.0015	0.0047	0.000008	0.0001	0.6869	0.000043
	500	0.2290	0.7443	2.0659	0.0039	0.0701	345	0.0207	0.0005	0.0015	0.0041	0.000008	0.0001	0.6897	0.000041
	750	0.3462	1.1159	3.2041	0.0058	0.1072	517	0.0312	0.0005	0.0015	0.0043	0.000008	0.0001	0.6897	0.000042
Tractors/Loaders/Backhoes Total		0.0792	0.3782	0.5392	0.0008	0.0387	66.8	0.0071							
Trenchers	15	0.0099	0.0517	0.0617	0.0001	0.0024	8.5	0.0009	0.0007	0.0034	0.0041	0.000009	0.0002	0.5643	0.000059
	25	0.0397	0.1355	0.2511	0.0004	0.0097	32.9	0.0036	0.0016	0.0054	0.0100	0.000017	0.0004	1.3167	0.000143
	50	0.1566	0.4082	0.3432	0.0004	0.0353	32.9	0.0141	0.0031	0.0082	0.0069	0.000009	0.0007	0.6584	0.000283
	120	0.1281	0.4684	0.7862	0.0008	0.0669	64.9	0.0116	0.0011	0.0039	0.0066	0.000006	0.0006	0.5408	0.000096
	175	0.1955	0.8632	1.5520	0.0016	0.0849	144	0.0176	0.0011	0.0049	0.0089	0.000009	0.0005	0.8223	0.000101
	250	0.2354	0.7089	2.2485	0.0025	0.0880	223	0.0212	0.0009	0.0028	0.0090	0.000010	0.0004	0.8916	0.000085
	500	0.2985	1.3011	2.8470	0.0031	0.1105	311	0.0269	0.0006	0.0026	0.0057	0.000006	0.0002	0.6226	0.000054
	750	0.5663	2.4440	5.4715	0.0059	0.2099	587	0.0511	0.0008	0.0033	0.0073	0.000008	0.0003	0.7825	0.000068
Trenchers Total		0.1427	0.4675	0.6684	0.0007	0.0549	58.7	0.0129							
Welders	15	0.0104	0.0416	0.0629	0.0001	0.0041	6.2	0.0009	0.0007	0.0028	0.0042	0.000006	0.0003	0.4138	0.000063
	25	0.0208	0.0581	0.1020	0.0001	0.0063	11.3	0.0019	0.0008	0.0023	0.0041	0.000006	0.0003	0.4514	0.000075
	50	0.0979	0.2753	0.2535	0.0003	0.0240	26.0	0.0088	0.0020	0.0055	0.0051	0.000007	0.0005	0.5192	0.000177
	120	0.0654	0.2659	0.4099	0.0005	0.0358	39.5	0.0059	0.0005	0.0022	0.0034	0.000004	0.0003	0.3292	0.000049
	175	0.1101	0.5455	0.9083	0.0011	0.0490	98.2	0.0099	0.0006	0.0031	0.0052	0.000006	0.0003	0.5611	0.000057
	250	0.0855	0.2618	1.0026	0.0013	0.0301	119	0.0077	0.0003	0.0010	0.0040	0.000005	0.0001	0.4763	0.000031
	500	0.1092	0.3838	1.2526	0.0016	0.0394	168	0.0098	0.0002	0.0008	0.0025	0.000003	0.0001	0.3352	0.000020
Welders Total		0.0646	0.2096	0.2564	0.0003	0.0225	25.6	0.0058							

All factors already account fot load and use rates per SCAQMD.

Average Emissions Factors, lb/hr: All Equip, HP Categories	0.1105 (lb/hr)	0.4296 (lb/hr)	0.8339 (lb/hr)	0.0010 (lb/hr)	0.0441 (lb/hr)	94.4934 (lb/hr)	0.0100 (lb/hr)
	ROG	CO	NOX	SOX	PM	CO2	CH4

APPENDIX E

Department of Defense Non-Objection Letter

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OFFICE OF THE UNDER SECRETARY OF DEFENSE
3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

ACQUISITION,
TECHNOLOGY
AND LOGISTICS

17 August 2012

Krista Kisch
Vice President – Project Development
Bright Source, Inc.
1999 Harrison St.
Suite 2150
Oakland, CA 94612

Dear Ms. Kisch:

At your request, the DoD Siting Clearinghouse has coordinated an initial review of your proposal for two solar towers at the proposed Palen Towers project in Riverside County, California. While we predict the project will impact the training we conduct in military training routes VR-296, VR-1265, VR-1268, and IR-218, we believe those impacts can be mitigated. Therefore, the Department of Defense will not oppose construction of the project; however, we ask you to continue to coordinate with us as you make micrositing decisions. Your continued cooperation will help us preserve our military's operational, training, and testing capabilities.

Note that this informal review by the DoD does not constitute an action under 49 U.S.C. § 44718 and that neither the DoD nor the Secretary of Transportation are bound by the determination made under the informal review. Please call me at (703) 697-7301 with any questions, and feel free to share this letter with any of your investors or community partners.

Sincerely,

Michael A. Aimone

Michael A. Aimone, P.E.
Executive Director,
DoD Siting Clearinghouse

APPENDIX F

Draft Fire Safety Plan

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Fire Safety Plan
Palen Solar Electric Generating System (PSEGS)

DRAFT

Fire Prevention – General Requirements

Palen Solar Holdings, LLC (PSH), along with its contractors and subcontractors, will develop, implement and maintain strict housekeeping practices as an integral part of an overall PSEGS Fire Prevention program. General requirements will include:

- Combustible and flammable waste must not be allowed to accumulate in any work area.
- Scrap and combustible materials must be removed from structures, partly completed buildings and completed buildings as soon as it is generated.
- Flammable and combustible materials must not be stacked or stored against any temporary or permanent building, structure or storage facility.
- Rags, fabric and timber contaminated with any hydrocarbon product must be contained in a closed metal container and removed daily from the workplace to a safe disposal area.
- During periods when the risk of fire is high efforts will be made to limit activities with inherent fire risks including hot work (grinding, cutting, welding), chainsaw/chipping operations, etc.
- Smoking will be strictly prohibited in specific areas including inside all buildings and within 30 feet of any combustible material storage area. These areas will be clearly identified.

Material Storage

Materials will be stored in a manner so as not to obstruct access to fire protection equipment, control valves, fire doors, alarm devices or panels, electrical panels, motor control centers (MCCs) or aisles and hallways that serve as a means of exit. A minimum clearance of 36 inches (91 cm) shall be maintained in all aisle ways leading to an exit. Also, materials will not obstruct sprinkler heads. A minimum clearance of 18 inches (46 cm) will be maintained from sprinkler heads.

Materials in work areas will be limited to actual needs and will be stored in a manner to protect combustible material from ignition sources. Materials will not be stored within 6 feet (1.8 m) of any inside opening or hoist way.

Storage areas will be kept clean, and materials will be neatly stacked or placed. Construction materials shall be stored or placed in an orderly manner. Storage quantities will be minimized. Fire loads imposed by boxed materials (insulation) will be regulated by the Environmental, Safety and Health Department.

Flammable and Combustible Liquids

Flammable liquids (e.g., gasoline, acetone, denatured alcohol) will not be used for

cleaning. Flammable/combustible solvents will not be used near ignition sources.

Flammable liquids will be handled and used only in approved, properly labeled safety cans. Only approved containers and portable tanks will be used for the storage and handling of flammable and combustible liquids. Approved metal safety cans will be used for the handling of flammable liquids in quantities greater than 1 US gallon (3.8 L). This rule will not apply to those flammable liquid materials that are highly viscous (extremely hard to pour); such materials may be used and handled in their original shipping containers. For quantities of 1 US gallon (3.8 L) or less, only the original container or approved metal safety cans will be employed for storage, use and handling.

Approved, properly labeled storage cabinets will be supplied for the storage of flammable liquids in quantities exceeding 15 U.S. gallons (12.9 UK gallons).

Flammable and combustible liquids will not be stored in areas used as exits, stairways or passageways, and will not adversely affect a means of egress.

Portable storage tanks will be maintained in a diked area, with provisions made for the handling of spills and groundwater protection. The proximity of tanks to buildings and flammables will comply with local, state and federal regulations.

Smoking will be prohibited where refueling activities are in progress. Clear and legible signs will be posted.

No equipment will be fueled while the engine is running.

Fuel cans shall be placed on the ground for filling to avoid the build-up of a static charge generated by the fuel flowing into the can.

The use of cellular phones or other types of radio-frequency (RF) generating devices (pagers, two-way radios, etc.) shall not be permitted during any fueling operations.

Combustible liquids, including oil or grease, will be stored in containers or storage tanks labeled with contents and tank capacity. Each tank will be:

- Capable of withstanding working pressures and stresses compatible with the type of liquid stored,
- Maintained in a manner that prevents leakage,
- Located in an area free of combustible materials, and
- Vented or otherwise constructed to prevent development of pressures or vacuum as a result of filling, emptying or changes in atmospheric temperature.

Permanent storage areas will be provided for containment or removal of the contents in the event of a tank rupture.

All piping valves and fittings will be capable of withstanding working pressures and stresses compatible with the type of liquid stored and will be maintained in a manner to prevent leaks.

Fuel lines will be equipped with valves capable of stopping the flow of fuel at the source and will be located and maintained to minimize fire hazards. This does not apply to fuel lines on self- propelled equipment.

Particular care will be taken when welding and cutting in locations where combustibles are exposed. When such welding or cutting is done, the surrounding area will be inspected. Combustible material will be removed or protected with fire-resistant blankets or equivalent, and an adequate number of approved fire extinguishers will be immediately available.
Flammable liquids will be transferred from one container to another only when containers are electrically interconnected (bonded).

The dispensing units will be protected against collision damage.

Compressed Gas Cylinders

Compressed gas cylinder valves will be closed whenever:

- Work is finished
- The cylinders are empty, or
- The cylinders are moved.

Gauges will be removed and valve protection caps in place before moving cylinders, except when cylinders are secured in a carrier designed for such use.

