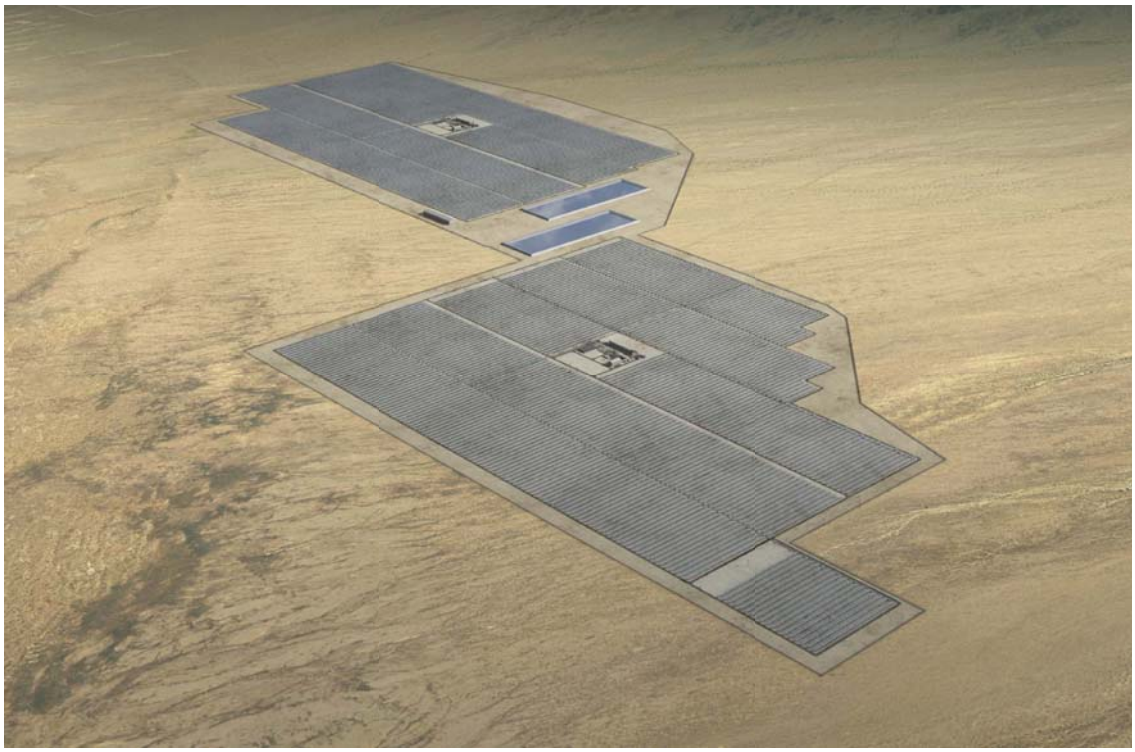
GENESIS SOLAR ENERGY PROJECT

Commission Decision



SEPTEMBER 2010
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CALIFORNIA
ENERGY COMMISSION
Arnold Schwarzenegger, Governor

DOCKET NUMBER 09-AFC-8

CALIFORNIA
ENERGY COMMISSION

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http://www.energy.ca.gov/sitingcases/genesis_solar/index.html

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Commissioner

DISCLAIMER

This report was prepared by the California Energy Commission Genesis Solar Energy Project AFC Committee as part of Genesis Solar Energy Project, Docket No. 09-AFC-8. The views and recommendations contained in this document are not official policy of the Energy Commission until the report is adopted at an Energy Commission Business Meeting.

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 *GENESIS SOLAR ENERGY PROJECT* GENESIS SOLAR, LLC	**DOCKET NO. 09-AFC-8** **Order No. 10-0929-04**

COMMISSION ADOPTION ORDER

This Commission Order adopts the Commission Decision on the ***Genesis Solar Energy Project***. It incorporates the Presiding Member's Proposed Decision (PMPD) in the above-captioned matter and the Committee Errata. The Commission Decision is based upon the evidentiary record of these proceedings and considers the comments received at the September 29, 2010 business meeting. The text of the attached Commission Decision contains a summary of the proceedings, the evidence presented, and the rationale for the findings reached and Conditions imposed.

This **ORDER** adopts by reference the text, Conditions of Certification, Compliance Verifications, and Appendices contained in the Commission Decision. It also adopts specific requirements contained in the Commission Decision which ensure that the proposed facility will be designed, sited, and operated in a manner to protect environmental quality, to assure public health and safety, and to operate in a safe and reliable manner.

FINDINGS

The Commission hereby adopts the following findings in addition to those contained in the accompanying text:

1. The ***Genesis Solar Energy Project*** will provide a degree of economic benefits and electricity reliability to the local area.

2. The Conditions of Certification contained in the accompanying text, if implemented by the project owner, ensure that the project will be designed, sited, and operated in conformity with applicable local, regional, state, and federal laws, ordinances, regulations, and standards, including applicable public health and safety standards, and air and water quality standards.

3. Implementation of the Conditions of Certification contained in the accompanying text will ensure protection of environmental quality and assure reasonably safe and reliable operation of the facility. The Conditions of Certification also assure that the project's direct, indirect, and cumulative adverse environmental impacts will be mitigated to the extent feasible. Where full mitigation is not feasible, overriding considerations warrant acceptance of those impacts.

4. As is discussed in Section VIII (Override Findings) of the PMPD, the benefits of the ***Genesis Solar Energy Project*** outweigh any significant direct, indirect, or cumulative impacts which may result from its construction or operation

5. Existing governmental land use restrictions are sufficient to adequately control population density in the area surrounding the facility and may be reasonably expected to ensure public health and safety.

6. The project is subject to Fish and Game Code section 711.4 and the project owner must therefore pay a nine hundred forty-nine dollars and fifty cents ($949.50), fee to the California Department of Fish and Game.

7. The evidence establishes that no feasible site or generation technology alternatives to the project, as described during these proceedings, exist which would reduce or eliminate any significant environmental impacts of the mitigated project.

8. The evidence establishes that an environmental justice screening analysis was conducted and that the project, as mitigated, will not have a disproportionate impact on low-income or minority populations.

9. The Decision contains a discussion of the public benefits of the project as required by Public Resources Code section 25523(h).

10. The Decision contains measures to ensure that the planned, temporary, or unexpected closure of the project will occur in conformance with applicable laws, ordinances, regulations, and standards.

11. The proceedings leading to this Decision have been conducted in conformity with the applicable provisions of Commission regulations governing the consideration of an Application for Certification and thereby meet the requirements of Public Resources Code sections 21000 et seq. and 25500 et seq.

ORDER

Therefore, the Commission **ORDERS** the following:

1. The Application for Certification of the ***Genesis Solar Energy Project*** as described in this Decision is hereby approved and a certificate to construct and operate the project is hereby granted.

2. The approval of the Application for Certification is subject to the timely performance of the Conditions of Certification and Compliance Verifications enumerated in the accompanying text and Appendices. The Conditions and Compliance Verifications are integrated with this Decision and are not severable therefrom. While the project owner may delegate the performance of a Condition or Verification, the duty to ensure adequate performance of a Condition or Verification may not be delegated.

3. This Decision is adopted, issued, effective, and final on September 29, 2010.

4. Reconsideration of this Decision is governed by Public Resources Code, section 25530.

5. Judicial review of this Decision is governed by Public Resources Code, section 25531.

6. The Commission hereby adopts the Conditions of Certification, Compliance Verifications, and associated dispute resolution procedures as part of this Decision in order to implement the compliance monitoring program required by Public Resources Code section 25532. All conditions in this Decision take effect immediately upon adoption and apply to all construction and site preparation

activities including, but not limited to, ground disturbance, site preparation, and permanent structure construction.

7. This Decision licenses the project owner to commence construction on the project within five years of this Decision date. Subject to the provisions of California Code of Regulations, title 20, section 1720.3, this license expires by operation of law when the project's start-of-construction deadline passes with no construction.

8. The project owner shall provide the Executive Director a check in the amount of nine hundred forty-nine dollars and fifty cents ($949.50), payable to the California Department of Fish and Game.

9. The Executive Director of the Commission shall transmit a copy of this Decision and appropriate accompanying documents, including the Department of Fish and Game fee, as provided by Public Resources Code section 25537, California Code of Regulations, title 20, section 1768, and Fish and Game Code section 711.4.

10. We order that the Application for Certification docket file for this proceeding be closed effective the date of this Decision, with the exception that the docket file shall remain open for 30 additional days solely to receive material related to a petition for reconsideration of the Decision.

Dated: September 29, 2010, at Sacramento, California.

KAREN DOUGLAS
Chair

JAMES D. BOYD
Vice Chair

JEFFREY D. BYRON
Commissioner

ANTHONY EGGERT
Commissioner

ROBERT B. WEISENMILLER
Commissioner

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INTRODUCTION

A. SUMMARY OF THE DECISION

This Decision contains the Commission's rationale in approving the proposed Genesis Solar Energy Project (GSEP). Although the project, even with the mitigation measures described in this Decision, will have remaining significant impacts on the environment, the Commission has found that the benefits that the project will provide override those impacts. The GSEP will, as mitigated, comply with all applicable laws, ordinances, regulations, and standards (LORS) and is required for public convenience and necessity and there is no more prudent and feasible means of achieving such public convenience and necessity. The project may therefore be licensed. Our Decision is based exclusively upon the record established during this certification proceeding and summarized in this document. We have independently evaluated the evidence, provided references to the record[1] supporting our findings and conclusions, and specified the measures required to ensure that the GSEP is designed, constructed, and operated in the manner necessary to protect public health and safety, promote the general welfare, and preserve environmental quality.

On August 31, 2009, Genesis Solar LLC, a wholly owned subsidiary of NextEra Energy Resources LLC, submitted an Application for Certification (AFC) to the California Energy Commission to construct and operate an electrical generating plant in Riverside County, California. The proposed GSEP would be a solar electric generating facility using solar parabolic trough technology with a generating capacity of 250 megawatts (MW). The project is located approximately 25 miles west of the city of Blythe, California on lands managed by the Bureau of Land Management (BLM) in the Sonoran Desert. The site would occupy approximately 1,800 acres just north of the Ford Dry Lake and about four miles north of Interstate 10 (I-10).

Located in east central Riverside County, where land use is characterized predominantly by open space and conservation and wilderness areas, the western portion of the county accounts for most of the developed area of the county, including urban areas and agricultural areas. The southeastern corner of

[1] The Reporter's Transcript of the evidentiary hearings is cited as "date of hearing RT page __:line__." For example: 6/12/10 RT 77:1. The exhibits included in the evidentiary record are cited as "Ex. number." A list of all exhibits is contained in **Appendix B** of this Decision.

the county to the east of the Project also contains limited agricultural areas and rural development. (Ex. 400, p. 2.)

The CDCA Plan establishes a number of conservation areas under the Wilderness Review Program. The Project is located adjacent to the southern boundary of the Palen/McCoy Wilderness Area. The Chuckwalla Mountains and Little Chuckwalla Mountains Wilderness Areas are also located farther south-southwest of the Project.

The Genesis 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°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 GSEP will use dry cooling technology (air cooled condenser) to conserve water.

On November 4, 2009, the Energy Commission began review of the proposed GSEP. The Energy Commission has exclusive jurisdiction to license this project and is considering the proposal under a review process established by Public Resources Code section 25540.6.

Project construction is expected to occur over a total of 37 months. Project construction will require an average of 646 employees over the entire 39-month construction period, with labor requirements peaking at approximately 1,085 workers in month 23 of construction. The construction workforce will consist of laborers, craftsmen, supervisory personnel, support personnel, and management personnel. Temporary construction parking areas will be provided within the power plant site adjacent to the laydown area. The plant laydown area will be utilized throughout the build out of the two solar units. If approved, project construction would begin in the fourth quarter of 2010, with commercial operation commencing in the second quarter of 2013.

While electrical power is to be generated only during daylight hours, GSEP will be staffed 24 hours a day, seven days per week. A total estimated workforce of 40-50 full time employees will be needed once the GSEP is fully operational.

B. SITE CERTIFICATION PROCESS

The GSEP and its related facilities are subject to Energy Commission licensing jurisdiction. (Pub. Res. Code, § 25500 et seq.). During licensing proceedings, the Commission acts as lead state agency under the California Environmental Quality Act (CEQA). (Pub. Res. Code, §§ 25519(c), 21000 et seq.) The Commission's regulatory process, including the evidentiary record and associated analyses, is functionally equivalent to the preparation of an Environmental Impact Report. (Pub. Res. Code, § 21080.5.) The process is designed to complete the review within a specified time period when the required information is submitted in a timely manner. A license issued by the Commission is in lieu of other state and local permits.

The Commission's certification process provides a thorough review and analysis of all aspects of a proposed power plant project. During this process, the Energy Commission conducts a comprehensive examination of a project's potential economic, public health and safety, reliability, engineering, and environmental ramifications.

Specifically, the Commission's process allows for and encourages public participation so that members of the public may become involved either informally or on a formal level as intervenor parties who have the opportunity to present evidence and cross-examine witnesses. Public participation is encouraged at every stage of the process.

The process begins when an applicant submits an AFC. Commission staff reviews the data submitted as part of the AFC and makes a recommendation to the Commission on whether the AFC contains adequate information to begin the certification process. After the Commission determines an AFC contains sufficient analytic information, it appoints a Committee of two Commissioners to conduct the formal licensing process. This process includes public conferences and evidentiary hearings, where the evidentiary record is developed and becomes the basis for the Presiding Member's Proposed Decision (PMPD). The PMPD determines a project's environmental impact and conformity with applicable laws, ordinances, regulations, and standards and provides recommendations to the full Commission.

The initial portion of the certification process is weighted heavily toward assuring public awareness of the proposed Project and obtaining necessary technical information. During this time, the Commission staff sponsors public workshops

at which intervenors, agency representatives, and members of the public meet with staff and the applicant to discuss, clarify, and negotiate pertinent issues. Staff publishes its initial technical evaluation of the project in its

Following this, the Committee conducts a Prehearing Conference to assess the adequacy of available information, identify issues, and determine the positions of the parties. Based on information presented at this event, the Committee issues a Hearing Order to schedule formal evidentiary hearings. At the evidentiary hearings, all formal parties, including intervenors, may present sworn testimony, which is subject to cross-examination by other parties and questioning by the Committee. Members of the public may offer oral or written comments at these hearings. Evidence submitted at the hearings provides the basis for the Committee's analysis and recommendations to the full Commission.

The Committee's analysis and recommendations appear in the PMPD, which is available for a 30-day public comment period. Depending upon the extent of revisions necessary after considering comments received during this period, the Committee may elect to publish a revised version. If so, the Revised PMPD triggers an additional public comment period. Finally, the full Commission decides whether to accept, reject, or modify the Committee's recommendations at a public hearing.

Throughout the licensing process, members of the Committee, and ultimately the Commission, serve as fact-finders and decision-makers. Other parties, including the Applicant, Commission staff, and formal intervenors, function independently with equal legal status. An "ex parte" rule prohibits parties in the case, or other persons with an interest in the case, from communicating on substantive matters with the decision-makers, their staffs, or assigned hearing officer unless these communications are made on the public record. The Office of the Public Adviser is available to assist the public in participating in all aspects of the certification proceeding.

C. PROCEDURAL HISTORY

Public Resources Code, sections 25500 et seq. and Energy Commission regulations (Cal. Code Regs., tit. 20, § 1701, et seq.) mandate a public review process and specify the occurrence of certain procedural events in which the public may participate. The key procedural events that occurred in the present case are summarized below.

On August 31, 2009, Genesis Solar LLC, a wholly owned subsidiary of NextEra Energy Resources LLC, submitted an Application for Certification (AFC) to the California Energy Commission to construct and operate an electrical generating plant in Riverside County, California. On November 4, 2009, the Energy Commission deemed the AFC data adequate (sufficient data to proceed) and assigned a Committee of two Commissioners to conduct proceedings.

The formal parties included the Applicant, Energy Commission staff (Staff), and Intervenors California Unions for Reliable Energy (CURE), Tom Budlong for California Environmental Law Project, Californians for Renewable Energy, Inc. (CARE), and the Center for Biological Diversity

On December 10, 2009, the Energy Commission, with participation from BLM, held a publicly-noticed Informational Hearing at Blythe City Hall Council Chambers in Blythe, California. At that event, the Committee, the parties, interested governmental agencies, and other public participants discussed issues related to development of the project, described the Commission's review process, and explained opportunities for public participation. The Notice was mailed to local agencies and members of the community who were known to be interested in the project, including the owners of land adjacent to or in the vicinity of the GSEP. The Public Adviser's Office also advertised the public hearing and site visit and distributed information to local officials and sensitive receptors surrounding the project site.[2]

On December 17, 2009, the Committee issued an initial Scheduling Order. The Committee Schedule was based on both the Applicant's and Staff's proposed schedules and related discussion at the Informational Hearing. The schedule contained a list of events that must occur in order to complete the certification process within twelve months.

Energy Commission staff held Data Request, Data Response, and Issues Resolution Workshops in the following California communities: Blythe, Palm Desert, Palm Springs, and Sacramento. Workshops were conducted on November 23 and 24, 2009; December 10, 18 and 31, 2009; January 6, 11 and 12, 2010; February 10 and 18, 2010; April 19, 20 and 21, 2010; and May 5, 10 and 11, 2010. Public comment was taken during each of these workshops.

[2] Sensitive receptors are people or institutions with people that are particularly susceptible to illness, such as the elderly, very young children, people already weakened by illness (e.g., asthmatics), and persons engaged in strenuous exercise.

On April 13, 2010, the Energy Commission staff sent a notice of availability and a copy of the GSEP SA/DEIS to the same list of local, state, and federal agencies. These agencies include, as applicable, the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, Colorado River Board of California, Metropolitan Water District, California Department of Transportation, State Water Resources Control Board, Colorado River Regional Water Quality Control Board, California Department of Fish and Game (CDFG), and the California Air Resources Board/Mojave Desert Air Quality Management District, among others.

On January 26, February 16, March 18, April 26, and May 28, and 2010, the Committee conducted publicly noticed status conferences to discuss issues in the proceedings.

Staff published the GSEP SA/DEIS on March 26, 2010, which was a joint document published by both the California Energy Commission (Energy Commission) and the U.S. Bureau of Land Management (BLM). A Revised Staff Assessment (RSA) was published on June 11, 2010 and A Revised Staff Assessment Supplement was published on July 2, 2010.

The Committee conducted the Prehearing Conference on July 1, 2010, and the Evidentiary Hearings were held on July 12, 13 and 21, 2010.

The Committee published the PMPD on August 19, 2010, and held a Committee Conference on September 9, 2010. The full Commission adopted the PMPD and Errata on September 29, 2010.

D. COMMISSION OUTREACH

Several entities within the Energy Commission provide various notices concerning power plant siting cases. Staff provides notices of staff workshops and the release of the Staff Assessments. The Hearing Office notices Committee-led events such as the informational hearing and site visit, status conferences, the prehearing conference, and evidentiary hearings. The Public Adviser's Office provides additional outreach for critical events as well as provides information to interested persons that would like to become more actively involved in a power plant siting proceeding. Further, the Media Office provides notice of events to local and regional press through press releases. The public may also subscribe to the proceeding's e-mail List Server offered on the web page for each project which gives an immediate notification of documents posted to the project web page. Through the activities of these

entities, the Energy Commission has made every effort to ensure that interested persons are notified of activities in this proceeding.

E. PUBLIC COMMENT

The record contains public comments from concerned individuals and organizations. Throughout these proceedings, as reflected in the transcribed record, the Committee provided an opportunity for public comment at each Committee-sponsored conference and hearing.

I. PROJECT DESCRIPTION AND PURPOSE

On August 31, 2009, Genesis Solar LLC submitted an Application for Certification (AFC) to the California Energy Commission to construct and operate the Genesis Solar Energy Center Project (GSEP), a nominal 250 megawatt (MW) solar thermal power plant in east central Riverside County, California. (Ex. 400, p. B.1-1.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Location

The GSEP site is located approximately 25 miles west of the city of Blythe, California, on BLM-administered lands. The project area is south of the Palen/McCoy Wilderness Area and north of Ford Dry Lake and Interstate 10 (I-10). The Applicant is seeking a Right-of-Way (ROW) grant with the Bureau of Land Management (BLM) for approximately 4,640 acres of lands. Construction and operation of the project would disturb a total of about 1,800 acres. As such, any difference between the total acreage listed in the Right-of-Way application (4,640) and the total acreage required for project construction and operation (approx. 1,800) would not be part of the ROW grant, if BLM decides to approve the project.

The GSEP area is located in east central Riverside County, where land use is characterized predominantly by open space and conservation and wilderness areas. The western portion of the county accounts for most of the developed area of the county, including urban areas and agricultural areas. The southeastern corner of the county to the east of the GSEP site also contains limited agricultural areas and rural development.

The area designated within Riverside County's Palo Verde Valley Area Plan occurs to the east of the Project and encompasses the developed and agricultural area in eastern Riverside County. The portion of the Palo Verde Valley Area Plan in the vicinity of the GSEP consists mainly of sparsely populated desert and mountain areas. The more populated and agricultural areas occur farther east of the GSEP in the vicinity of Blythe.

The GSEP is also located within the BLM California Desert Conservation Area Plan (CDCA Plan). The CDCA Plan establishes a number of conservation areas under the Wilderness Review Program. The Chuckwalla Mountains and Little

Chuckwalla Mountains Wilderness Areas are also located farther south-southwest of the GSEP site. (Ex. 400, pp. B.1-1 to B.1-2.)

2. Project Construction and Operation

The Applicant expects project construction to take 37 months to complete, with an average workforce of 646 employees and a peak workforce of approximately 1,085 workers in Month 23 of construction. The construction workforce will consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel. Construction of each 125 MW Unit is expected to take approximately 25 months with each unit being phased by 12 months. (Ex. 400, B.1-19.)

The GSEP will have a moderate sized workforce during operation. Specifically, it is estimated that a permanent workforce of 40 to 50 full time equivalent personnel will be needed to staff the facility 24 hours per day/seven days per week. When the solar facility is not operating (i.e. generating electricity), personnel will nonetheless be present for necessary maintenance, start-up, and/or site security. (Ex. 400. p. B.1-23.)

3. Solar Field, Power Generation Equipment and Process

The GSEP will require two separate units consisting of solar collector assemblies (SCAs) arranged in rows, or piping loops, with four assemblies in each loop. Each SCA will consist of individually mounted mirror modules. The overall site layout and generalized land uses are characterized as follows:

- 250-MW facility, including solar generation facilities, on-site switchyards, administration, operations and maintenance facilities: approximately 1,800 acres;
- Two, 5-acre evaporation ponds: up to 10 acres total (located within the 1,800-acre site) (July 12, 2010 transcripts p. 145.);
- The generated electrical power from the GSEP switchyard will be transmitted through a new generation-tie (gen-tie) line originating at a GSEP on-site switchyard and terminating at Southern California Edison's (SCE) planned 230/500 kV Colorado River substation approximately 14 miles to the east. The initial segment of the gen-tie will be approximately 6.5 miles long, running from the GSEP to the Blythe Energy Plant Transmission Line (BEPTL) near I-10. The GSEP line will then share poles with the BEPTL, before connecting to the new substation.
- Additional linear facilities include approximately 6.5 miles of access road and natural gas pipeline;

- Surface water control facilities for storm water flow and discharge; and
- Temporary construction laydown area(s) will be accommodated within the larger site footprint. No additional laydown areas outside the eventual project footprint are contemplated. (Ex. 400 p. B.1-2.)

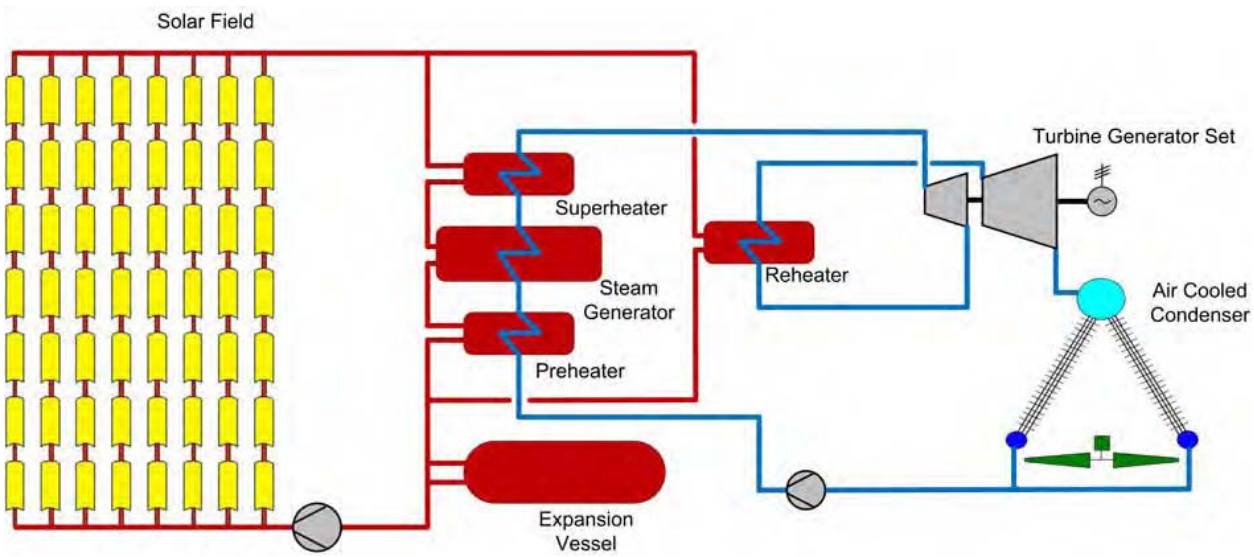
The GSEP will consist of two, single-unit parabolic trough solar fields (125 MW each) that feed two power blocks having a combined, nominal output of 250 MW. The plant will consist of a conventional steam Rankine-cycle power block, two parabolic trough solar fields, and heat transfer fluid (HTF) and steam generation system, as well as a variety of ancillary facilities, such as conventional water treatment, electrical switchgear, administration, warehouse, and maintenance facilities. (Ex. 400, p. B.1-4.)