Compressed gas cylinders will not be hoisted by the valve cap or by means of magnets or slings.

Compressed gas cylinders will be secured in an upright position at all times, except for short periods when being carried or hoisted.

Cylinders will be transported in an upright position and will not be hauled in equipment beds or truck beds on their side. Cylinders lifted from one elevation to another will be lifted only in racks or containers designed for that purpose.

Compressed gas cylinders will be stored/located to avoid exposure to sparks, hot slag or flames. If these cannot be avoided, fire-resistant shields will be provided.

Compressed gas cylinders will not be used as, or placed where they may become part of, an electrical circuit.

Compressed gas cylinders will not be taken into a confined space.

Compressed gas cylinders will not be used as rollers.

Cylinders in storage will be separated (oxygen from fuel gas) by a 5-foot-high (1.5 meters) barrier with a 1-hour fire rating or by a distance of 20 feet (6.1 meters).

Welding gases will be stored in isolated areas and segregated by type of gas.

Cylinders will be stored in well-protected, ventilated, dry locations, at least 20 feet (6.1 meters) from highly combustible materials, and away from egress routes such as stairways and elevators.

Bars will not be used to pry or loosen protective caps. Warm water will be used to loosen caps when frozen.

Damaged or defective cylinders will not be used, but will be tagged and returned to the vendor.

Oxygen cylinders will be kept free of oil and grease.

Compressed gas cylinders will be used and stored in an upright position.

All compressed gas cylinders will be secured in place during use and storage. Securing shall be around the body of the cylinder, midway between top and bottom. Securing around the cylinder neck or by its cap shall be prohibited.

Cylinders will be returned to the main storage area when empty.

If a key wrench is required, it will be in place on the valve of acetylene bottles at all times during use.

The valves of compressed gas cylinders will be completely closed when not in use.

Compressed gas cylinders will not be transported with gauges attached. The gauges will be removed from cylinders and protective caps installed during transportation.

Hot Work

Before Hot Work can be carried out in any construction area, welding fabrication area or shop, the area must be cleared of all combustible and flammable material.

A suitable fire extinguisher must be located within easy reach of operations.

Valves on fuel gas will not be opened more than 1½ turns. If a special key is required for closing the valve, the key will be left in position on the stem at all times or until the task is completed and the caps are replaced.

Fuel gas hose and oxygen hoses will be easily distinguishable and will not be interchangeable. Fuel gas cylinders will not be placed in confined spaces. Fuel gas hoses will be removed from confined spaces when not in use.

When fuel gas rigs are to be used in confined spaces, the atmosphere will be monitored to ensure that a flammable and/or oxygen enriched atmosphere is not created.

Hoses and torches will be inspected before use, and defective hoses will be removed from service.

Boxes used to store fuel gas hoses that have been in use will be ventilated.

Torches will be ignited by friction lighters or other approved devices only.

Cylinders, all hose apparatus, and connectors will be kept free of oil and grease and not handled with oily or greasy hands or gloves.

Oxygen/fuel gas systems will be equipped with approved back-flow valves, flash back arresters and pressure relief devices.

Fuel gas/oxygen equipment will be disconnected from the source when left unattended, such as at lunch or at completion of the task. Torches will not be left inside a confined space unattended.

All employees will use the proper personal protective equipment and clothing when performing or assisting in cutting and welding operations (burning glasses, shields, moleskin suits or flame resistant coveralls and gloves, etc.).

Welding leads and equipment will be properly maintained and inspected before use. Defective equipment will not be used and will be reported to supervision.

Arc welding and cutting operations, including grinding, will be shielded by non-combustible or flameproof screens, shields or other safeguards for the protection of personnel or materials exposed to sparks, slag, falling objects or the ultraviolet (UV)/infrared (IR) radiation of the arc.

Pipelines containing flammable liquids or gases, or electrical cables will not be used as a ground.

The frame of all arc welding or cutting machines will be effectively grounded when the machine's power outlets are being employed as a power source if ground fault interrupter (GFCI) (ELCB) is not being used.

If electrode holders are to be left unattended, the electrodes will be removed and the holder placed where it is protected from unintentional contact.

A fire resistant container will be provided for spent electrode stubs.

Welding machines will be turned off when being moved or when the welder must leave his/her work for any length of time.

No welding or cutting will be done where flammable paints, compounds or dust may create a hazard.

A fire extinguisher with a 30-lb. (13.6 kg) Class A, B, C rating will be at the work location during welding, cutting, soldering, etc.

If normal fire prevention methods are not sufficient to adequately ensure the prevention of fires, additional personnel will be added (fire watch) to guard against potential fires.

Fire Watches will be trained and will remain at the location a sufficient amount of time, as required by the governing standards (e.g., HSE requires minimum 60 minutes; OSHA requires minimum 30 minutes, etc.) after work is stopped to ensure that no possibility of fire exists. In the absence of an existing standard, it shall be as defined in the project's ES&H Execution Plan.

Tanks, vessels, drums, etc., which have contained flammable or toxic liquids will be filled with water or thoroughly cleaned before welding, cutting or heating is undertaken on them. If a toxic material is involved, the ES&H Department will evaluate the operation.

Sufficient ventilation will be provided as needed to maintain welding fumes and smoke below permissible exposure limits. Where sufficient ventilation cannot be achieved, alternative methods will be developed.

Where a preservative coating is present, the coating will be removed or alternative methods used for a sufficient distance in each direction to prevent appreciable heating of the coating.

All cutting, welding or burning operations to be done within confined spaces require a Hot Work Permit, a Confined Space Entry Permit and authorization from the general contractor.

Hot Work at height and from scaffolding presents special hazards. The controls are as follows:

- All work must be coordinated with other Subcontractors working in the area.
- Areas beneath Hot Work must be cleared of all combustible and flammable materials.
- Fire retardant material must be used to cover scaffold boards and to enclose operations.
- Fire retardant material must be removed at the end of every shift to expose scaffold boards or combustible materials.

Hot Work within completed and substantially completed buildings, structures adjacent to fuel and gas lines, control facilities, electricity substations, electrical equipment and distribution lines will be subject to the strict application and conditions of a Hot Work Permit.

- A Fire Watch will remain on-guard at the site of Hot Work activity a sufficient amount of time, as required by the governing standards (e.g., HSE requires minimum 60 minutes; OSHA requires minimum 30 minutes, etc.) after work is finished at the end of the shift or as per Permit requirements. In the absence of an existing standard, it shall be as defined in the project's ES&H Execution Plan.

Temporary Buildings

No temporary building will be erected where it will adversely affect any means of exit. Clearance will be maintained around lights and heating units to prevent ignition of combustible materials.

Temporary buildings, when located within another building or structure, will be of either non-combustible construction or of combustible construction having a fire resistance of not less than one hour.

If a temporary building is not located inside another structure and is not employed for the

storage, handling or use of flammable or combustible liquids, flammable gases, explosives or blasting agents, or similar hazardous occupancies, then said building will be placed at a distance of not less than 10 feet (3 meters) from another building or structure. Groups of temporary buildings not exceeding 2,000 square feet (185.8 square meters) in aggregate will, for the purpose of this section, be considered a single temporary building.

Inspection & Testing

General and specific inspection schedules will be developed and implemented.

General inspections will be conducted weekly covering all construction areas, storage and lay down areas, fabrication and painting areas.

All inspections will be conducted to an agreed standard and recorded using an Inspection Checklist Record.

High activity and high-risk areas, such as substantially completed and completed buildings, fuel oil and gas feed stock and storage facilities and power distribution areas, will be inspected daily or more frequently, dependent on activity and risk.

Inspections required by Hot Work Permit will be carried out as per Permit requirements. The Project ES&H Execution Plan shall specify the format for its Hot Work Permit.

Training

Fire prevention and fire precautions training will be given to all Supervisors, Foremen, Fire Watches, Authorized Hot Work Permit Applicants, Security personnel, Stores personnel, and selected employees at the HHSEGS Project Site. The training program will include:

- Checking portable fire extinguishers
- Hazard recognition and risk potential
- Inspection methods
- Hot Work Permit requirements
- Emergency fire procedures
- Selection and use of portable fire extinguishers
- Equipment refueling procedures, and
- Storage and handling of flammable and combustible liquids.

Note: All training and retraining will be recorded.

Electrical Equipment

Electrical installation will be performed by a competent electrician and will conform to electrical codes.

Flexible cables, tools and equipment including welding equipment must be inspected regularly for damage.

Only approved connectors may be used on electric arc welding leads.

All electrical equipment must be isolated after working hours or when not in use.

Task lighting, particularly halogen lamps, must be clear of combustible materials when in use.

Mobile Plant and Portable Equipment

Mobile plant must not be refuelled while the engine is running. Approved type of filling and fuel dispensing equipment must be used.

A suitable portable fire extinguisher should be placed adjacent to electric arc welding sets, electricity generating sets, air compressors and gas burning equipment.

All mobile plant and fuel trucks should carry or have a suitable portable fire extinguisher attached.

Unless fit for purpose, internal combustion engines on mobile plant such as excavators, tractors, trucks and cranes, must be switched off when not in use.

All internal combustion, stationary or mobile, shall be equipped with spark arrestors.

Light trucks and cars shall be used only on designated roadways that have been cleared of vegetation.

Fire Protection Equipment

Firefighting equipment (hose, nozzles, fire buckets, fire extinguishers) will be available when the project begins.

Fire extinguishers will be conspicuously marked, and clear access to each will be maintained. Employees will be trained in the use of fire extinguishers.

Fire extinguishers will be inspected, tested and maintained in accordance with applicable codes/standards, such as National Fire Protection Association (NFPA) standards or international equivalent.

Each fire extinguisher will be replaced immediately after discharge with another fire extinguisher that is fully charged and of the proper size and type.

A temporary or permanent water supply of sufficient volume, pressure and duration will be made available.

If sprinkler systems are being installed, their installation will closely follow construction and they will be placed in service as soon as practical or as local/state building codes require.

Charged fire hoses will be made available during demolition operations involving combustible materials.

Smoking will be permitted only in designated areas. Smoking will be prohibited at or in the vicinity of operations that constitute a fire hazard. A sign reading “No Smoking or Open Flame” will be conspicuously posted.

Electrical wiring and equipment for light, heat or power purposes will be installed in compliance with government requirements.

During construction, all contractor facilities will be kept free from accumulation of unnecessary combustible materials. Weeds and grass will be kept down, and a regular procedure will be established for the periodic cleanup of the entire area.

Portable heaters, regardless of fuel source, will be equipped with an approved automatic device to shut off the flow of gas to the main burner and pilot, if used, in the event of flame failure. Heaters having inputs above 50,000 Btu per hour will be equipped with either a pilot, which must be lighted and proved before the main burner can be turned on, or an electrical ignition system.

Portable electric heaters will be equipped with a tip alarm and an automatic shut-off that will turn the heater off when tipped.

Fire Emergencies

All fires and other emergencies, regardless of the size and/or circumstance(s), shall be immediately reported utilizing the 911 system.

Employees shall be trained in proper reporting procedures such as the nature of the emergency, the exact location, a contact person/callback number and any other important information.

APPENDIX G

Visual Contrast Rating Worksheets

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Form 8400 - 4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 4/21/2013

District Palm Springs - South Coast

Resource Area Chuckwalla - Palen

Activity (program) Solar Energy

SECTION A. PROJECT INFORMATION

1. Project Name
Palen Solar Electric Generating System (PSEGS)

2. Key Observation Point
KOP 3 Coxcomb WA (JTNP)

3. VRM Class
VRI Class III
VRM Class (Not disclosed by BLM)

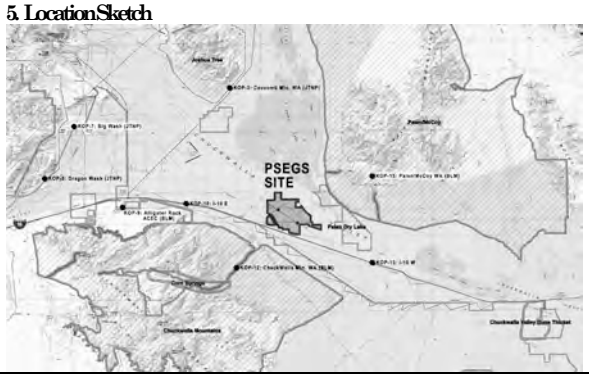
4. Location

Township 5 South

Range 17 E

Section Multiple Sections

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Planar, gently sloping ground plane, flat dry lakebed, faintly pyramidal mountains in the background.	Rounded irregular scrub and small trees	Trapezoidal roadbed and cylindrical power line wood poles cross the view in the foreground.
LINE	Horizontal lines of vehicle tracks in foreground. Sinuous line of small wash in foreground. Jagged line of mountains in background.	Irregular but distinct horizontal line where scrub gives way to dry lakebed. Dark diagonal line of agriculture in background.	Faint horizontal and vertical lines of road and electrical poles. Intermittently visible horizontal lines of conductors.
COLOR	Beige, light brown mottled ground plane. Distinct change sand color in middleground.	Relatively green to grey-green creosote scrub. More verdant green approaching dry lakebed.	Grey asphalt roadbed. Dark brown utility poles. Faint silver grey conductors.
TEXTURE	Slightly coarse foreground, smooth flat middleground. Very smooth dry lakebed	Medium coarse random foreground. Gradation to more ordered continuous middleground. Smooth texture in dry lakebed.	Smooth textured road and wood poles.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

It is approximately 10.0 miles from KOP-3 to the center of the proposed project (Background distance zone)

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	No change.	No change.	Two power towers create new vertical cylindrical forms and two elevated air cooled condensers create rectangular forms approximately 10.0 miles away in the background distance zone.
LINE	No change.	No change.	Two power towers create new vertical lines that barely intersect the horizon of the background mountains. Two elevated air cooled condensers create horizontal lines at the base of the towers.
COLOR	No change.	No change.	Two power towers and two elevated air cooled condensers are medium grey at this distance.
TEXTURE	No change.	No change.	Two power towers and two elevated air cooled condensers are smooth textured.

SECTION D. CONTRAST RATING ☐ SHORT TERM X LONG TERM

1. DEGREE OF CONSTRAST		FEATURES												2. Does project design meet visual resource management objectives? X Yes ☐ No (Explain on reverse side) 3. Additional mitigating measures recommended? ☐ Yes X No (Explain on reverse side)
		LANDWATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	
ELEMENTS	Form				X				X		X			Evaluator's Names: Lee Roger Anderson, CA LLA#1586; Peter Langenfeld; Timothy R Zack; Thomas Cherry, PLA, ASLA — Date: 5/23/2013
	Line				X				X		X			
	Color				X				X			X		
	Texture				X				X			X		

SECTION D. (Continued)

Comments from item 2.
The BLM did not respond in a timely manner to a request for a management decision on the final adopted Visual Resource Management Class (VRM Class) or the Interim Visual Resource Management Class (IVRM) designations for the project area. For this analysis, we had to move forward using the presumption that the Visual Resource Inventory Class (VRI Class) has been adopted as the VRM Class. The VRI Class for this area is III.

In determining whether the proposed action would conform to the assigned VRM class, the four levels of contrast roughly correspond with the four VRM classes. This means that a "strong" contrast rating may be acceptable in an area with VRM Class IV, but probably would not meet the objectives of a VRM Class I, II, or III area. Similarly, a "weak" contrast rating may be acceptable in an area with VRM Class II, but probably would not meet the objectives of a VRM Class I area. The table below shows the correlation between contrast rating and determining whether VRM objectives are met.

Degree of Contrast	VRM Class	Definition
None	Class I Preserve	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. (This classification is usually applied to wilderness areas, wild and scenic rivers, and other similar situations.)
Weak	Class II Retain	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
Moderate	Class III Partially Retain	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
Strong	Class IV Major Modification	The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

The proposed project as seen from KOP-3 will create moderate visual contrasts of form and line, and weak visual contrasts of color and texture. This equates to a rating somewhere between Class II (retention of landscape character) and Class III (partial retention of landscape character).

Therefore, the proposed project will comply with the definition of Class III, above, as seen from KOP-3 at Coxcomb Mtn. WA in the Joshua Tree National Park.

Additional Mitigating Measures (See item 3)

The PSPP EIS identified these Mitigation Measures to aid in reducing visual impact by reducing contrast.

The implementation of mitigation measures imposed by the Energy Commission as Conditions of Certification for the project also would avoid or reduce impacts on the quality of the human environment. These mitigation measures are summarized here in connection with the impacts they would address, and are set forth in full in Appendix B – APPLICANT PROPOSED MEASURES.

VIS-1, Surface Treatment of Project Structures and Buildings

VIS-2, Re-vegetation of Disturbed Soil Areas

VIS-3, Temporary and Permanent Exterior Lighting

VIS-4, Project Design

TRANS-6, Heliostat Positioning Plan

AQ-SC3, Construction Fugitive Dust Control

AQ-SC4, Dust Plume Response Requirement

BIO-8, Impact Avoidance and Minimization Measures

BIO-22, Decommissioning and Reclamation Plan

BLM-VIS-1, Component Color Treatments

BLM-VIS-2, Consultation with the NPS Night Sky Program Manager

No additional mitigation measures beyond these are required because of the view from KOP-3 Coxcomb WA (JTNP).

U.S. GOVERNMENT PRINTING OFFICE: 1985-461-988/33094

Form 8400 - 4
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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 4/23/2013

District Palm Springs - South Coast

Resource Area Chuckwalla - Palen

Activity (program) Solar Energy

SECTION A. PROJECT INFORMATION

1. Project Name
Palen Solar Electric Generating System (PSEGS)

2. Key Observation Point
KOP 7 Big Wash (JTNP)

3. VRM Class
VRI Class III
VRM Class (Not disclosed by BLM)

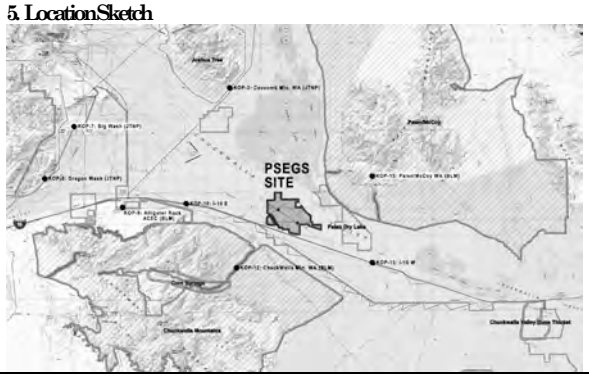
4. Location

Township 5 South

Range 17 E

Section Multiple Sections

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Incised drainage rills of Big Wash in the foreground. Planar, gently sloping ground plane in the middleground, with jagged triangular forms of pyramidal mountains in the background.	Rounded irregular creosote scrub and more vertical small trees in foreground. Gradating to indistinguishable forms with a rectangular area of residential vegetation in the distance.	Rectangular form of Lake Tamarisk.
LINE	Random drainage lines. Strong horizontal line at elevation change. Complex broken lines in foreground.	Distinct horizontal line of ornamental vegetation at Lake Tamarisk.	No apparent structure. Buildings at Lake Tamarisk are indistinguishable.
COLOR	Beige, light brown mottled ground plane. Becoming more consistent medium brown in the distance.	Relatively green to grey-green creosote scrub. Distinct dark green band of evergreen trees at Lake Tamarisk.	No apparent structure. Buildings at Lake Tamarisk are indistinguishable because of evergreen tree screening.
TEXTURE	Coarse jumbled random rocks and boulders in the foreground, smooth flat middleground. Stippled in the background	Medium coarse random foreground. Gradation to more ordered continuous middleground and background.	No apparent structure. Buildings at Lake Tamarisk are indistinguishable.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

It is approximately 15.5 miles from KOP-7 to the center of the proposed project (Seldom Seen distance zone)

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	No change.	No change.	Two power towers create new vertical cylindrical forms and two elevated air cooled condensers create rectangular forms approximately 15.5 miles away (in the seldom seen area, beyond the background distance zone, as defined by the BLM).
LINE	No change.	No change.	Two power towers create new vertical lines. Two elevated air cooled condensers create horizontal lines at the base of the towers.
COLOR	No change.	No change.	Two power towers and two elevated air cooled condensers are medium grey at this distance.
TEXTURE	No change.	No change.	Two power towers and two elevated air cooled condensers are smooth textured.