Overall project facilities include the following major components: solar field(s); power blocks; access road from I-10 (Wiley's Well exit) to onsite office; office and parking; Land Treatment Unit (LTU) for bioremediation of HTF-contaminated soil; maintenance buildings and laydown area; and, onsite transmission facilities including switchyard. (Ex. 400, p. B.1-3.)

Each 125 MW power plant (one for the eastern solar field, and one for the western solar field) consists of: Steam Turbine Generator (STG); Solar Steam Generator (SSG) heat exchangers; feedwater pumps; deaerator; feedwater heaters; air-cooled condenser; evaporation ponds; natural gas-fired boilers; emergency diesel generator, emergency diesel fire pump, Wet Surface Air Cooler, and, solar thermal collection field. (Exs. 60, p. 3-5;. 400, pp. B.1-3, B.1-27 to B.1-29; 7/12/10 RT 7.)

The plant's power cycle is the Rankine-with-reheat thermodynamic cycle. The thermal input is via heated HTF from the parabolic trough solar field at a temperature of approximately 740F. Overall annual availability for each 125 MW facility is expected to be between 96 to 98 percent of possible operating hours (between 3,000 and 3,200 hours per year). Each plant's capacity factor will depend on the local solar insolation, but has been estimated to be approximately 27 percent, or approximately 300,000 MWh/year, (the total output of both units together being 6000,000 Mwh/yr) (Ex. 400, p. B.1-3.)

The thermodynamic cycle is illustrated in the diagram below and described in the steps that follow:



Red lines on the diagram represent HTF piping. Hot HTF flows from top to bottom in the figure, arriving from the solar fields (having captured the sun's energy) and transferring this heat from the sun to the superheater and reheater; from where it then moves the heat energy to the steam generator; and, lastly the HTF flows to the preheater before returning to the solar fields to be heated once again in a continual cycle. The blue lines represent steam and water piping. Feedwater, the portion of the blue line between the ACC and the preheater, is heated in a series of feedwater heaters by steam turbine extractions at various pressure levels. (Source: Ex. 400, p. B.1-5.)

4. Water Treatment Systems

The raw water, circulating water, process water, and mirror washing water all require on-site treatment and this treatment varies according to the quality required for each of these uses. The power plant's design consists of a pre-treatment system and a post-treatment system.

Each 125 MW power plant will require its own raw water, treated water, and wastewater tanks for operation, including:

- Raw Water/Fire Water Storage Tank: 700,000 gallons
- RO Feed Tank: 265,000 gallons
- Treated Water Storage Tank: 200,000 gallons
- Demineralized Water Storage Tank: 145,000 gallons
- Wastewater Storage Tank: 155,000 gallons

These tanks (ten in total) were sized to provide sufficient water to support operation at each separate 125 MW power plant during peak (250 MW total) operating conditions for GSEP. Additionally, the tanks were sized to provide a **s**torage capacity to enable continued operations when a failure interrupts water or wastewater treatment capabilities. The tanks also enable the plant meet water supply requirements on a constant 24-hour basis to accommodate midday demand peaks. (Ex. 400, p. B.1-8.)

5. Water Demand and Source of Supply

The average total annual water usage for each 125 MW power plant is estimated to be about 100 acre-feet per year, or 200 acre-feet per year for the GSEP. (7/12/10 RT 6-7.)

Project water for the GSEP will come from pumping groundwater from wells to be installed at the Project site. A minimum of two groundwater supply wells will be located near each unit's power block area. (Ex. AFC, p. 3-12.) These wells will pump groundwater from the Bouse Formation and/or underlying Fanglomerate within the Chuckwalla Valley Groundwater Basin. The characteristics and yield of the aquifer that is proposed for the Project water supply, and the long-term effect of pumping of the groundwater system, are discussed in more detail in the **Soil and Water Resources** section of this Decision. (Ex. 400, p. B.1-9.)

6. Wastewater

Wastewater will be segregated into two separate collection systems, one for industrial streams and one for sanitary wastes. Industrial wastewater from both the pre-treatment and post-treatment systems will be piped to two 5-acre evaporation ponds for disposal.

Occasionally, storm water may accumulate in the proposed LTU that will be used to treat soil affected by spills of HTF, and will be transferred to the evaporative ponds.

On an annual average, blowdown to the evaporation ponds will be approximately 12,000 gallons per day for each unit, increasing to approximately 19,000 gallons per day for each unit during peak summer conditions. The Project's sanitary system will collect wastewater from sanitary facilities such as sinks and toilets. This waste stream will be sent to an on-site sanitary waste septic system

designed and permitted in accordance with standards stipulated in the **Waste Management** section of this Decision. (Ex. 400, B.1-11.)

7. Evaporation Ponds

The evaporation ponds will be designed and permitted as Class II Surface Impoundments in accordance with Colorado River Regional Water Quality Control Board (CRRWQCB) requirements, as well as the requirements of the California Integrated Waste Management Board (CIWMB). Multiple ponds are planned to allow plant operations to continue in the event a pond needs to be taken out of service for some reason, *e.g.,* needed maintenance. Each pond will have enough surface area so the evaporation rate exceeds the cooling rate at maximum design conditions and annual average conditions.

The average pond depth is eight feet and residual precipitated solids will be removed approximately every twenty years to maintain a solids depth no greater than approximately three feet for operational and safety purposes. Ponds will have net coverings to prevent bird access. The precipitated solids will be sampled and analyzed to meet the characterization requirements of the receiving disposal facility. (Ex. 400, pp. B.1-11 to B.1-12.)

8. On-site Bioremediation Land Treatment Unit

The Project will include a bioremediation LTU to deal with soil impacted by incidental spills and leaks of HTF at various concentrations. The unit will be designed and permitted as a Class II LTU in accordance with CRRWQCB and CIWMB requirements. The LTU will cover an area of approximately 600 feet by 725 feet, including the staging area, and will cater for both 125 MW units. The LTU will be constructed with a prepared base consisting of two feet of compacted, low permeability, lime treated material and be surrounded on all sides by a minimum two foot high compacted earthen berm with slopes of approximately 3:1 (horizontal:vertical). Spills of HTF will be moved to the staging area and placed on plastic sheeting pending receipt of analytical results and characterization of the waste material. If the soil is classified as a hazardous waste, the impacted soils will be transported from the site by a licensed hazardous waste hauler for disposal at a licensed hazardous waste landfill. Non hazardous material shall be treated in the LTU. Based on available operation data from other sites, it is anticipated approximately 750 cubic yards (on average) of HTF-affected soil may be treated per year. Larger or smaller quantities could be generated during some years, depending on the frequency and size of leaks and spills. (Ex. 400, p. B.1-12.)

9. Natural Gas Supply

The auxiliary boilers will be fueled by natural gas supplied from a new six-mile, eight-inch pipeline connected to an existing Southern California Gas (SoCal Gas) pipeline located near I-10. Natural gas delivered to the GSEP site will flow through a revenue quality flow meter, pressure regulation station, and filtering equipment, and will provide gas to the auxiliary boilers for each 125 MW power plant. Safety pressure relief valves are provided downstream of the pressure regulation valves. The estimated natural gas usage for each auxiliary boiler is 30 million British thermal units per hour (MMBtu/hr) or a total of 60 MMBtu/hr for the Project. The maximum annual natural gas usage is expected to be 60 million standard cubic feet per year (MMSCF/yr) for a maximum of 60,000 MMBtu/year. (Ex. 400, p. B.1-8.)

10. Air Emissions Control and Monitoring

Installation and operation of the GSEP will result in a change in the emissions signature for the site. Criteria and non-criteria pollutant emissions from the proposed auxiliary boilers, fire pump engines, emergency generator engines, and cooling towers are discussed in the **Air Quality** and **Public Health** section of this Decision. Operation of the GSEP will result in emissions to the atmosphere of both criteria and toxic air pollutants from the proposed auxiliary boilers, fire pump engines, emergency generator engines, and cooling towers, and fugitive losses from the HTF system. Construction-related emissions are associated with site disturbance resulting from site preparation and with the typical emissions and associated construction-related activities encountered at any construction site. (Ex. 400, p. B.1-13.) The **Air Quality** and **Public Health** sections also discuss mitigation measures which would reduce impacts to less than significant.

11. Hazardous Waste Management

Small quantities of hazardous wastes will be generated during construction and operation. Hazardous wastes generated during the construction phase will include substances such as paint and primer, thinners, and solvents. Hazardous solid and liquid waste streams generated during Project operations include substances such as used hydraulic fluids, oils, greases, filters, etc., as well as spent cleaning solutions and spent batteries. To the extent possible, both construction and operation-phase hazardous wastes will be recycled, as detailed in the **Hazardous Materials Management** section of this Decision (which also includes additional data on hazardous materials that will be used during

construction and operation, including quantities, associated hazards and permissible exposure limits, storage methods, and special handling precautions). Hazardous materials that will be used during construction include gasoline, diesel fuel, oil, lubricants, and small quantities of solvents and paints. All hazardous materials used during construction and operation will be stored on site in storage tanks, vessels and containers that are specifically designed for the characteristics of the materials to be stored; as appropriate, the storage facilities will include the needed secondary containment in case of tank/vessel failure.

Engineering controls help to prevent accidents and releases (spills) from moving off site and affecting communities by incorporating engineering safety design criteria in the design of the project. The engineered safety features proposed by Applicant for use at the GSEP project include: storage of small quantity hazardous materials in original, properly labeled containers; construction of secondary containment areas surrounding each of the bulk hazardous materials storage areas, designed to contain accidental releases that might happen during storage or delivery plus the volume of rainfall associated with a 25-year, 24-hour storm; physical separation of stored chemicals in isolated containment areas in order to prevent accidental mixing of incompatible materials, which could result in the evolution and release of toxic gases or fumes; installation of a fire protection system for hazardous materials storage areas; and continuous monitoring of HTF piping system by plant staff and by automatic pressure sensors designed to trigger isolation valves if a leak is detected. (Ex. 400, p, B.1-12.)

12. Fire Protection

Fire protection systems are provided to limit personnel injury, property loss, and project downtime resulting from a fire. The systems include a fire protection water system and portable fire extinguishers.

Each 125 MW power plant's fire protection water system will be supplied from a dedicated 360,000-gallon portion of the 700,000-gallon raw water storage tank located on the plant site. One electric and one diesel-fueled backup firewater pump, each with a capacity of 3,000 gallons per minute, will deliver water to the fire protection water-piping network for each plant. A smaller electric motor-driven jockey pump will maintain pressure in the piping network. If the jockey pump is unable to maintain a set operating pressure in the piping network, the diesel fire pump starts automatically.

The piping network will be configured in a loop so a piping failure can be isolated with shutoff valves without interrupting the supply of water to a majority of the

loop. The piping network will supply fire hydrants located at intervals throughout the power plant site, a sprinkler deluge system at each unit transformer, HTF expansion tank and circulating pump area, and sprinkler systems at the STG, and in the operations and administration buildings. Portable fire extinguishers of appropriate sizes and types will be located throughout the plant site.

Fire protection for the solar field will be provided by zoned isolation of the HTF lines in the event of a rupture that results in fire. As vegetation or other combustible materials will not be allowed in the solar field, the HTF will be allowed to extinguish itself naturally, since the remainder of the field is of nonflammable material (aluminum, steel, and glass). (Ex. 400, p. B.1-13.)

13. Transmission System Interconnection

The GSEP switchyard will contain three breakers and three line takeoff structures. It will have space for a future breaker and line takeoff structure. Air insulated structures will be utilized giving the switchyard a size of approximately 270 feet by 400 feet. The switchyard and interconnections will be built for 230 kV and will operate at that nominal voltage. Instrument transformers (current and capacitive voltage transformers) will be included for protection. Shield wires and lightning arrestors will be included to protect substation equipment and personnel against lightning strikes.

The generated electrical power from the Project switchyard will be transmitted through a generation-tie (gen-tie) line that will be routed in a southeasterly Right-Of-Way (ROW) eventually connecting to the expanded SCE 230/500-kV Colorado River substation via the Blythe Energy Project Transmission Line (BEPTL). (Ex. 400, p. B.1-18.)

Six additional transmission poles will be required to connect GSEP electricity from the BEPTL into the expanded Colorado River Substation. These upgrades are described and analyzed in the report published July 2, 2010, entitled: Transmission System Engineering Appendix A, Colorado River Substation Expansion and GSEP Interconnection Actions Impact Analysis. (Ex. 403, pp. D.5-1 to D. 5-63.)