SECTION D. CONTRAST RATING ☐ SHORT TERM X LONG TERM

1. DEGREE OF CONSTRAST		FEATURES												2. Does project design meet visual resource management objectives? X Yes ☐ No (Explain on reverse side) 3. Additional mitigating measures recommended? ☐ Yes X No (Explain on reverse side)
		LANDWATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	
ELEMENTS	Form				X				X		X			Evaluator's Names: Lee Roger Anderson, CA LLA#1586; Peter Langenfeld; Timothy R Zack; Thomas Cherry, PLA, ASLA Date: 5/23/2013
	Line				X				X		X			
	Color				X				X			X		
	Texture				X				X			X		

SECTION D. (Continued)

Comments from item 2.
The BLM did not respond in a timely manner to a request for a management decision on the final adopted Visual Resource Management Class (VRM Class) or the Interim Visual Resource Management Class (IVRM) designations for the project area. For this analysis, we had to move forward using the presumption that the Visual Resource Inventory Class (VRI Class) has been adopted as the VRM Class. The VRI Class for this area is III.

In determining whether the proposed action would conform to the assigned VRM class, the four levels of contrast roughly correspond with the four VRM classes. This means that a "strong" contrast rating may be acceptable in an area with VRM Class IV, but probably would not meet the objectives of a VRM Class I, II, or III area. Similarly, a "weak" contrast rating may be acceptable in an area with VRM Class II, but probably would not meet the objectives of a VRM Class I area. The table below shows the correlation between contrast rating and determining whether VRM objectives are met.

Degree of Contrast	VRM Class	Definition
None	Class I Preserve	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. (This classification is usually applied to wilderness areas, wild and scenic rivers, and other similar situations.)
Weak	Class II Retain	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
Moderate	Class III Partially Retain	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
Strong	Class IV Major Modification	The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

The proposed project as seen from KOP-7 will create moderate visual contrasts of form and line, and weak visual contrasts of color and texture. This equates to a rating somewhere between Class II (retention of landscape character) and Class III (partial retention of landscape character).

Therefore, the proposed project will comply with the definition of Class III, above, as seen from KOP-7 at Big Wash in Joshua Tree National Park.

Additional Mitigating Measures (See item 3)

The PSPP EIS identified these Mitigation Measures to aid in reducing visual impact by reducing contrast.

The implementation of mitigation measures imposed by the Energy Commission as Conditions of Certification for the project also would avoid or reduce impacts on the quality of the human environment. These mitigation measures are summarized here in connection with the impacts they would address, and are set forth in full in Appendix B – APPLICANT PROPOSED MEASURES.

VIS-1, Surface Treatment of Project Structures and Buildings

VIS-2, Re-vegetation of Disturbed Soil Areas

VIS-3, Temporary and Permanent Exterior Lighting

VIS-4, Project Design

TRANS-6, Heliostat Positioning Plan

AQ-SC3, Construction Fugitive Dust Control

AQ-SC4, Dust Plume Response Requirement

BIO-8, Impact Avoidance and Minimization Measures

BIO-22, Decommissioning and Reclamation Plan

BLM-VIS-1, Component Color Treatments

BLM-VIS-2, Consultation with the NPS Night Sky Program Manager

No additional mitigation measures beyond these are required because of the view from KOP-7 at Big Wash (JTNP).

U.S. GOVERNMENT PRINTING OFFICE: 1985-461-988/33094

Form 8400 - 4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 4/24/2013

District Palm Springs - South Coast

Resource Area Chuckwalla - Palen

Activity (program) Solar Energy

SECTION A. PROJECT INFORMATION

1. Project Name
Palen Solar Electric Generating System (PSEGS)

2. Key Observation Point
KOP 8 Dragon Wash (JTNP)

3. VRM Class
VRI Class III
VRM Class (Not disclosed by BLM)

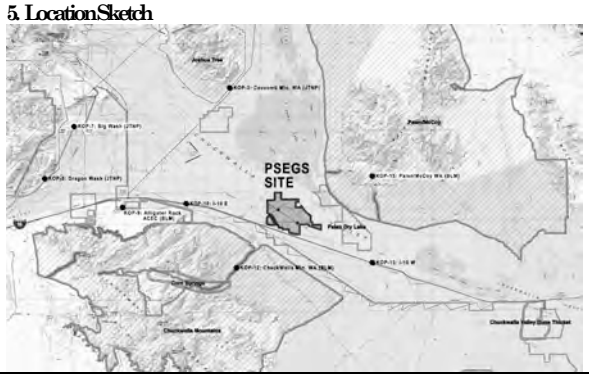
4. Location

Township 5 South

Range 17 E

Section Multiple Sections

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Jumbled rugged complex rock shoulder transitioning to flat, gently sloping ground plane. Jagged triangular forms of pyramidal mountains in the background	Rounded irregular creosote scrub and irregular small trees in foreground. Gradating to a closed carpet of creosote scrub on the middleground and background plane .	Three sagging transmission line conductors cross the sky and desert plane in the foreground/middleground
LINE	Complex random line of boulder in foreground. Strong horizontal line of desert plane in foreground/middleground, extending to background.	Weak horizontal banding of vegetation in middleground.	Horizontal line of transmission line conductors
COLOR	Brown rocks and tan colored sand in foreground and blue grey mountains in the background.	Green to grey-green creosote scrub. Distinct dark green band of color in middleground becoming indistinct farther away	Black to dark grey transmission line conductors.
TEX-TURE	Coarse textured rockforms in the foreground, mottled texture flat middleground, stippled on the background plane. Smooth textured mountains at horizon.	Medium coarse random foreground. Gradation to more ordered continuous and medium texture in middleground and background.	Smooth textured transmission line conductors

SECTION C. PROPOSED ACTIVITY DESCRIPTION

It is approximately 16.0 miles from KOP-8 to the center of the proposed project (Seldom Seen distance zone).

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	No change.	No change.	Two power towers create new vertical cylindrical forms and two elevated air cooled condensers create rectangular forms approximately 16.0 miles away (in the seldom seen area, beyond the background distance zone, as defined by the BLM)
LINE	No change.	No change.	Two power towers create new vertical lines and two elevated air cooled condensers create horizontal lines at the base of the towers..
COLOR	No change.	No change.	Two power towers and two elevated air cooled condensers are medium grey at this distance.
TEX-TURE	No change.	No change.	Two power towers and two elevated air cooled condensers are smooth textured.

SECTION D. CONTRAST RATING ☐ SHORT TERM X LONG TERM

1. DEGREE OF CONSTRAST		FEATURES												2. Does project design meet visual resource management objectives? X Yes ☐ No (Explain on reverse side) 3. Additional mitigating measures recommended? ☐ Yes X No (Explain on reverse side)
		LANDWATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	
ELEMENTS	Form				X				X		X			Evaluator's Names: Lee Roger Anderson, CA LLA#1586; Peter Langenfeld; Timothy R Zack; Thomas Cherry, PLA, ASLA Date: 5/23/2013
	Line				X				X		X			
	Color				X				X			X		
	Texture				X				X			X		

SECTION D. (Continued)

Comments from item 2.
The BLM did not respond in a timely manner to a request for a management decision on the final adopted Visual Resource Management Class (VRM Class) or the Interim Visual Resource Management Class (IVRM) designations for the project area. For this analysis, we had to move forward using the presumption that the Visual Resource Inventory Class (VRI Class) has been adopted as the VRM Class. The VRI Class for this area is III.

In determining whether the proposed action would conform to the assigned VRM class, the four levels of contrast roughly correspond with the four VRM classes. This means that a "strong" contrast rating may be acceptable in an area with VRM Class IV, but probably would not meet the objectives of a VRM Class I, II, or III area. Similarly, a "weak" contrast rating may be acceptable in an area with VRM Class II, but probably would not meet the objectives of a VRM Class I area. The table below shows the correlation between contrast rating and determining whether VRM objectives are met.

Degree of Contrast	VRM Class	Definition
None	Class I Preserve	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. (This classification is usually applied to wilderness areas, wild and scenic rivers, and other similar situations.)
Weak	Class II Retain	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
Moderate	Class III Partially Retain	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
Strong	Class IV Major Modification	The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

The proposed project as seen from KOP-8 will create moderate visual contrasts of form and line, and weak visual contrasts of color and texture. This equates to a rating somewhere between Class II (retention of landscape character) and Class III (partial retention of landscape character).

Therefore, the proposed project will comply with the definition of Class III, above, as seen from KOP-8 at Dragon Wash in Joshua Tree National Park.

Additional Mitigating Measures (See item 3)

The PSPP EIS identified these Mitigation Measures to aid in reducing visual impact by reducing contrast.

The implementation of mitigation measures imposed by the Energy Commission as Conditions of Certification for the project also would avoid or reduce impacts on the quality of the human environment. These mitigation measures are summarized here in connection with the impacts they would address, and are set forth in full in Appendix B – APPLICANT PROPOSED MEASURES.

VIS-1, Surface Treatment of Project Structures and Buildings

VIS-2, Re-vegetation of Disturbed Soil Areas

VIS-3, Temporary and Permanent Exterior Lighting

VIS-4, Project Design

TRANS-6, Heliostat Positioning Plan

AQ-SC3, Construction Fugitive Dust Control

AQ-SC4, Dust Plume Response Requirement

BIO-8, Impact Avoidance and Minimization Measures

BIO-22, Decommissioning and Reclamation Plan

BLM-VIS-1, Component Color Treatments

BLM-VIS-2, Consultation with the NPS Night Sky Program Manager

No additional mitigation measures beyond these are required because of the view from KOP-8 at Dragon Wash (JTNP).

U.S. GOVERNMENT PRINTING OFFICE: 1985-461-988/33094

Form 8400 - 4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 4/25/2013

District Palm Springs - South Coast

Resource Area Chuckwalla - Palen

Activity (program) Solar Energy

SECTION A. PROJECT INFORMATION

1. Project Name
Palen Solar Electric Generating System (PSEGS)

2. Key Observation Point
KOP 9 Alligator Rock ACEC (BLM)

3. VRM Class
VRI Class III
VRM Class (Not disclosed by BLM)

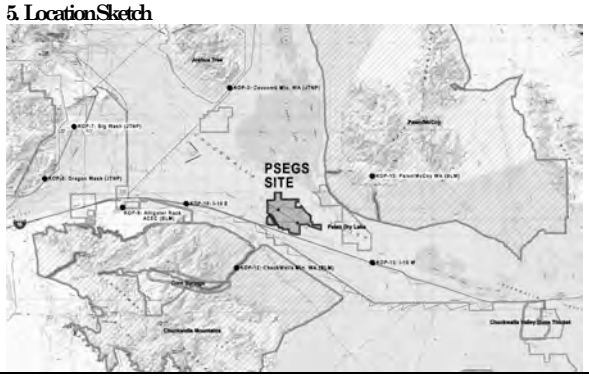
4. Location

Township 5 South

Range 17 E

Section Multiple Sections

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Gently sloping ground plane, pyramidal mountains in the background.	Rounded irregular creosote scrub and more vertical small trees in foreground. Middleground beyond is obscured. Background vegetation is not evident.	Cylindrical forms of transmission line tubular steel poles.
LINE	Linear, sloping drainage rills in foreground. Jagged silhouettes of mountains in background.	Converging line by banded vegetation patterns/	Horizontal transmission line conductors with strong vertical line of tubular steel poles with less dominant horizontal cross-arms and 6 weak horizontal lines of transmission line conductors.
COLOR	Tan colored sand in foreground. Becoming grey green with creosote scrub in the middleground. Background colors muted blue greys.	Relatively green to grey-green creosote scrub becoming obscured and indistinct farther away with distinct line of unvegetated dry lakebed.	Black to dark grey transmission line conductors. Dark browns of the vertical transmission line tubular steel poles.
TEXTURE	Smooth sloping foreground, middleground obscured. Smooth textured dry lakebed at the base of the rugged textured mountains in the background.	Medium coarse random texture in foreground. Gradation to more continuous medium middleground texture, with background vegetation indistinguishable.	Smooth textured transmission line conductors and tubular steel poles.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

It is approximately 11.1 miles from KOP-9 to the center of the proposed project (Background distance zone)

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	No change.	No change.	Two power towers create new vertical cylindrical forms approximately 11.1 miles away in the background distance zone.
LINE	No change.	No change.	Two power towers create weak new vertical lines in the landscape. These new lines do not protrude above the horizon in this sloping and relatively horizontal landscape.
COLOR	No change.	No change.	Two power towers are medium grey at this distance.
TEXTURE	No change.	No change.	Two power towers are smooth textured.

SECTION D. CONTRAST RATING ☐ SHORT TERM X LONG TERM

1. DEGREE OF CONSTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form				X				X			X	
	Line				X				X			X	
	Color				X				X			X	
	Texture				X				X			X	

2. Does project design meet visual resource management objectives? X Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended? ☐ Yes X No (Explain on reverse side)

Evaluator's Names **Date**
Lee Roger Anderson, CA LLA#1586 **5/23/2013**
Peter Langenfeld
Timothy R Zack
Thomas Cherry, PLA, ASLA

SECTION D. (Continued)

Comments from item 2.
The BLM did not respond in a timely manner to a request for a management decision on the final adopted Visual Resource Management Class (VRM Class) or the Interim Visual Resource Management Class (IVRM) designations for the project area. For this analysis, we had to move forward using the presumption that the Visual Resource Inventory Class (VRI Class) has been adopted as the VRM Class. The VRI Class for this area is III.

In determining whether the proposed action would conform to the assigned VRM class, the four levels of contrast roughly correspond with the four VRM classes. This means that a "strong" contrast rating may be acceptable in an area with VRM Class IV, but probably would not meet the objectives of a VRM Class I, II, or III area. Similarly, a "weak" contrast rating may be acceptable in an area with VRM Class II, but probably would not meet the objectives of a VRM Class I area. The table below shows the correlation between contrast rating and determining whether VRM objectives are met.

Degree of Contrast	VRM Class	Definition
None	Class I Preserve	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. (This classification is usually applied to wilderness areas, wild and scenic rivers, and other similar situations.)
Weak	Class II Retain	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
Moderate	Class III Partially Retain	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
Strong	Class IV Major Modification	The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

The proposed project as seen from KOP-9 will create weak visual contrasts of form, line, color, and texture. This equates to a rating of VRM Class II (retention of landscape character).

Therefore, the proposed project will comply with the definition of Class III, above, as seen from KOP-9 at Alligator Rock ACEC (BLM).

Additional Mitigating Measures (See item 3)

The PSPP EIS identified these Mitigation Measures to aid in reducing visual impact by reducing contrast.

The implementation of mitigation measures imposed by the Energy Commission as Conditions of Certification for the project also would avoid or reduce impacts on the quality of the human environment. These mitigation measures are summarized here in connection with the impacts they would address, and are set forth in full in Appendix B – APPLICANT PROPOSED MEASURES.

VIS-1, Surface Treatment of Project Structures and Buildings

VIS-2, Re-vegetation of Disturbed Soil Areas

VIS-3, Temporary and Permanent Exterior Lighting

VIS-4, Project Design

TRANS-6, Heliostat Positioning Plan

AQ-SC3, Construction Fugitive Dust Control

AQ-SC4, Dust Plume Response Requirement

BIO-8, Impact Avoidance and Minimization Measures

BIO-22, Decommissioning and Reclamation Plan

BLM-VIS-1, Component Color Treatments

BLM-VIS-2, Consultation with the NPS Night Sky Program Manager

No additional mitigation measures beyond these are required because of the view from KOP-9 at Alligator Rock ACEC (BLM).

U.S. GOVERNMENT PRINTING OFFICE: 1985-461-988/33094

Form 8400 - 4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 4/26/2013

District Palm Springs - South Coast

Resource Area Chuckwalla - Palen

Activity (program) Solar Energy

SECTION A. PROJECT INFORMATION

1. Project Name
Palen Solar Electric Generating System (PSEGS)

2. Key Observation Point
KOP 10 I-10 Freeway Eastbound

3. VRM Class
VRI Class III
VRM Class (Not disclosed by BLM)

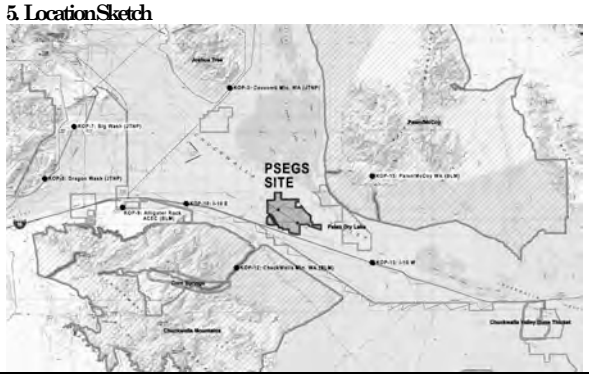
4. Location

Township 5 South

Range 17 E

Section Multiple Sections

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Trapezoidal roadbed, sloping planer middleground, pyramidal mountains in the background. There is no water visible in this landscape.	Rounded irregular creosote scrub and small trees in foreground. Beyond is gradating into mottled middleground and background.	Linear road. Jumbled vertical mass of geometric lattice towers at the electrical substation and seen against the horizon elsewhere. Vehicle motion on roadway attracts attention.
LINE	Jagged silhouettes of mountains. Strong middleground horizon line.	Indistinct vegetation lines	Strong vertical line of lattice towers and tubular steel poles, and converging lines of Interstate 10 roadway. Moderately strong horizontal line of the perimeter wall of the electrical substation.
COLOR	Heavy grey green creosote scrub vegetation obscures tan colored sand ground plane.	Mottled tans in foreground to grey greens in the middleground to blue green of the background.	Dark grey roadway surface. Glaring white to grey of the electrical substation transmission towers. Dark browns of the vertical tubular steel poles on both sides of the highway.
TEXTURE	Smooth sloping foreground and middleground obscured by coarse textured creosote scrub. Texture of distant mountains is indistinguishable.	Medium coarse random foreground. Gradation to more continuous middleground and background vegetation indistinguishable.	Smooth roadbed of Interstate 10. Lattice texture of the transmission towers within the electrical substation.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

It is approximately 6.9 miles from KOP-10 to the center of the proposed project (Background distance zone).

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	No change.	No change.	Two power towers create new vertical cylindrical forms and one of the elevated air cooled condensers creates a rectangular form approximately 6.9 miles away in the background distance zone.
LINE	No change.	No change.	Two power towers create strong new vertical lines in the landscape that protrude above the horizon in this sloping and relatively horizontal landscape. An elevated air cooled condenser creates a horizontal line at the base of one of the towers.
COLOR	No change.	No change.	Two power towers and the elevated air cooled condenser are medium grey at this distance.
TEXTURE	No change.	No change.	Two power towers and the elevated air cooled condenser are smooth textured.

SECTION D. CONTRAST RATING ☐ SHORT TERM X LONG TERM

1. DEGREE OF CONSTRAST		FEATURES											
		LANDWATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form				X			X			X		
	Line				X			X		X			
	Color				X			X				X	
	Texture				X			X				X	

2. Does project design meet visual resource management objectives? ☐ Yes X No (Explain on reverse side)

3. Additional mitigating measures recommended? X Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Lee Roger Anderson, CA LLA#1586	5/23/2013
Peter Langenfeld	
Timothy R Zack	
Thomas Cherry, PLA, ASLA	

SECTION D. (Continued)

Comments from item 2.