Expanding the permitted 500-kV SCE Colorado River Substation into a full 230/500-kV substation will require utilizing approximately 90 acres of land. The

expansion project would involve site preparation by clearing existing vegetation and grading, and may involve redirecting surface flows around one side of the substation. An approximately 10-acre staging area adjacent to the site will also be necessary for the expansion construction activity. Although final, detailed engineering, grading and drainage plans are not yet available, it is estimated that the total area subject to new disturbance from construction of the expanded substation, would be approximately 65 acres (45 acres for substation, 20 acres for drainage/side slopes), plus temporary disturbance resulting from a 10-acre staging area. (Ex. 62; Ex 69.)

Transmission reliability impacts and appropriate mitigation have been fully identified in the California Independent System Operator (CAISO) Phase II Interconnection or "cluster" study of 2,200 MW of generation. (Ex. 405.) Although significant, unmitigated impacts are not anticipated, final details will be available once the final Large Generator Interconnection Agreement has been entered (please see the **Transmission System Engineering** of this Decision for further details). (Ex. 400, p. B.1-19.)

14. Facility Closure

Facility closure can occur on either a temporary or permanent basis. Temporary closure is a cessation of facility operations for a period of time greater than will be required for routine maintenance, overhaul, or replacement of major plant equipment. Temporary closures may be caused by damage to the facility from events such as fire, earthquake, or other natural occurrences, or by short-term economic considerations. Permanent closure is a cessation of facility operations with no intent to restart. Permanent closure may result from a combination of facility age and economic considerations, or from damage considered beyond repair or other reasons. (Ex. 400, pp. B.1-24 to B.1-25.)

In the case of a temporary closure, security for the Project facilities will be maintained on a 24-hour basis and the CEC and other responsible agencies will be notified. The course of action that will be followed will depend on whether or not the temporary closure involves a release of hazardous materials. (Ex. 400, p. B.1-25.)

The planned operational life of the GSEP is 30 years, but the Project facility conceivably could operate for a longer or shorter period depending upon economic considerations or other circumstances. For example, if the Project facility remains economically viable, it could operate for more than 30 years,

which will defer environmental impacts associated with closure and with the development of replacement power generating facilities. However, if the facility were to become economically non-viable before 30 years of operation, it could be closed permanently at an earlier time. (Ex. 400, p. B.1-25.)

Regardless of when permanent closure occurs, a decommissioning plan specifying the appropriate closure procedures will be developed and implemented. As in the case of a temporary closure, security for the Project facility will be maintained on a 24-hour basis. During permanent closure, the Energy Commission and other responsible agencies including the BLM will be notified of the decommissioning schedule and plans. The procedures provided in the decommissioning plan will be designed to ensure public health and safety, environmental protection, and compliance with applicable LORS. Prior to the beginning of permanent closure activities, the decommissioning plan will be submitted to the Energy Commission's Compliance Project Manager for review and approval. (Ex. 400, p. B.1-26.)

If the evaporation ponds or LTU require temporary closure, the Closure and Post-Closure Maintenance Plan shall be implemented. A Preliminary Closure and Post-Closure Maintenance Plan for both waste management units will be submitted to the Colorado River Regional Water Quality Control Board with the application for a Report of Waste Discharge (ROWD). (Ex. 400, p. B.1-26.)

15. Public Comment

We reserved a specific time for public comment at the July 12, 13, and 21, 2010, hearings. Public comments made on July 12th following the presentation of evidence on Project Description are listed below: (7/12/10 RT 272-287.)

Mike Draper, Vice-President, UBC Western District, stated that California needs the project, the energy it will produce and the jobs it will create. He expressed the opinion that projects such as Genesis could not move forward financially if they sign Project Labor Agreements with building trades unions.

Dan Langford, Southwest Regional Council of Carpenters, stated that he represents carpenters in Southern California. He supports the project and emphasized the need for jobs, "now more than ever." He urged the Committee not to let a group, "…that claims to represent labor…" delay the project.

Pat McGinn, Senior Business Representative with the Southwest Regional Council of Carpenters stated that based on his experience in Utah, New Mexico,

Arizona, Nevada and west Texas, solar development in California is behind the rate of solar development those states. He urged the Commission to act on the project to prevent a loss of federal funds, project-related jobs, and loss of habitat as a result of global warming associated with fossil-fueled power plants.

Ron Delgado, special representative with the United Brotherhood of Carpenters, Local 2361, stressed the benefits to San Bernardino County from project-related jobs.

Daniel Curtin, introduced himself as the Director of the California Conference of Carpenters. He commented that Project Labor Agreements with certain unions threaten the financial viability of projects such as Genesis and also limit innovation.

FINDINGS OF FACT

Based upon the evidentiary record, we find as follows:

1. Genesis Solar LLC will own and operate the project, which will be located within eastern Riverside County on approximately 1,800 acres of land within a 4,640 BLM ROW, 25 miles west of Blythe, California.

2. The project will have a nominal capacity rating of 250 MW.

3. The GSEP will consist of two, single-unit parabolic trough solar fields (125 MW each) that feed two power blocks having a combined, nominal output of 250 MW. The plant will consist of a conventional steam Rankine-cycle power block, two parabolic trough solar fields, an HTF and steam generation system, as well as a variety of ancillary facilities, such as conventional water treatment, electrical switchgear, administration, warehouse, and maintenance facilities.

4. Project water for the GSEP will come from pumping groundwater from wells to be installed at the Project site. These wells will pump groundwater from the Bouse Formation and/or underlying Fanglomerate within the Chuckwalla Valley Groundwater Basin.

5. The generated electrical power from the GSEP switchyard will be transmitted through a generation-tie (gen-tie) line that will be routed in a southeasterly ROW eventually connecting to the expanded SCE 230/500 kV Colorado River substation via the Blythe Energy Project Transmission Line (BEPTL). The gen-tie's initial segment will be 6.5 miles of new line from the GSEP site to the BEPTL, at which point it will share poles with BEPTL before connecting with the expanded Colorado River substation.

6. The project and its objectives are adequately described by the relevant documents contained in the record.

CONCLUSION OF LAW

1. We therefore conclude that the Genesis Solar Energy Project is described at a level of detail sufficient to allow review in compliance with the provisions of the Warren- Alquist Act, the California Environmental Quality Act, and the National Environmental Policy Act.

II. PROJECT ALTERNATIVES

The California Environmental Quality Act (CEQA) Guidelines and the Energy Commission's regulations require an evaluation of the comparative merits of a range of feasible site and facility alternatives which meet the basic objectives of the proposed project but would avoid or substantially lessen potentially significant environmental impacts. [Cal. Code Regs., tit. 14, §§ 15126.6(c) and (e); tit. 20, § 1765.]

The range of alternatives, including the "No Project" alternative, is governed by the "rule of reason" and need not include those alternatives whose effects cannot be reasonably ascertained and whose implementation is remote and speculative. [Cal. Code Regs. tit. 14, § 15126.6(f).] Rather, the analysis is necessarily limited to alternatives that the "lead agency determines could feasibly attain most of the basic objectives of the project." (*Id*.)

Since the BLM is a federal agency, the Genesis Solar Energy Project (GSEP) is subject also to review under the National Environmental Policy Act (NEPA) in addition to CEQA. The purpose of this alternatives analysis is to comply with State and Federal environmental laws by providing a reasonable range of alternatives which, under CEQA, could substantially reduce or avoid any potentially significant adverse impacts of the proposed project, or under NEPA, would 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.

In addition, state policy favors a "loading order" for meeting electricity needs: first in this order is a preference for adding energy efficiency and demand response, followed by renewables and distributed electricity generation, combined heat and power (cogeneration) and then fuel efficient fossil-fueled generation and infrastructure development. State policy also mandates the reduction of greenhouse gas emissions, the achievement of the 33 percent RPS target by 2020, and the completion of the siting review process in a timely manner to allow certain renewable projects to qualify for the 2009 ARRA cash grant. These policies are discussed further under Project Objectives, below.

Applicant provided an alternatives analysis in the Application for Certification (AFC) (Ex. 1; pp. 3-34 to 3-35), describing the site selection process and project configuration in light of project objectives. Staff included a similar analysis in the Revised Staff Assessment (RSA). (Ex. 400, pp. B.2-8 to B.2-9.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

Energy Commission staff used the following methodology to analyze project alternatives for the GSEP:

- identified basic objectives of the project and its potentially significant adverse impacts (which are discussed by topic in this Decision);
- under CEQA, identified and evaluated alternative sites to determine whether an alternative site would mitigate impacts of the proposed site and whether an alternative site would create impacts of its own;
- under CEQA, identified and evaluated technology alternatives, including alternative equipment and electricity generation processes;
- under CEQA, evaluated potential alternatives to select those qualified for detailed evaluation;
- under NEPA, explored and evaluated a reasonable range of alternatives, and of those reasonable alternatives, identified those that would avoid or minimize adverse impacts or enhance the quality of human life; and
- evaluated consequences of not constructing the project, i.e., the "No Project" alternative under CEQA and the "No Action" alternative under NEPA. (Ex. 400, p. B.2-9.)

Elsewhere in this Decision, we have determined that the proposed project has the potential to cause adverse cumulative impacts to Cultural, Visual and Land Use Resources which cannot be fully mitigated. The proposed decision addresses those impacts elsewhere in more detail.

We therefore confine our analysis here to the alternatives' potential to reduce or eliminate those impacts. In all other areas, impacts either do not exist or will be reduced to below a level of significance through implementation of the Conditions of Certification.

1. Project Objectives

The evidentiary record establishes that the project objectives are:

- To construct a utility-scale solar energy project of up to 250 MW and interconnect directly to the CAISO Grid while minimizing additions to electrical infrastructure; and
- To locate the facility in areas of high solar insolation.

- To provide clean, renewable electricity to support California's Renewable Portfolio Standard Program (RPS);
- To assist in reducing greenhouse gas emissions as required by the California Global Warming Solutions Act;
- To contribute to the achievement of the renewables RPS target set by California's governor and legislature; and
- To complete the review process in a timeframe that would allow the Applicant to start construction or meet the economic performance guidelines by December 31, 2010 to potentially qualify for the 2009 ARRA cash grant in lieu of tax credits for certain renewable energy projects. (Id.)

2. Alternatives Evaluated Under CEQA and NEPA

Based on the evidence, 25 alternatives to the proposed GSEP were developed and evaluated. These include six alternative sites, solar and renewable technologies, generation technologies using different fuels, and conservation/demand-side management. Of the 25 alternatives, three alternatives were determined to be potentially feasible by the Energy Commission and have the potential to result in reduced impacts in comparison with the proposed project: the Reduced Acreage Alternative, the Gabrych Alternative, and the Dry Cooling Alternative. Additionally the Energy Commission considered the No Project/No Action Alternative. (Ex. 400, pp. B.2-1 to B.2-86; 7/13/10 RT 94-99.)

3. Alternative Sites (CEQA-only)

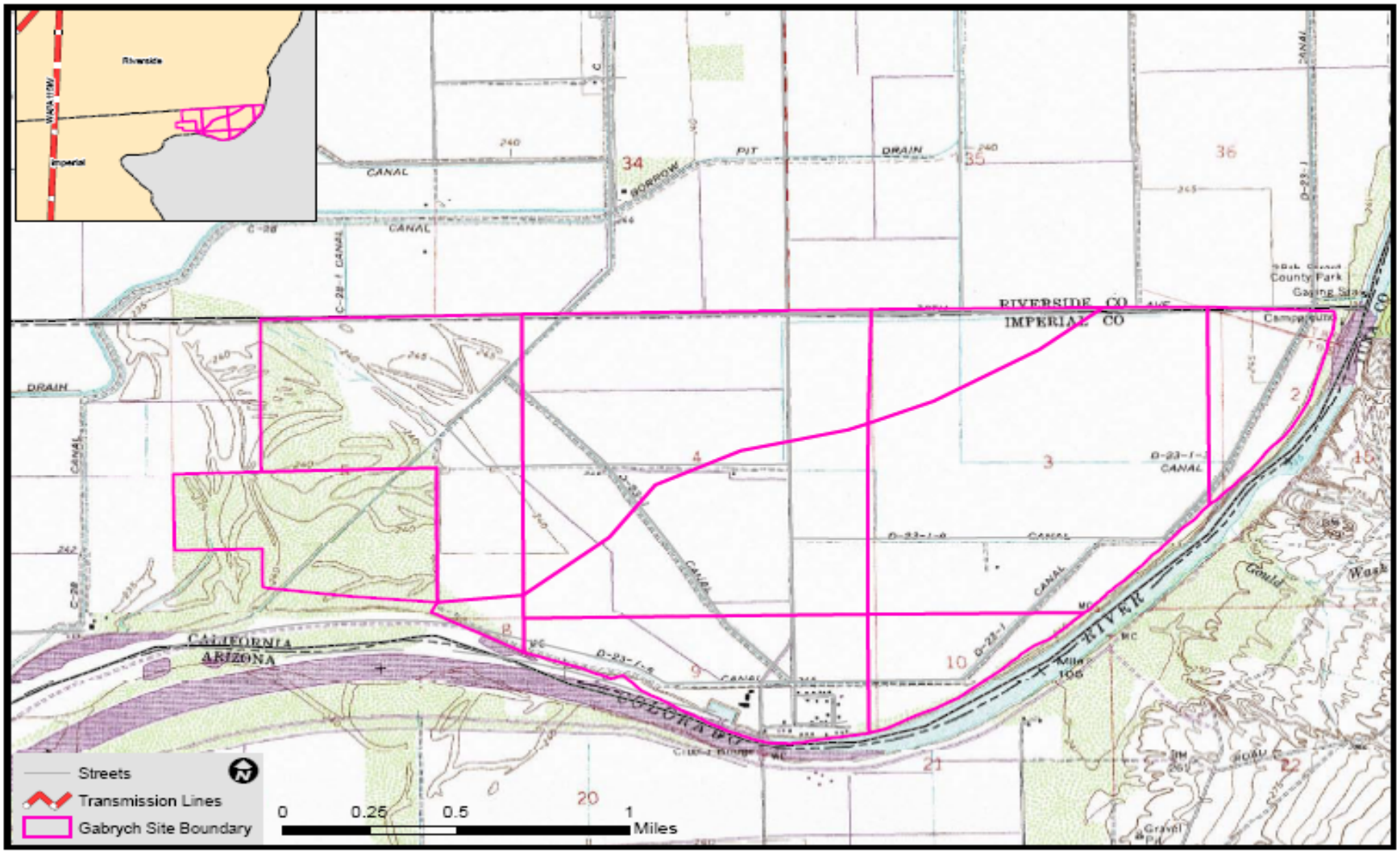
The record indicates that three private land sites were considered in the Blythe area. The Applicant did not pursue any of these alternatives because of concerns that any water use in the Blythe area would impact the Colorado River water basin. Of the three alternatives considered by the Applicant, the Gabrych site was carried forward for analysis because (a) it seemed to have the best potential to reduce impacts to biological and cultural resources and (b) it was not already considered as an alternative to a different solar project. (Ex. 400, p. B.2-23; 7/13/10 RT 95.)

a. Gabrych Alternative Site

The Gabrych Alternative site is located along Neighbors Boulevard just south of the Riverside/Imperial County line, and approximately 12 miles south of I-10. It is located on ten parcels of private land making up 1,800 acres of land and would

avoid the Harvey's Fishing Hole community, adjacent to the Colorado River. The Gabrych Alternative is shown in **Alternative Figure 1**.

ALTERNATIVES – FIGURE 1
Gabrych Alternative



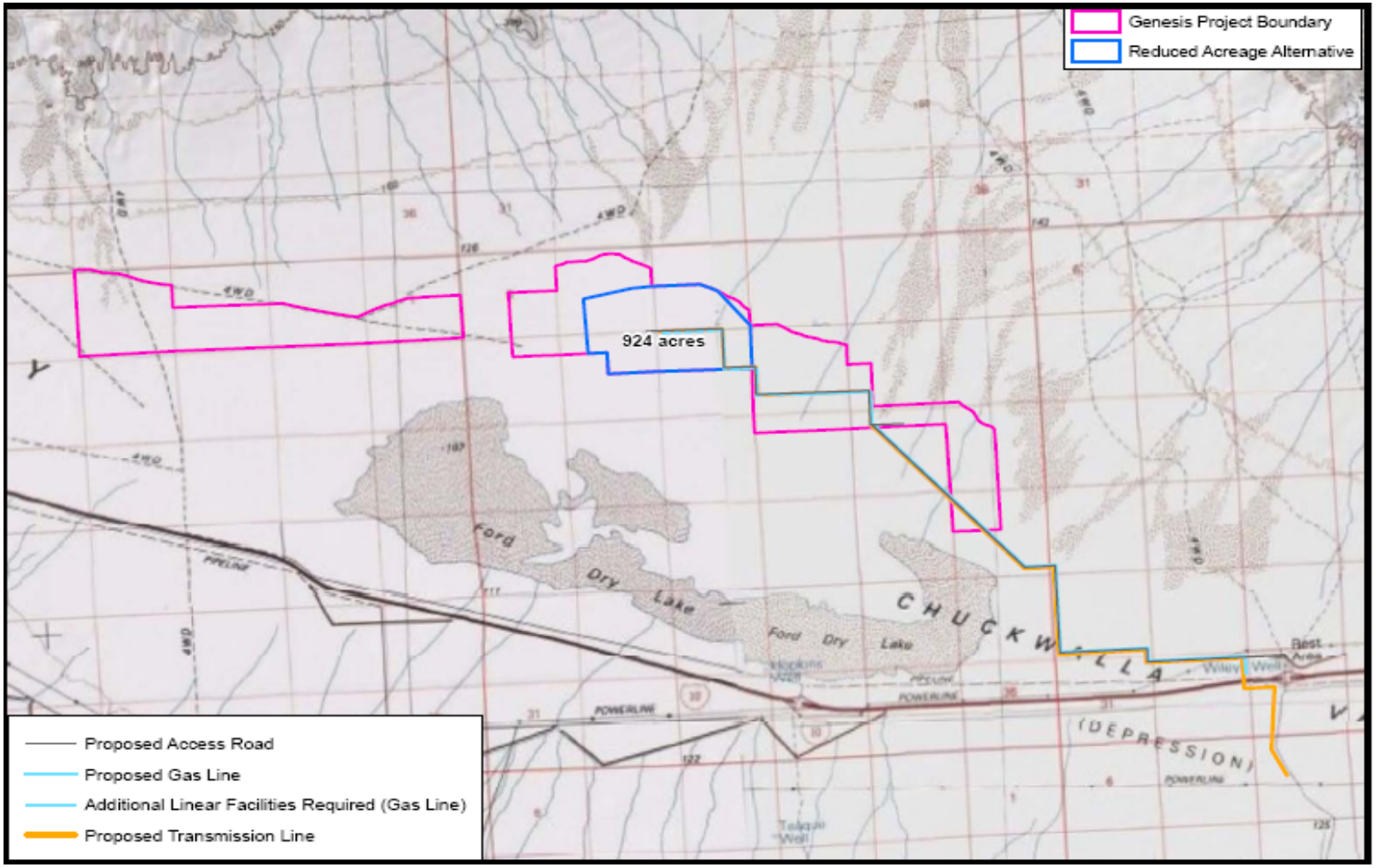
The Gabrych Alternative would have impacts similar to those of the proposed GSEP site in many resource elements. However, it is likely to have less severe biological resources and cultural resources impacts, as it is located on disturbed lands used for agriculture. It is inferior to the proposed site in the resource elements of: hazardous materials, land use, noise, visual resources, and transmission line safety and nuisance. (Ex. 400, p. B.2-52.) The Gabrych Alternative would be located on some active and some previously farmed agriculture land, resulting in a significant impact to agriculture. The alternative is potentially feasible and would reduce impacts in comparison with the proposed project. However, due to the number of separate parcels that would have to be acquired, obtaining site control in a timely manner may be more challenging at this site. In addition, detailed site engineering and transmission interconnection would require additional time for this site to be developed; as a result this alternative would not meet the project objective articulated by both the Applicant and the Commission staff on behalf of the State of California, requiring that a decision to be made in 2010. (Ex. 400, pp. B.2-10, B.2-86; *Id*; Staff's Reply Brief at p. 13.)

4. Reduced Acreage Alternative (CEQA and NEPA)

The Reduced Acreage Alternative would essentially be Unit 1 (or one-half) of the proposed project, including a 125 MW solar facility located within the boundaries of the proposed project. This alternative is analyzed for two major reasons: (1) it eliminates about 50 percent of the proposed project area so all impacts would be reduced, and (2) it would reduce the water required for wet cooling by 50 percent, although wet cooling is now no longer relevant to this project. The boundaries of the Reduced Acreage Alternative are shown in **Alternatives Figure 2**. As with the proposed GSEP, a land use plan amendment to the California Desert Conservation Area (CDCA) Plan of 1980 would be required before BLM could issue the ROW grant for the Reduced Acreage Alternative. (Ex. 400, p. B.2-15.)

ALTERNATIVES FIGURE 2

Reduced Acreage Alternative



Similar to the proposed project, the Reduced Acreage Alternative would transmit power to the grid through the Colorado River Substation. It would require infrastructure including groundwater wells, a transmission line, road access, an administration building, and evaporation ponds. The required infrastructure and transmission line for the Reduced Acreage Alternative would follow the routes defined for the proposed project, even though Unit 2 would not be constructed. The linear facilities would require approximately 90 acres. The gas pipeline would be approximately 1 mile longer than for the proposed project. (Ex. 400, p. B.2-15.)

The Reduced Acreage Alternative would be half as large as the proposed project and was found to reduce the impacts of the proposed GSEP by approximately 50 percent. It would affect substantially less Mojave fringe-toed lizard habitat, would substantially reduce the geomorphic impacts, and would create no impacts to the Chuckwalla and Palen-McCoy sand corridors. While the Reduced Acreage Alternative would meet many project objectives, the project would not achieve the greenhouse gas reductions and renewable energy gains being proposed. It is uncertain whether the Reduced Acreage Alternative is economically feasible at this time, and if the project is not able to be financed, then none of the project objectives would be realized. As with the proposed GSEP, a land use plan amendment to the California Desert Conservation Area (CDCA) Plan of 1980 would be required before BLM could issue the ROW grant for the Reduced Acreage Alternative. The Reduced Acreage Alternative would be potentially feasible, and would reduce impacts in comparison to the proposed project. However, while it would reduce impacts by approximately one-half, it would not eliminate any significant impacts of the proposed project. Furthermore, it would fail to meet the project objective of constructing a utility-scale solar energy project of up to 250 MW. (Ex. 400, p. B.2-86.)

5. Dry-Cooling Alternative (CEQA and NEPA)

Direct dry cooling is analyzed as the alternative to the wet cooling originally proposed for the GSEP. (Ex. 400, p. B.2-16.) Staff determined that the Dry Cooling Alternative would reduce impacts to groundwater-dependent ecosystems, use substantially less water than the proposed project, and reduce impacts of the visible vapor plumes that the proposed project would create with the use of cooling towers. However, Dry Cooling was found to reduce the efficiency of the steam power cycles, which would slightly reduce the total amount of power generated. As a result, the benefits of the GSEP in replacing gas-fired power plants and associated greenhouse gases would be reduced.

The Dry Cooling Alternative meets most project objectives. (Ex. 400, p. B.2-86.) Applicant has stated its intent to adopt the Staff's recommendation for dry cooling. This change will reduce project water needs from 1,600 acre feet per year (AFY) to about 200 AFY. (7/12/10 RT 6:16-7:24.) Refer to **Alternatives Figure 3,** following.

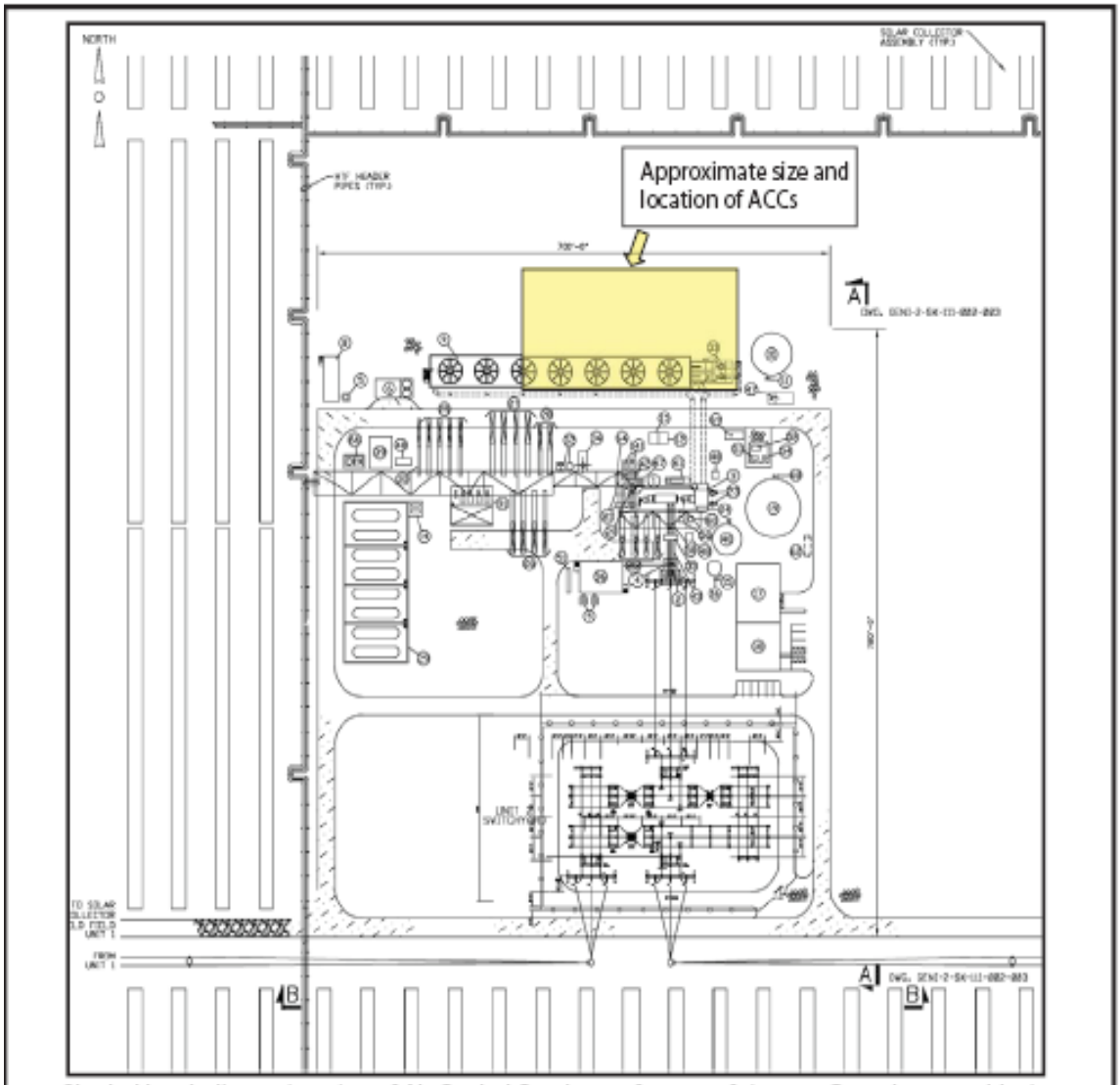
6. Other Generation Technology Alternatives

The record shows that alternative solar thermal technologies (Stirling engine systems, solar power tower, utility scale solar photovoltaics, distributed solar technology, and linear Fresnel) were also evaluated[1]. As compared with the proposed GSEP, these technologies would not substantially change the severity of visual, biological resources and cultural resources impacts, although the land requirements vary among the technologies. (Ex. 400, pp. B.2-58 to B.2-70.)