The BLM did not respond in a timely manner to a request for a management decision on the final adopted Visual Resource Management Class (VRM Class) or the Interim Visual Resource Management Class (IVRM) designations for the project area. For this analysis, we had to move forward using the presumption that the Visual Resource Inventory Class (VRI Class) has been adopted as the VRM Class. The VRI Class for this area is III.

In determining whether the proposed action would conform to the assigned VRM class, the four levels of contrast roughly correspond with the four VRM classes. This means that a "strong" contrast rating may be acceptable in an area with VRM Class IV, but probably would not meet the objectives of a VRM Class I, II, or III area. Similarly, a "weak" contrast rating may be acceptable in an area with VRM Class II, but probably would not meet the objectives of a VRM Class I area. The table below shows the correlation between contrast rating and determining whether VRM objectives are met.

Degree of Contrast	VRM Class	Definition
None	Class I Preserve	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. (This classification is usually applied to wilderness areas, wild and scenic rivers, and other similar situations.)
Weak	Class II Retain	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
Moderate	Class III Partially Retain	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
Strong	Class IV Major Modification	The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

The two power towers will protrude above the horizon and will attract attention and produce strong "line" contrasts directly in the cone of vision of eastbound I-10 travelers. Cylindrical form contrasts are moderate, and color and texture contrasts are weak as seen from KOP-10. The two visible power towers will create a major modification of the existing character of the Chuckwalla Valley as seen from the freeway. The proposed project will be a new dominant feature of the landscape visible for miles along the freeway. The project will change the character of the area, and will dominate the view and become the major focus of viewer attention as seen from KOP-10.

The visual character of this portion of the desert will become more developed because of the new Red Bluff Substation and the newly visible power towers. The overall visual impact of the proposed project will continue to convert this to an industrialized solar-electric landscape. However, some viewers may see the development of a solar resource facility as a point of positive visual interest. Taken as a whole, visual impacts to KOP-10 resulting from the proposed project are expected to be significant and un-mitigable, per BLM VRM standards, guidelines, and best management practices (BMPs).

Additional Mitigating Measures (See item 3)

The PSPP EIS identified these Mitigation Measures to aid in reducing visual impact by reducing contrast.

The implementation of mitigation measures imposed by the Energy Commission as Conditions of Certification for the project also would avoid or reduce impacts on the quality of the human environment. These mitigation measures are summarized here in connection with the impacts they would address, and are set forth in full in Appendix B – APPLICANT PROPOSED MEASURES.

VIS-1, Surface Treatment of Project Structures and Buildings

VIS-2, Re-vegetation of Disturbed Soil Areas

VIS-3, Temporary and Permanent Exterior Lighting

VIS-4, Project Design

TRANS-6, Heliostat Positioning Plan

AQ-SC3, Construction Fugitive Dust Control

AQ-SC4, Dust Plume Response Requirement

BIO-8, Impact Avoidance and Minimization Measures

BIO-22, Decommissioning and Reclamation Plan

BLM-VIS-1, Component Color Treatments

BLM-VIS-2, Consultation with the NPS Night Sky Program Manager

No additional mitigation measures beyond these are required because of the view from KOP-10 at I-10 Freeway Eastbound.

U.S. GOVERNMENT PRINTING OFFICE: 1985-461-988/33094

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 4/27/2013

District Palm Springs - South Coast

Resource Area Chuckwalla - Palen

Activity (program) Solar Energy

SECTION A. PROJECT INFORMATION

1. Project Name
Palen Solar Electric Generating System (PSEGS)

2. Key Observation Point
KOP 12 Chuckwalla-Mtn WA (BLM)

3. VRM Class
VRI Class III
VRM Class (Not disclosed by BLM)

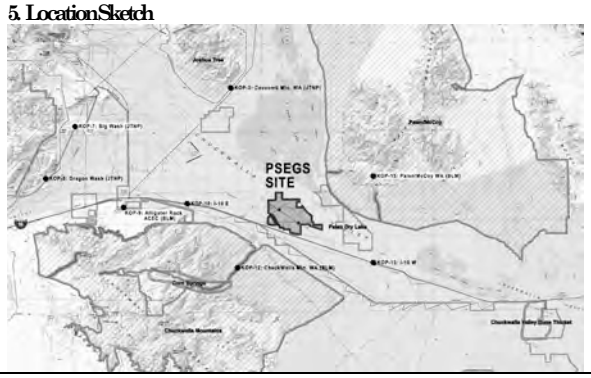
4. Location

Township 5 South

Range 17 E

Section Multiple Sections

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Planar foreground with deeply incised drainage feature with pyramidal mountains in the background. There is no water visible in this landscape.	Rounded irregular scrub in foreground. Conspicuously unvegetated dry lakebed. Beyond is gradating into lightly mottled background mountains mostly devoid of vegetation.	Dirt road serpentines from foreground to the middleground. Transmission line towers and highway discernible in the middleground due to motion associated with the traffic.
LINE	Sinuous line of drainage feature and highway. Strong complex lines in the background where bajada meets the mountains beyond.	Distinct vegetation lines where vegetation intersects dry lakebed.	Strong horizontal lines of the highway and moderate vertical lines of transmission lines towers.
COLOR	Mottled dark brown patina of the desert varnish of the bajada. Sand colored lake bed. With the pinkish browns of the mountains in the background.	Yellow greens of the creosote bushes blend into the brownish greens as the vegetation blends into the backgrounds grey greens.	Sand colored aggregate road. Brown colored transmission line towers.
TEXTURE	Jumbled rough moderately coarse foreground. Smooth fine textured lake bed. Complex coarse rugged mountains	Medium coarse random foreground. Smooth unvegetated lakebed and background vegetation indistinguishable.	Lattice texture of the transmission towers.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

It is approximately 4.6 miles from KOP-12 to the center of the proposed project (Foregr'd/Middlegr'd distance zone).

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Middleground has new horizontal form of heliostat fields occupying a portion of the bajada in front of the dry lakebed area. These forms are often mistaken for a natural body of water when seen at middleground or background distances.	Barren bajada in front of the dry lakebed is converted to heliostat fields. Foreground and background vegetation forms remain unchanged.	Two 750-foot tall power towers are cylindrical in form; the elevated air cooled condensers are rectangular in form; and the heliostat fields are horizontal in form.
LINE	New horizontal line created by heliostat fields in the middleground, similar to a natural water body. Sinuous line of drainage feature and highway remains.	Distinct vegetation lines where vegetation intersects the new horizontal heliostat fields, which lie at the base of backdrop mountains.	Strong vertical lines of the two power towers and strong horizontal lines of the air cooled condensers and heliostat fields make horizontal line of the highway and vertical lines of transmission towers become moderate in contrast.
COLOR	Heliostat mirrors reflect both sky and sunlight in the environment, creating a shiny silver and/or blue color, often mistaken for a natural body of water when seen at middleground or background distances.	Tan color of bajada is converted to shiny silver and/or blue color of the heliostat fields.	Two 750-foot tall cylindrical power towers and the elevated air cooled condensers are warm grey in color; heliostat fields are shiny silver and/or blue in color.
TEXTURE	Heliostat fields resemble natural body of water and are smooth textured.	No change in vegetation texture.	Heliostat fields, the elevated air cooled condensers and the two power towers are smooth textured.

SECTION D. CONTRAST RATING ☐ SHORT TERM X LONG TERM

1. DEGREE OF CONSTRAST		FEATURES												2. Does project design meet visual resource management objectives? ☐ Yes X No (Explain on reverse side)
		LANDWATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	3. Additional mitigating measures recommended? X Yes ☐ No (Explain on reverse side)
ELEMENTS	Form		X						X	X				Evaluator's Names / Date
	Line		X						X	X				Lee Roger Anderson, CA LLA#1586 5/22/2013
	Color	X							X	X				Peter Langenfeld
	Texture			X					X			X		Timothy R Zack
														Thomas Cherry, PLA, ASLA

SECTION D. (Continued)

Comments from item 2.
The BLM did not respond in a timely manner to a request for a management decision on the final adopted Visual Resource Management Class (VRM Class) or the Interim Visual Resource Management Class (IVRM) designations for the project area. For this analysis, we had to move forward using the presumption that the Visual Resource Inventory Class (VRI Class) has been adopted as the VRM Class. The VRI Class for this area is III.

In determining whether the proposed action would conform to the assigned VRM class, the four levels of contrast roughly correspond with the four VRM classes. This means that a "strong" contrast rating may be acceptable in an area with VRM Class IV, but probably would not meet the objectives of a VRM Class I, II, or III area. Similarly, a "weak" contrast rating may be acceptable in an area with VRM Class II, but probably would not meet the objectives of a VRM Class I area. The table below shows the correlation between contrast rating and determining whether VRM objectives are met.

Degree of Contrast	VRM Class	Definition
None	Class I Preserve	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. (This classification is usually applied to wilderness areas, wild and scenic rivers, and other similar situations.)
Weak	Class II Retain	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
Moderate	Class III Partially Retain	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
Strong	Class IV Major Modification	The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

The strong contrasts of form, line, and color created by the proposed project will create a major modification of the existing character of the Chuckwalla Valley and Palen Dry Lake as seen against the backdrop of the Palen Mountains. The proposed project will be a new dominant feature of the landscape visible from travel routes and use areas in the viewshed. The project will change the existing visual character of the viewshed. The two 750-foot-tall solar power towers are the most visually noticeable elements, and from this view at KOP-12, the heliostat fields are highly visible too. The project will change the character of the area, and will dominate the view and become the major focus of viewer attention as seen from KOP-12.

The visual character of Palen Dry Lake will change from open space desert to that of a developed landscape. The overall visual impact of the proposed project is expected to completely alter the existing undeveloped scenic quality of this naturally evolving landscape, and convert it to an industrialized solar-electric landscape. However, some viewers may see the development of a solar resource facility as a point of positive visual interest. Taken as a whole, visual impacts to KOP-12 resulting from the proposed project are expected to be significant and un-mitigable, per BLM VRM standards, guidelines, and best management practices (BMPs).