Distributed photovoltaic systems with generation near the point of use were analyzed by the Staff as an alternative. (Ex. 400, pp. B.2-66 to B.2-70; 7/13/10 RT 97-98.) Rooftop PV systems and parking lot systems are a subset of these systems which exist in small areas throughout California. Larger distributed solar PV installations are becoming more common in California. Rooftop solar PV facilities would require extensive acreage, although it would minimize the need for undisturbed or vacant land. However, increased deployment of rooftop solar PV faces challenges in manufacturing capacity, cost, and policy implementation. For rooftop solar PV to be a viable alternative to the proposed GSEP, there would have to be sufficient newly-installed panels to generate 250 MW of capacity. California currently has over 540 MW of distributed solar PV systems which cover over 40 million square feet. (Ex. 400, p. B.2-66.) Staff testimony presented analysis that, based on SCE's use of 600,000-square-feet for 2 MW of energy, 75 million square feet (approximately 1,750 acres) would be required to generate 250 MW with rooftop PV systems. (Ex. 400, p. B. 2-66 to B.2-67.) The Staff witness pointed out that of the 250 MW proposed by SCE in 2008; so far only about 3 MW of that amount has been added to the system. (7/13/10/10 RT 97.) Staff acknowledged that achieving 250 MW of distributed solar is likely over the coming years; however, the very limited number of existing facilities make it difficult to conclude with confidence that it will happen within the timeframe required for the GSEP. As a result, Staff eliminated this technology from more detailed analysis. (Staff's Reply Brief at p. 14.)

[1] A summary of the alternatives retained and eliminated in the Staff analysis can be found in the RSA at **Alternatives Table 1** (Ex. 400, pp. B.2-3 to B.2-6.)

ALTERNATIVES FIGURE 3
Dry Cooling Alternative



Shaded box indicates location of Air Cooled Condenser for one of the two Genesis power blocks.

EQUIPMENT DESCRIPTIONS

1 STEAM TURBINE/GENERATOR
2 GSU TRANSFORMER
3 SURFACE CONDENSER
4 UNIT AUXILIARY TRANSFORMER
5 STATION SERVICE TRANSFORMERS
6 COOLING TOWER CHEMICAL FEED/STORAGE AREA
7 AUXILIARY COOLING PUMP (BACK-UP/START-UP)
8 COOLING TOWER ELECTRICAL ENCLOSURE
9 COOLING TOWER
10 RAW, FIRE, TANK (500,000 GAL)
11 SERVICE WATER PUMPS
12 GOX BOTTLE STORAGE
13 HP BOTTLE STORAGE
14 OVERFLOW TANK PUMPS
15 DEMON WATER STORAGE TANK (40,000 GAL)
16 DEMON WATER PUMP SKID
17 WATER TREATMENT AREA (CYCLE CHEM FEED, DEMON TRAIN, RMF, RO, SAMPLE PANEL, LAB, AIR COMP)
18 CONTROL ROOM/WAREHOUSE BUILDING
19 TREATED WATER TANK (1,250,000 GAL)
20 DEAERATOR/STORAGE TANK/FEEDWATER HEATER
21 FEEDWATER PUMPS
22 FEEDWATER HEATERS
23 CONDENSATE PUMPS
24 GLAND STEAM CONDENSER
25 ECONOMIZERS
26 REHEATERS
27 EVAPORATORS
28 SUPERHEATERS
29 EXPANSION TANKS AND CONTAINMENT AREA
30 HTF FREEZE PROTECTION AND WARMUP HEATER (GAS-FIRED)
31 HTF CIRCULATING PUMPS AND CONTAINMENT AREA
32 BLOWDOWN TANK AND SUMP/PUMPS
33 CIRCULATING WATER PUMPS
34 AUXILIARY BOILER
35 GENERATOR CIRCUIT BREAKER
36 MAIN ELECTRICAL ENCLOSURE
37 NOT USED
38 NOT USED
39 BLOWDOWN SYSTEM AND CONTAINMENT AREA
40 WASTE WATER TANK (250,000 GAL)
41 CLOSED COOLING WATER HEAT EXCHANGERS
42 CLOSED COOLING WATER PUMPS
43 ISOLATED PHASE BUS DUCT
44 NOT USED
45 NOT USED
46 NOT USED
47 FIRE PUMP HOUSE
48 FIRE PROTECTION SPRINKLER HOUSE
49 NOT USED
50 NOT USED
51 30m-START DIESEL GENERATOR
52 ABOVE GROUND DIESEL FUEL STORAGE TANK (5,000 GAL)
53 DIESEL FUEL PUMP
54 WASH TRUCK DEMON FILL STATION
55 NOT USED
56 STEAM JET AIR INJECTOR
57 NOT USED
58 EXCITATION TRANSFORMER
59 NOT USED
60 TURBINE AREA FLASH TANK
61 LUBE OIL AND EHC SKID
62 OIL/WATER SEPARATOR
63 NOT USED
64 CLOSED COOLING WATER EXPANSION TANK
65 NOT USED
66 NITROGEN BULK STORAGE AND VAPORIZER
67 EQUIPMENT DRAINS SUMP AND PUMPS
68 TREATED WATER PUMP SKID
69 EMERGENCY DIESEL GENERATOR

Intervenor CBD argues that the treatment of the distributed energy alternative in Staff's RSA was inaccurate and inadequate, specifically regarding the testimony of Bill Powers, which advocates the use of rooftop solar PV as an alternative (Opening Brief of Intervenor Center for Biological Diversity, p. 16; Ex. 831, Testimony of Bill Powers.)

Mr. Powers's testimony argues that rooftop solar PV is making rapid gains toward becoming a serious generation source[2]. However, we find that the evidence shows several challenges which led Staff to determine that rooftop solar is not a viable alternative to the Genesis project *at this time*. These include 1) high cost, 2) untimely availability of an additional 250 MW of PV, and 3) required upgrades to the electrical distribution system to accommodate such additional local generation. (7/13/10 RT 98.). Staff analysis also noted that the location of the distributed solar PV would impact the capacity factor of the distributed solar PV.[3] The capacity factor depends on a number of factors including the insolation[4] of the site. The insolation at some of the alternative locations would be less than in the Mojave Desert. (Ex. 400, p. B.2-86.) As a result, we find that at this time, rooftop solar PV does not offer a preferred alternative to the project.

Other generation technologies (wind, geothermal, biomass, tidal, wave, natural gas, and nuclear) were also examined as possible alternatives to the proposed GSEP. These technologies would either be infeasible at the scale of the GSEP, or would not eliminate substantial adverse impacts caused by the GSEP without creating their own substantial adverse impacts in other locations. A natural gas or coal plant would contribute to greenhouse gas emissions and would not meet the project's renewable generation objective. Construction of new nuclear power plants is currently prohibited under California law. (Ex. 400, p. B.2-86.)

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[2] Indeed, the 2009 IEPR states that solar PV technology has shown dramatic cost reductions since 2007, and is expected to show the most improvement of all the technologies evaluated in the 2009 IEPR model, bringing its capital cost within range of that of natural gas-fired combined cycle units." (Ex. 400, p. B.2-69.)

[3] The capacity factor of a power plant is a percentage that tells how much of a power plant's capacity is used over time (CEC 2008a).

[4] Insolation is the total amount of solar radiation striking a surface exposed to the sky (CEC 2008a).

7. No Project/No Action Alternative (CEQA/NEPA)

The No Project Alternative under CEQA defines the scenario that would exist if the proposed GSEP were not constructed. The CEQA Guidelines state that "the purpose of describing and analyzing a 'no project' alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." (Cal. Code Regs., tit. 14 § 15126.6(i).) The No Project analysis here considers existing conditions and "what would be reasonably expected to occur in the foreseeable future if the project were not approved." (Cal. Code Regs, tit. 14 § 15126.6(e)(2).) (Ex. 400, p. B.2-19.)

If the No Project Alternative were selected, the construction and operational impacts of the GSEP would not occur. There would be no grading of the site, no loss of resources or disturbance of desert habitat, and no installation of power generation and transmission equipment. The No Project Alternative would also eliminate contributions to cumulative impacts on a number of resources and environmental parameters in Riverside County and in the Mojave Desert as a whole. (Ex. 400, p. B.2-19.)

In the absence of the GSEP, however, other power plants, both renewable and non-renewable, may have to be constructed to serve the demand for electricity and to meet the RPS. The impacts of these other facilities may be similar to those of the proposed project because other renewable generation technologies require large amounts of land like that required for the GSEP. The No Project/No Action Alternative may also lead to siting of other non-solar renewable technologies to help achieve the California RPS. (Ex. 400, p. B.2-19.)

Additionally, if the No Project/No Action Alternative were chosen, additional gas-fired power plants may be built, or existing gas-fired plants may operate longer. If the proposed project were not built, California would not benefit from the reduction in greenhouse gases that the GSEP facility would provide, and California utilities would not receive the 250 MW contribution to its renewable state-mandated energy portfolio. (Ex. 400, p. B.2-19; 7/13/10 RT 95.)

FINDINGS OF FACT

Based upon the evidence, including that presented on each subject area described in other portions of this Decision, we find and conclude as follows:

1. The record contains an acceptable analysis of a reasonable range of site location and generation alternatives to the project as proposed.
2. The Gabrych Alternative site was evaluated in detail by the Energy Commission under a CEQA approach. The Gabrych Alternative site is likely to have fewer potential cultural impacts and would also have reduced impacts to biological resources because of its lack of natural habitat. However, it would create new impacts such as loss of productive agricultural lands, noise impacts, as well as others. (July 13, 2010 RT, page 96). In addition, obtaining control over private lands at the Gabrych site and developing a new detailed site engineering and transmission interconnection would require additional time for this site to be developed resulting in this alternative not being able to meet the project objective requiring that a decision to be made in 2010.
3. The Reduced Acreage Alternative would reduce impacts in comparison to the proposed project by approximately one-half. However, it would generate only 125 MW instead of the proposed 250 MW, and it would reduce, but not eliminate any significant impacts of the proposed project.
4. All site alternatives are considered unreasonable by the BLM's analysis because they would not meet BLM's Purpose and Need, or are otherwise unreasonable alternatives under NEPA.
5. None of the site location alternatives to the project offer a superior alternative as analyzed under both NEPA and CEQA.
6. The evidentiary record contains an adequate review of alternative generation technology, including that of rooftop photovoltaic distributed generation.
7. The alternative utility scale solar generation technologies analyzed were reasonably feasible alternatives but would not substantially change the visual, biological and cultural resources impacts imposed by the GSEP.
8. Rooftop solar PV facilities would require extensive acreage although it would minimize the need for undisturbed or vacant land. However, increased deployment of rooftop solar PV at this time, faces challenges in manufacturing capacity, cost, and timeliness.
9. Other generation technologies (wind, geothermal, biomass, tidal, wave, natural gas, and nuclear) were also examined as possible alternatives to the proposed GSEP. These technologies would either be infeasible at the scale of the GSEP, or would not eliminate substantial adverse impacts caused by

the GSEP without creating their own substantial adverse impacts in other locations.

10. Conservation and demand side management programs would likely not meet the state's growing electricity needs that could be served by the GSEP. In addition, these programs would not provide the renewable energy required to meet the California Renewable Portfolio Standard (RPS) requirements.

11. The evidentiary record contains an adequate review of the "No Project/No Action" alternative.

12. The "No Project/No Action" alternative is not a reasonable alternative or a feasible alternative to the GSEP. This alternative would likely delay development of renewable resources, shift renewable development to other similar areas, and would lead to new development and increased operations of power plants that use non-renewable technologies. In the specific case of the GSEP, dry cooling will provide environmental benefits through reduced water use in a water-constrained environment, reduced use of treatment chemicals, reduction in solid waste generation, and avoidance of substantial harm to biological resources and wetland/substrate habitat.

13. Dry cooling is consistent with the State's water policy.

14. If all Conditions of Certification contained in this Decision are implemented, direct and indirect adverse environmental impacts related to construction and operation of the Genesis Solar Energy Project will be mitigated to a level of insignificance, except for a direct impact to ethnographic resources and cumulative impacts to Cultural Resources, Land Use and Visual Resources, for which we have made the appropriate findings of override.

15. If all Conditions of Certification contained in this Decision are implemented, any cumulative adverse environmental impacts related to construction and operation of the Genesis Solar Energy Project will be mitigated to the greatest extent feasible.

CONCLUSIONS OF LAW

1. The record contains a sufficient analysis of Alternatives and complies with the requirements of the California Environmental Quality Act and the Warren-Alquist Act.

2. The proposed project's potential direct and indirect adverse environmental impacts will be mitigated to a level below the threshold of significance.

   No Conditions of Certification are required for this topic.

III. COMPLIANCE AND CLOSURE

Public Resources Code section 25532 requires the Commission to establish a post-certification monitoring system. The purpose of this requirement is to assure that certified facilities are constructed and operated in compliance with applicable laws, ordinances, regulations, standards, as well as the specific Conditions of Certification adopted as part of this Decision. The Public Resources Code section 25806(d), states that renewable energy projects are exempt from paying an annual compliance fee.

SUMMARY OF THE EVIDENCE

The record contains a full explanation of the purposes and intent of the Compliance Plan (Plan). The Plan is the administrative mechanism used to ensure that the Genesis Solar Energy Project (GSEP) is constructed and operated according to the Conditions of Certification. It essentially describes the respective duties and expectations of the Project Owner and the Staff Compliance Project Manager (CPM) in implementing the design, construction, and operation criteria set forth in this Decision.

Compliance with the Conditions of Certification contained in this Decision is verified through mechanisms such as periodic reports and site visits. The Plan also contains requirements governing the planned closure, as well as the unexpected temporary and unexpected permanent closure, of the Project.

The Compliance Plan is composed of two broad elements. The first element establishes the "General Conditions," which:

- set forth the duties and responsibilities of the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;
- set forth the requirements for handling confidential records and maintaining the compliance record;
- set forth procedures for settling disputes and making post-certification changes;
- set forth the requirements for periodic compliance reports and other administrative procedures necessary to verify the compliance status of all Commission imposed Conditions; and
- establish requirements for facility closure plans; and specify Conditions of Certification for each technical area containing the measures required to mitigate any and all potential adverse project impacts associated with construction, operation and closure below a level of significance. Each specific condition of

certification also includes a verification provision that describes the method of assuring that the condition has been satisfied.

In addition to meeting the Energy Commission's Conditions of Certification, the project owner will be required to comply with all terms and conditions required by the Bureau of Land Management (BLM), as will be described in the BLM's Record of Decision and Right-of-Way Grant documents for this project.

The second general element of the Plan contains the specific "Conditions of Certification." These are found following the summary and discussion of each individual topic area in this Decision. The individual Conditions contain the measures required to mitigate potentially adverse Project impacts associated with construction, operation, and closure to levels of insignificance. Each Condition also includes a verification provision describing the method of assuring that the Condition has been satisfied.

The contents of the Compliance Plan are intended to be implemented in conjunction with any additional requirements contained in the individual Conditions of Certification.

FINDINGS OF FACT

The record establishes:

1. Requirements contained in the Compliance Plan and in the specific Conditions of Certification are intended to be implemented in conjunction with one another.

2. We adopt the following Compliance Plan as part of this Decision.

CONCLUSIONS OF LAW

1. The compliance and monitoring provisions incorporated as a part of this Decision satisfy the requirements of Public Resources Code section 25532.

2. The Compliance Plan and the specific Conditions of Certification contained in this Decision assure that the Genesis Solar Energy Project will be designed, constructed, operated, and closed in conformity with applicable law.

GENERAL CONDITIONS OF CERTIFICATION

DEFINITIONS

The following terms and definitions are used to establish when Conditions of Certification are implemented.

PRE-CONSTRUCTION SITE MOBILIZATION

Site mobilization is limited preconstruction activities at the site to allow for the installation of fencing, construction trailers, construction trailer utilities, and construction trailer parking at the site. Limited ground disturbance, grading, and trenching associated with the above mentioned pre-construction activities is considered part of site mobilization. Walking, driving or parking a passenger vehicle, pickup truck and/or light vehicles is allowable during site mobilization.

CONSTRUCTION

On-site work to install permanent equipment or structures for any facility.

Ground Disturbance

Construction-related ground disturbance refers to activities that result in the removal of top soil or vegetation at the site beyond site mobilization needs, and for access roads and linear facilities.

Grading, Boring, and Trenching

Construction-related grading, boring, and trenching refers to activities that result in subsurface soil work at the site and for access roads and linear facilities, e.g., alteration of the topographical features such as leveling, removal of hills or high spots, moving of soil from one area to another, and removal of soil.

Notwithstanding the definitions of ground disturbance, grading, boring, and trenching above, construction does **not** include the following:

1. the installation of environmental monitoring equipment;
2. a soil or geological investigation;
3. a topographical survey;
4. any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility; and
5. any work to provide access to the site for any of the purposes specified in “Construction” 1, 2, 3, or 4 above.

START OF COMMERCIAL OPERATION

For compliance monitoring purposes, “commercial operation” begins after the completion of start-up and commissioning, when the power plant has reached reliable steady-state production of electricity at the rated capacity. At the start of commercial operation, plant control is usually transferred from the construction manager to the plant operations manager.

COMPLIANCE PROJECT MANAGER RESPONSIBILITIES

The Compliance Project Manager (CPM) shall oversee the compliance monitoring and is responsible for:

1. ensuring that the design, construction, operation, and closure of the project facilities are in compliance with the terms and conditions of the Energy Commission Decision;

2. resolving complaints;

3. processing post-certification changes to the Conditions of Certification, project description (petition to amend), and ownership or operational control (petition for change of ownership) (See instructions for filing petitions);

4. documenting and tracking compliance filings; and

5. ensuring that compliance files are maintained and accessible.

The CPM is the contact person for the Energy Commission and will consult with appropriate responsible agencies, Energy Commission, and staff when handling disputes, complaints, and amendments.

All project compliance submittals are submitted to the CPM for processing. Where a submittal required by a condition of certification requires CPM approval, the approval will involve all appropriate Energy Commission staff and management. All submittals must include searchable electronic versions (pdf or MS Word files). The CPM may accept and approve, on a case by case basis, compliance submittals that provide sufficient detail to allow construction activities to commence without the submittal containing detailed information on construction activities that will be commenced later in time.

CHIEF BUILDING OFFICIAL RESPONSIBILITIES

The Chief Building Official (CBO) shall serve as the Energy Commission's delegate to assure the project is designed and constructed in accordance with the Energy Commission's Decision including Conditions of Certification, California Building Standards Code, local building codes and applicable laws, ordinances, regulations and standards to ensure health and safety. The CBO is typically made-up of a team of specialists covering civil, structural, mechanical and electrical disciplines whose duties include the following:

1. Performing design review and plan checks of all drawings, specifications and procedures;

2. Conducting construction inspection;

3. Functioning as the Energy Commission's delegate including reporting noncompliance issues or violations to the CPM for action and taking any action allowed under the California Code of Regulations, including issuing a Stop Work Order, to ensure compliance;

4. Exercising access as needed to all project owner construction records, construction and inspection procedures, test equipment and test results; and

5. Providing weekly reports on the status of construction to the CPM.

PRE-CONSTRUCTION AND PRE-OPERATION COMPLIANCE MEETING

The CPM usually schedules pre-construction and pre-operation compliance meetings prior to the projected start-dates of construction, plant operation, or both. The purpose of these meetings is to assemble both the Energy Commission's and project owner's technical staff to review the status of all pre-construction or pre-operation requirements contained in the Energy Commission's Conditions of Certification. This is to confirm that all applicable Conditions of Certification have been met, or if they have not been met, to ensure that the proper action is taken. In addition, these meetings ensure, to the extent possible, that Energy Commission conditions will not delay the construction and operation of the plant due to oversight and to preclude any last minute, unforeseen issues from arising. Pre-construction meetings held during the certification process must be publicly noticed unless they are confined to administrative issues and processes.

ENERGY COMMISSION RECORD

The Energy Commission shall maintain the following documents and information as a public record, in either the Energy Commission's Compliance file or Dockets file, for the life of the project (or other period as required):

- All documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;
- All monthly and annual compliance reports filed by the project owner;
- All complaints of noncompliance filed with the Energy Commission; and
- All petitions/requests for project or condition of certification changes and the resulting Energy Commission action.

PROJECT OWNER RESPONSIBILITIES

The project owner is responsible for ensuring that the compliance Conditions of Certification and all other Conditions of Certification that appear in the Commission Decision are satisfied. The compliance conditions regarding post-certification changes specify measures that the project owner must take when requesting changes in the project design, Conditions of Certification, or ownership. Failure to comply with any of

the Conditions of Certification or the compliance conditions may result in reopening of the case and revocation of Energy Commission certification; an administrative fine; or other action as appropriate. A summary of the Compliance Conditions of Certification is included as **Compliance Table 1** at the conclusion of this section.

COMPLIANCE MITIGATION MEASURES/CONDITIONS OF CERTIFICATION

UNRESTRICTED ACCESS (COMPLIANCE-1)

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 the CPM will normally schedule site visits on dates and times agreeable to the project owner, the CPM reserves the right to make unannounced visits at any time.

COMPLIANCE RECORD (COMPLIANCE-2)

The project owner shall maintain project files on-site or at an alternative site approved by 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.

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.

COMPLIANCE VERIFICATION SUBMITTALS (COMPLIANCE-3)

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 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. Energy Commission staff audits of project records; and/or

4. 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 number, 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 CEC submittal number.

The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed by the project owner or an agent of the project owner.

All hardcopy submittals shall be addressed as follows:

Mary Dyas
Compliance Project Manager
09-AFC-8C
California Energy Commission
1516 Ninth Street (MS-2000)
Sacramento, CA 95814

Those submittals shall be accompanied by a searchable electronic copy, on a CD or by e-mail, as agreed upon by the CPM.

If the project owner desires 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.

PRE-CONSTRUCTION MATRIX AND TASKS PRIOR TO START OF CONSTRUCTION (COMPLIANCE-4)

Prior to commencing construction, a compliance matrix addressing <u>only</u> those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to 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.

Construction shall not commence until the pre-construction matrix is submitted, all pre-construction conditions have been complied with, and the CPM has issued a letter to the project owner authorizing construction. Various lead times for submittal of compliance verification documents to the CPM for Conditions of Certification are established to allow sufficient 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 the Commission Decision.

Compliance Reporting

There are two different compliance reports that the project owner must submit to assist the CPM in tracking activities and monitoring compliance with the terms and conditions of 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 the CPM in the monthly or annual compliance reports.

COMPLIANCE MATRIX (COMPLIANCE-5)

A compliance matrix shall be submitted by the project owner to the CPM along with each monthly and annual compliance report. The compliance matrix is intended to provide 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), CPM, or delegate agency, if applicable;
7. the compliance status of each condition, e.g., "not started," "in progress" or "completed" (include the date); and
8. if the condition was amended, the date of the amendment.

Satisfied conditions shall be placed at the end of the matrix.

MONTHLY COMPLIANCE REPORT (COMPLIANCE-6)

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 the CPM. The first Monthly Compliance Report shall include the AFC number and an initial list of dates for each of the events identified on the **Key Events List** found at the end of this section of the Decision.

During pre-construction and construction of the project, 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. 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;

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;

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 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 the CPM.

ANNUAL COMPLIANCE REPORT (COMPLIANCE-7)

After construction is complete, 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 the CPM each year at a date agreed to by the CPM. Annual Compliance Reports shall be submitted over the life of the project, unless otherwise specified by the CPM. Each Annual Compliance Report shall include the AFC number, 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;

4. a cumulative listing of all post-certification changes approved by the Energy Commission or cleared by 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.

CONFIDENTIAL INFORMATION (COMPLIANCE-8)

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.

REPORTING OF COMPLAINTS, NOTICES, AND CITATIONS (COMPLIANCE-9)

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 a 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 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 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 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).