Additional Mitigating Measures (See item 3)

The PSPP EIS identified these Mitigation Measures to aid in reducing visual impact by reducing contrast.

The implementation of mitigation measures imposed by the Energy Commission as Conditions of Certification for the project also would avoid or reduce impacts on the quality of the human environment. These mitigation measures are summarized here in connection with the impacts they would address, and are set forth in full in Appendix B – APPLICANT PROPOSED MEASURES.

VIS-1, Surface Treatment of Project Structures and Buildings

VIS-2, Re-vegetation of Disturbed Soil Areas

VIS-3, Temporary and Permanent Exterior Lighting

VIS-4, Project Design

TRANS-6, Heliostat Positioning Plan

AQ-SC3, Construction Fugitive Dust Control

AQ-SC4, Dust Plume Response Requirement

BIO-8, Impact Avoidance and Minimization Measures

BIO-22, Decommissioning and Reclamation Plan

BLM-VIS-1, Component Color Treatments

BLM-VIS-2, Consultation with the NPS Night Sky Program Manager

No additional mitigation measures beyond these are required because of the view from KOP-12 Chuckwalla-Mtn. WA (BLM).

U.S. GOVERNMENT PRINTING OFFICE: 1985-461-988/33094

Form 8400 - 4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 4/27/2013

District Palm Springs - South Coast

Resource Area Chuckwalla - Palen

Activity (program) Solar Energy

SECTION A. PROJECT INFORMATION

1. Project Name
Palen Solar Electric Generating System (PSEGS)

2. Key Observation Point
KOP 13 I-10 Freeway Westbound

3. VRM Class
VRI Class III
VRM Class (Not disclosed by BLM)

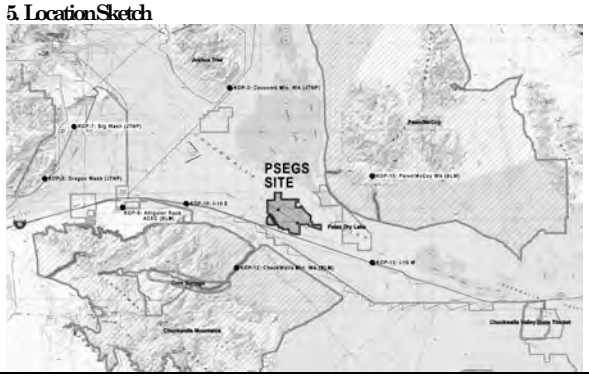
4. Location

Township 5 South

Range 17 E

Section Multiple Sections

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Planar foreground extends for miles with mountains in the background. There is no water visible in this landscape.	Rounded forms of creosote scrub and tumbleweed in foreground. Gradating to solid vegetation.	Trapezoidal road bed is dominant. Linear transparent fence.
LINE	Indistinguishable lines in foreground. Strong horizontal line of desert floor at the base of background mountains. Jagged silhouette of the Eagle Mountains at the horizon.	Distinct horizontal vegetation lines ay base of mountains	Strong horizontal lines of interstate freeway and fence leading straight away from the viewer.
COLOR	Tan colored sand in foreground and middle ground. Grey blue mountains at horizon.	Yellow greens of the creosote bushes blend into the brownish greens as the vegetation blends into the background's grey greens.	Dark grey freeway roadbed and reddish brown fence posts.
TEX-TURE	Smooth ground plane. Texture of distant mountains is indistinguishable.	Medium grained random foreground. Transitioning to stippled in the middleground	Smooth textured freeway roadbed.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

It is approximately 6.4 miles from KOP-13 to the center of the proposed project (Background distance zone).

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	No change.	No change.	Two power towers create new vertical cylindrical forms and one of the elevated air cooled condensers create rectangular forms approximately 6.4 miles away in the background distance zone, as defined by the BLM.
LINE	No change.	No change.	Two power towers create strong new vertical lines in the landscape that protrude about the horizon in this relatively flat horizontal landscape. One of theelevated air cooled condensers creates a horizontal line at the base of the tower.
COLOR	No change.	No change.	Two power towers and the elevated air cooled condenser are medium grey at this distance.
TEX-TURE	No change.	No change.	Two power towers and the elevated air cooled condenser are smooth textured.

SECTION D. CONTRAST RATING ☐ SHORT TERM X LONG TERM

1. DEGREE OF CONSTRAST		FEATURES												2. Does project design meet visual resource management objectives? ☐ Yes X No (Explain on reverse side)
		LANDWATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	3. Additional mitigating measures recommended? X Yes ☐ No (Explain on reverse side)
ELEMENTS	Form				X				X		X			Evaluator's Names / Date
	Line				X				X	X				Lee Roger Anderson, CA LLA#1586 5/23/2013
	Color				X				X			X		Peter Langenfeld
	Texture				X				X			X		Timothy R Zack
														Thomas Cherry, PLA, ASLA

SECTION D. (Continued)

Comments from item 2.

The BLM did not respond in a timely manner to a request for a management decision on the final adopted Visual Resource Management Class (VRM Class) or the Interim Visual Resource Management Class (IVRM) designations for the project area. For this analysis, we had to move forward using the presumption that the Visual Resource Inventory Class (VRI Class) has been adopted as the VRM Class. The VRI Class for this area is III.

In determining whether the proposed action would conform to the assigned VRM class, the four levels of contrast roughly correspond with the four VRM classes. This means that a "strong" contrast rating may be acceptable in an area with VRM Class IV, but probably would not meet the objectives of a VRM Class I, II, or III area. Similarly, a "weak" contrast rating may be acceptable in an area with VRM Class II, but probably would not meet the objectives of a VRM Class I area. The table below shows the correlation between contrast rating and determining whether VRM objectives are met.

Degree of Contrast	VRM Class	Definition
None	Class I Preserve	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. (This classification is usually applied to wilderness areas, wild and scenic rivers, and other similar situations.)
Weak	Class II Retain	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
Moderate	Class III Partially Retain	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
Strong	Class IV Major Modification	The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

The two power towers will protrude above the horizon and will attract attention and produce strong "line" contrasts. Form contrasts are moderate, and color and texture contrasts are weak as seen from the westbound freeway. The two visible power towers will create a major modification of the existing character of the Chuckwalla Valley as seen from the freeway. The proposed project will be a new dominant feature of the landscape visible for miles along the freeway. The project will change the character of the area, and will dominate the view and become the major focus of viewer attention as seen from KOP-13.

The visual character of this portion of the desert will change from open space to that of a developed landscape. The overall visual impact of the proposed project is expected to strongly alter the existing undeveloped scenic quality of this naturally evolving landscape, and convert it to an industrialized solar-electric landscape. However, some viewers may see the development of a solar resource facility as a point of positive visual interest. Taken as a whole, visual impacts to KOP-13 resulting from the proposed project are expected to be significant and un-mitigable, per BLM VRM standards, guidelines, and best management practices (BMPs).

Additional Mitigating Measures (See item 3)

The PSPP EIS identified these Mitigation Measures to aid in reducing visual impact by reducing contrast.

The implementation of mitigation measures imposed by the Energy Commission as Conditions of Certification for the project also would avoid or reduce impacts on the quality of the human environment. These mitigation measures are summarized here in connection with the impacts they would address, and are set forth in full in Appendix B – APPLICANT PROPOSED MEASURES.

VIS-1, Surface Treatment of Project Structures and Buildings

VIS-2, Re-vegetation of Disturbed Soil Areas

VIS-3, Temporary and Permanent Exterior Lighting

VIS-4, Project Design

TRANS-6, Heliostat Positioning Plan

AQ-SC3, Construction Fugitive Dust Control

AQ-SC4, Dust Plume Response Requirement

BIO-8, Impact Avoidance and Minimization Measures

BIO-22, Decommissioning and Reclamation Plan

BLM-VIS-1, Component Color Treatments

BLM-VIS-2, Consultation with the NPS Night Sky Program Manager

No additional mitigation measures beyond these are required because of the view from KOP-13 I-10 Freeway Westbound.

U.S. GOVERNMENT PRINTING OFFICE: 1985-461-988/33094

Form 8400 - 4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 5/01/2013

District Palm Springs - South Coast

Resource Area Chuckwalla - Palen

Activity (program) Solar Energy

SECTION A. PROJECT INFORMATION

1. Project Name
Palen Solar Electric Generating System (PSEGS)

2. Key Observation Point
KOP 15 Palen / McCoy WA (BLM)

3. VRM Class
VRI Class III
VRM Class (Not disclosed by BLM)

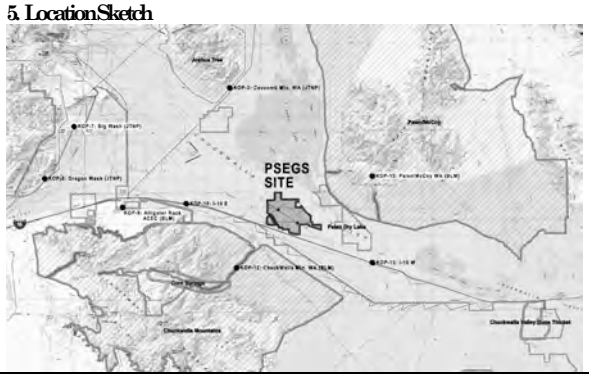
4. Location

Township 5 South

Range 17 E

Section Multiple Sections

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Jagged rough step pyramidal mountains in foreground. Sloping planar bajada. Flat planar dry lake bed. Indistinct pyramidal distant mountains. There is no water visible in this landscape.	Mountain foreground sparsely vegetated with clumps of grass. Creosote scrub desert floor. Small rectangular agricultural field.	None apparent.
LINE	Jagged sawtooth mountain ridge. Distinct simple horizontal line where bajada meets dry lakebed. Jagged skyline silhouette of distant mountains.	Distinct horizontal vegetation lines at base of mountains. Unvegetated drainage channels meander on bajada.	None apparent.
COLOR	Foreground reddish brown mountains. Brown mottled bajada. Sand colored dry lake bed. Pinkish mountains in background.	Sparse tan bunchgrass in foreground. Blue greens of bajada give way to tan of dry lakebed with green agricultural fields in the distance.	None apparent.
TEXTURE	Coarse textured rockforms in rugged foreground mountains transitioning to smooth textured bajada and dry lakebed, with rugged mountains in the background.	None apparent.	None apparent.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

It is approximately 6.1 miles from KOP-15 to the center of the proposed project (Background distance zone).

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Middleground has new horizontal form of heliostat fields occupying a portion of the bajada beyond the dry lakebed area. These forms are often mistaken for a natural body of water when seen at middleground or background distances.	Barren bajada beyond the dry lakebed is converted to horizontal heliostat fields. Foreground and background vegetation forms remain unchanged.	Two 750-foot tall power towers are cylindrical in form; the elevated air cooled condensers are rectangular in form; and the heliostat fields are horizontal in form.
LINE	New horizontal line created by heliostat fields in the middleground, similar to a natural water body.	Distinct vegetation line where vegetation intersects the new horizontal heliostat fields.	Strong vertical lines of the two power towers. Strong horizontal lines of the heliostat fields and moderate horizontal lines of the elevated air cooled condensers.
COLOR	Heliostat mirrors reflect both sky and sunlight in the environment, creating a shiny silver and/or blue color, often mistaken for a natural body of water when seen at middleground or background distances.	Tan color of bajada converted to shiny silver and/or blue color of the heliostat fields.	Two 750-foot tall cylindrical power towers and the elevated air cooled condensers are warm grey in color; heliostat fields are shiny silver and/or blue in color.
TEXTURE	Heliostat fields resemble natural body of water and are smooth textured.	No change in vegetation texture.	Heliostat fields, the elevated air cooled condensers and the two power towers are smooth textured.

SECTION D. CONTRAST RATING ☐ SHORT TERM X LONG TERM

1. DEGREE OF CONSTRAST		FEATURES												2. Does project design meet visual resource management objectives? ☐ Yes X No (Explain on reverse side)
		LANDWATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	3. Additional mitigating measures recommended? X Yes ☐ No (Explain on reverse side)
ELEMENTS	Form			X					X	X				Evaluator's Names / Date
	Line			X					X	X				Lee Roger Anderson, CA LLA#1586 5/22/2013
	Color	X							X	X				Peter Langenfeld
	Texture			X					X			X		Timothy R Zack
														Thomas Cherry, PLA, ASLA

SECTION D. (Continued)

Comments from item 2.
The BLM did not respond in a timely manner to a request for a management decision on the final adopted Visual Resource Management Class (VRM Class) or the Interim Visual Resource Management Class (IVRM) designations for the project area. For this analysis, we had to move forward using the presumption that the Visual Resource Inventory Class (VRI Class) has been adopted as the VRM Class. The VRI Class for this area is III.

In determining whether the proposed action would conform to the assigned VRM class, the four levels of contrast roughly correspond with the four VRM classes. This means that a "strong" contrast rating may be acceptable in an area with VRM Class IV, but probably would not meet the objectives of a VRM Class I, II, or III area. Similarly, a "weak" contrast rating may be acceptable in an area with VRM Class II, but probably would not meet the objectives of a VRM Class I area. The table below shows the correlation between contrast rating and determining whether VRM objectives are met.

Degree of Contrast	VRM Class	Definition
None	Class I Preserve	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. (This classification is usually applied to wilderness areas, wild and scenic rivers, and other similar situations.)
Weak	Class II Retain	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
Moderate	Class III Partially Retain	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
Strong	Class IV Major Modification	The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

The strong contrasts of form, line, and color created by the proposed project will create a major modification of the existing character of the Chuckwalla Valley and Palen Dry Lake, as seen against the backdrop of the Chuckwalla Mountains. The proposed project will be a new dominant feature of the landscape visible from travel routes and use areas in the viewshed. The project will change the existing visual character of the viewshed. The two 750-foot-tall solar power towers are the most visually noticeable elements, and from this view at KOP-15, the heliostat fields are highly visible too. The project will change the character of the area, and will dominate the view and become the major focus of viewer attention as seen from KOP-15.

The visual character in the area of Palen Dry Lake will change from open space desert to that of a developed landscape. The overall visual impact of the proposed project is expected to completely alter the existing undeveloped scenic quality of this naturally evolving landscape, and convert it to an industrialized solar-electric landscape. However, some viewers may see the development of a solar resource facility as a point of positive visual interest. Taken as a whole, visual impacts to KOP-15 resulting from the proposed project are expected to be significant and un-mitigable, per BLM VRM standards, guidelines, and best management practices (BMPs). Therefore, the proposed project will not comply with the definition of Class III, above, as

seen from KOP-15 in the Palen / McCoy Wilderness Area, but rather, will equate to a rating of VRM Class IV.

Additional Mitigating Measures (See item 3)

The PSPP EIS identified these Mitigation Measures to aid in reducing visual impact by reducing contrast.

The implementation of mitigation measures imposed by the Energy Commission as Conditions of Certification for the project also would avoid or reduce impacts on the quality of the human environment. These mitigation measures are summarized here in connection with the impacts they would address, and are set forth in full in Appendix B – APPLICANT PROPOSED MEASURES.

VIS-1, Surface Treatment of Project Structures and Buildings

VIS-2, Re-vegetation of Disturbed Soil Areas

VIS-3, Temporary and Permanent Exterior Lighting

VIS-4, Project Design

TRANS-6, Heliostat Positioning Plan

AQ-SC3, Construction Fugitive Dust Control

AQ-SC4, Dust Plume Response Requirement

BIO-8, Impact Avoidance and Minimization Measures

BIO-22, Decommissioning and Reclamation Plan

BLM-VIS-1, Component Color Treatments

BLM-VIS-2, Consultation with the NPS Night Sky Program Manager

No additional mitigation measures beyond these are required because of the view from KOP-15 in the Palen / McCoy WA.

U.S. GOVERNMENT PRINTING OFFICE: 1985-461-988/33094

Form 8400 - 4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 4/28/2013

District Palm Springs - South Coast

Resource Area Chuckwalla - Palen

Activity (program) Solar Energy

SECTION A. PROJECT INFORMATION

1. Project Name
Palen Solar Electric Generating System (PSEGS)

2. Key Observation Point
KOP 17 Bradshaw Trail, Mule Mtn. (LTVA)

3. VRM Class
VRI Class III
VRM Class (Not disclosed by BLM)

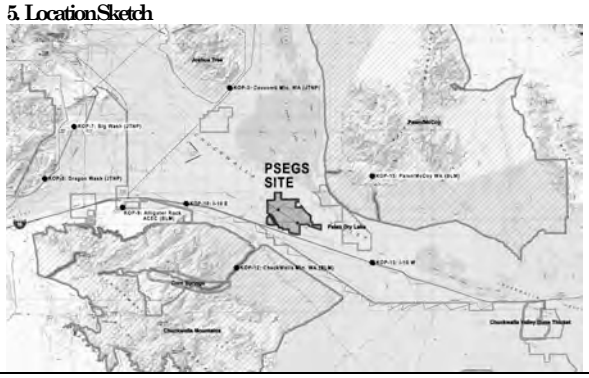
4. Location

Township 5 South

Range 17 E

Section Multiple Sections

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Planar ground plane in foreground. Pyramidal mountains in background.	Sparsely rounded clumpy vegetation in foreground. Taller line of riparian woodland blocks middleground. Indistinct vegetation forms in background.	Linear fence line in foreground. Geometric outhouses partially screened by creosote scrub.
LINE	Jagged silhouettes of distant mountains.	Horizontal line of riparian woodland obscures the middleground.	Horizontal fence line, with vertical fence posts, vertical and diagonal lines of out houses.
COLOR	Tan desert sands blue grey mountains	Grey-green creosote scrub. Green riparian canopy.	Rust colored fence. Tan outhouses with black vent pipes
TEXTURE	Smooth foreground. Rugged rough background mountains	Coarse and irregular creosote scrub and riparian vegetation.	Smooth textured outhouses.

SECTION C. PROPOSED ACTIVITY DESCRIPTION

It is approximately 23.0 miles from KOP-17 to the center of the proposed project (Seldom Seen distance zone).

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	No change.	No change.	No change.
LINE	No change.	No change.	No change.
COLOR	No change.	No change.	No change.
TEXTURE	No change.	No change.	No change.

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM (NO CONTRAST – NOT VISIBLE)

1. DEGREE OF CONSTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form				X				X				X
	Line				X				X				X
	Color				X				X				X
	Texture				X				X				X

2. Does project design meet visual resource management objectives? X Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended? ☐ Yes X No (Explain on reverse side)

Evaluator's Names — Date

Lee Roger Anderson, CA LLA #1586 — 5/23/2013
Peter Langenfeld
Timothy R Zack
Thomas Cherry, PLA, ASLA

SECTION D. (Continued)

Comments from item 2.
The proposed project is not visible from KOP-17.

Additional Mitigating Measures (See item 3)

The PSPP EIS identified these Mitigation Measures to aid in reducing visual impact by reducing contrast.

The implementation of mitigation measures imposed by the Energy Commission as Conditions of Certification for the project also would avoid or reduce impacts on the quality of the human environment. These mitigation measures are summarized here in connection with the impacts they would address, and are set forth in full in Appendix B – APPLICANT PROPOSED MEASURES.

VIS-1, Surface Treatment of Project Structures and Buildings

VIS-2, Re-vegetation of Disturbed Soil Areas

VIS-3, Temporary and Permanent Exterior Lighting

VIS-4, Project Design

TRANS-6, Heliostat Positioning Plan

AQ-SC3, Construction Fugitive Dust Control

AQ-SC4, Dust Plume Response Requirement

BIO-8, Impact Avoidance and Minimization Measures

BIO-22, Decommissioning and Reclamation Plan

BLM-VIS-1, Component Color Treatments

BLM-VIS-2, Consultation with the NPS Night Sky Program Manager

No additional mitigation measures beyond these are required because of the view from KOP-17 Bradshaw Trail, Mule Mtn. (LTVA).

U.S. GOVERNMENT PRINTING OFFICE: 1985-461-988/33094