FACILITY CLOSURE

At some point in the future, the project will cease operation and close down. At that time, it will be necessary to ensure that the closure occurs in such a way that public health and safety and the environment are protected from adverse impacts. Although the project setting for this project does not appear, at this time, to present any special or unusual closure problems, it is impossible to foresee what the situation will be in 30 years or more when the project ceases operation. Therefore, provisions must be made that provide the flexibility to deal with the specific situation and project setting that exist at the time of closure. Laws, Ordinances, Regulations, and Standards (LORS) pertaining to facility closure are identified in the sections dealing with each technical area. Facility closure will be consistent with LORS in effect at the time of closure.

There are at least three circumstances in which a facility closure can take place: planned closure, unplanned temporary closure, and unplanned permanent closure**.**

CLOSURE DEFINITIONS

Planned Closure

A planned closure occurs when the facility is closed in an anticipated, orderly manner, at the end of its useful economic or mechanical life, or due to gradual obsolescence.

Unplanned Temporary Closure

An unplanned temporary closure occurs when the facility is closed suddenly and/or unexpectedly, on a short-term basis, due to unforeseen circumstances such as a natural disaster or an emergency.

Unplanned Permanent Closure

An unplanned permanent closure occurs if the project owner closes the facility suddenly and/or unexpectedly, on a permanent basis. This includes unplanned closure where the owner implements the on-site contingency plan. It can also include unplanned closure where the project owner fails to implement the contingency plan, and the project is essentially abandoned.

COMPLIANCE CONDITIONS FOR FACILITY CLOSURE

PLANNED CLOSURE (COMPLIANCE-10)

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 proposed facility closure plan to the Energy Commission for review and approval at least 12 months (or other period of time agreed to by the CPM) prior to the commencement of closure activities. The project owner shall file 120 copies (or other number of copies agreed upon by the CPM) of a proposed facility closure plan with the Energy Commission.

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 remnants that will remain at 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. identify any facilities or equipment intended to remain on site after closure, the reason, and any future use; and

4. 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.

Prior to submittal of the proposed facility closure plan, a meeting shall be held between the project owner 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 plan's approval, or if the desires of local officials or interested parties are inconsistent with the plan, the CPM shall hold one or more workshops and/or the Energy Commission may hold public hearings as part of its approval procedure.

As necessary, prior to or during the closure plan 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 the Energy Commission approves the facility closure plan.

UNPLANNED TEMPORARY CLOSURE/ON-SITE CONTINGENCY PLAN (COMPLIANCE-11)

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 CPM review and approval. The plan shall be submitted no less than 60 days (or other time agreed to by the CPM) prior to commencement of commercial operation. The approved plan must be in place prior to commercial operation of the facility and shall be kept at the site at all times.

The project owner, in consultation with the CPM, will update the on-site contingency plan as necessary. 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 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 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 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 the CPM informed of the circumstances and expected duration of the closure.

If the CPM determines that an unplanned temporary closure is likely to be permanent, or for a duration of more than 12 months, a closure plan consistent with the requirements for a planned closure shall be developed and submitted to the CPM within 90 days of the CPM's determination (or other period of time agreed to by the CPM).

UNPLANNED PERMANENT CLOSURE/ON-SITE CONTINGENCY PLAN (COMPLIANCE-12)

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 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 the CPM informed of the status of all closure activities.

A closure plan, consistent with the requirements for a planned closure, shall be developed and submitted to the CPM within 90 days of the permanent closure or another period of time agreed to by the CPM.

POST CERTIFICATION CHANGES TO BLM'S ROW GRANT AND/OR THE ENERGY COMMISSION DECISION: AMENDMENTS, OWNERSHIP CHANGES, STAFF APPROVED PROJECT MODIFICATIONS AND VERIFICATION CHANGES (COMPLIANCE-13)

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. **It is the responsibility of the project owner to contact 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, or 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 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 final decision, which requires public notice and review of the Energy Commission staff analysis and approval by the full 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 a sample petition to use as a template.

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. 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 a sample petition to use as a template.

Staff Approved Project Modification

Modifications that do not result in deletions or changes to Conditions of Certification, that are compliant with laws, ordinances, regulations and standards and will not have significant environmental impacts may be authorized by the CPM as a staff approved project modification pursuant to section 1769(a) (2). Once staff files an intention to approve the proposed project 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.

Verification Change

A verification may be modified by the CPM without requesting an amendment to the decision if the change does not conflict with the Conditions of Certification and provides an effective alternate means of verification.

CBO DELEGATION AND AGENCY COOPERATION

In performing construction and operation monitoring of the project, Energy Commission staff acts as, and has the authority of, the Chief Building Official (CBO). Energy Commission staff may delegate CBO responsibility to either an independent third party contractor or the local building official. Energy Commission staff retains CBO authority when selecting a delegate CBO, including enforcing and interpreting state and local codes, and use of discretion, as necessary, in implementing the various codes and standards.

Energy Commission staff may also seek the cooperation of state, regional, and local agencies that have an interest in environmental protection when conducting project monitoring.

ENFORCEMENT

The Energy Commission's legal authority to enforce the terms and conditions of its Decision is specified in Public Resources Code sections 25534 and 25900. The Energy Commission may amend or revoke the certification for any facility, and may impose a civil penalty for any significant failure to comply with the terms or conditions of the Energy Commission Decision. The specific action and amount of any fines the Energy Commission may impose would take into account the specific circumstances of the incident(s). This would include such factors as the previous compliance history, whether the cause of the incident involves willful disregard of LORS, oversight, unforeseeable events, and other factors the Energy Commission may consider.

ENERGY COMMISSION NONCOMPLIANCE COMPLAINT PROCEDURES

Any person or agency may file a complaint alleging noncompliance with the Conditions of Certification. Such a complaint will be subject to review by the Energy Commission pursuant to Title 20, California Code of Regulations, section 1237, but in many instances the noncompliance can be resolved by using the informal dispute resolution process. Both the informal and formal complaint procedure, as described in current State law and regulations, are described below. They shall be followed unless superseded by future law or regulations.

Informal Dispute Resolution Process

The following procedure is designed to informally resolve disputes concerning the interpretation of compliance with the requirements of this compliance plan. The project owner, the Energy Commission, or any other party, including members of the public, may initiate an informal dispute resolution process. Disputes may pertain to actions or decisions made by any party, including the Energy Commission's delegate agents.

This process may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 1237, but is not intended to be a substitute for, or prerequisite to it. This informal procedure may not be used to change the terms and Conditions of Certification as approved by the Energy Commission, although the agreed upon resolution may result in a project owner, or in some cases the Energy Commission staff, proposing an amendment.

The process encourages all parties involved in a dispute to discuss the matter and to reach an agreement resolving the dispute. If a dispute cannot be resolved, then the matter must be brought before the full Energy Commission for consideration via the complaint and investigation procedure.

Request for Informal Investigation

Any individual, group, or agency may request the Energy Commission to conduct an informal investigation of alleged noncompliance with the Energy Commission's terms and Conditions of Certification. All requests for informal investigations shall be made to the designated CPM.

Upon receipt of a request for an informal investigation, the CPM shall promptly notify the project owner of the allegation by telephone and letter. All known and relevant

information of the alleged noncompliance shall be provided to the project owner and to the Energy Commission staff. The CPM will evaluate the request and the information to determine if further investigation is necessary. If the CPM finds that further investigation is necessary, the project owner will be asked to promptly investigate the matter. Within seven working days of the CPM's request, provide a written report to the CPM of the results of the investigation, including corrective measures proposed or undertaken. Depending on the urgency of the noncompliance matter, the CPM may conduct a site visit and/or request the project owner to also provide an initial verbal report, within 48 hours.

Request for Informal Meeting

In the event that either the party requesting an investigation or the Energy Commission staff is not satisfied with the project owner's report, investigation of the event, or corrective measures proposed or undertaken, either party may submit a written request to the CPM for a meeting with the project owner. Such request shall be made within 14 days of the project owner's filing of its written report. Upon receipt of such a request, the CPM shall:

1. immediately schedule a meeting with the requesting party and the project owner, to be held at a mutually convenient time and place;

2. secure the attendance of appropriate Energy Commission staff and staff of any other agencies with expertise in the subject area of concern, as necessary;

3. conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner;

4. After the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance and to the project file, a summary memorandum that fairly and accurately identifies the positions of all parties and any understandings reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230, et. seq.

Formal Dispute Resolution Procedure-Complaints and Investigations

Any person may file a complaint with the Energy Commission's Dockets Unit alleging noncompliance with a Commission decision adopted pursuant to Public Resources Code section 25500. Requirements for complaint filings and a description of how complaints are processed are in Title 20, California Code of Regulations, section 1237.

KEY EVENTS LIST

PROJECT: _____

DOCKET #: _____

COMPLIANCE PROJECT MANAGER: _____

EVENT DESCRIPTION	DATE
Certification Date	
Obtain Site Control	
Online Date	
POWER PLANT SITE ACTIVITIES	_____
Start Site Mobilization	
Start Ground Disturbance	
Start Grading	
Start Construction	
Begin Pouring Major Foundation Concrete	
Begin Installation of Major Equipment	
Completion of Installation of Major Equipment	
First Combustion of Gas Turbine	
Obtain Building Occupation Permit	
Start Commercial Operation	
Complete All Construction	
TRANSMISSION LINE ACTIVITIES	_____
Start T/L Construction	
Synchronization with Grid and Interconnection	
Complete T/L Construction	
FUEL SUPPLY LINE ACTIVITIES	_____
Start Gas Pipeline Construction and Interconnection	
Complete Gas Pipeline Construction	
WATER SUPPLY LINE ACTIVITIES	_____
Start Water Supply Line Construction	
Complete Water Supply Line Construction	

COMPLIANCE TABLE 1
SUMMARY of COMPLIANCE CONDITIONS OF CERTIFICATION

CONDITION NUMBER	SUBJECT	DESCRIPTION
COMPLIANCE-1	Unrestricted Access	The project owner shall grant Energy Commission staff and delegate agencies or consultants unrestricted access to the power plant site.
COMPLIANCE-2	Compliance Record	The project owner shall maintain project files on-site. Energy Commission staff and delegate agencies shall be given unrestricted access to the files.
COMPLIANCE-3	Compliance Verification Submittals	The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed or the project owner or his agent.
COMPLIANCE-4	Pre-construction Matrix and Tasks Prior to Start of Construction	Construction shall not commence until the all of the following activities/submittals have been completed: • property owners living within one mile of the project have been notified of a telephone number to contact for questions, complaints or concerns, • a pre-construction matrix has been submitted identifying only those conditions that must be fulfilled before the start of construction, • all pre-construction conditions have been complied with, ▪ the CPM has issued a letter to the project owner authorizing construction.
COMPLIANCE-5	Compliance Matrix	A compliance matrix shall be submitted by the project owner to the CPM along with each monthly and annual compliance report
COMPLIANCE-6	Monthly Compliance Report including a Key Events List	During construction, the project owner shall submit Monthly Compliance Reports (MCRs) which include specific information. The first MCR is due the month following the Energy Commission business meeting date on which the project was approved and shall include an initial list of dates for each of the events identified on the Key Events List.

CONDITION NUMBER	SUBJECT	DESCRIPTION
COMPLIANCE-7	Annual Compliance Reports	After construction ends and throughout the life of the project, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports.
COMPLIANCE-8	Confidential Information	Any information the project owner deems confidential shall be submitted to the Energy Commission's Executive Director with a request for confidentiality.
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
COMPLIANCE-10	Planned Facility Closure	The project owner shall submit a closure plan to the CPM at least 12 months prior to commencement of a planned closure.
COMPLIANCE-11	Unplanned Temporary Facility Closure	To ensure that public health and safety and the environment are protected in the event of an unplanned temporary closure, the project owner shall submit an on-site contingency plan no less than 60 days prior to commencement of commercial operation.
COMPLIANCE-12	Unplanned Permanent Facility Closure	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 prior to commencement of commercial operation.
COMPLIANCE-13	Post-certification changes to the Decision	The project owner must petition the Energy Commission to delete or change a condition of certification, modify the project design or operational requirements and/or transfer ownership of operational control of the facility.

ATTACHMENT 1
COMPLAINT REPORT / RESOLUTION FORM

Complaint Log Number:_____ Docket Number:_____

Project Name:_____

COMPLAINANT INFORMATION

Name:_____ Phone Number:_____

Address:_____

COMPLAINT

DATE COMPLAINT RECEIVED:_____ TIME COMPLAINT RECEIVED:_____

COMPLAINT RECEIVED BY: ☐ TELEPHONE ☐ IN WRITING (COPY ATTACHED)

DATE OF FIRST OCCURRENCE:_____

DESCRIPTION OF COMPLAINT (INCLUDING DATES, FREQUENCY, AND DURATION):_____

_____

_____

FINDINGS OF INVESTIGATION BY PLANT PERSONNEL:_____

_____

_____

DOES COMPLAINT RELATE TO VIOLATION OF A CEC REQUIREMENT? ☐ YES ☐ NO

DATE COMPLAINANT CONTACTED TO DISCUSS FINDINGS:_____

DESCRIPTION OF CORRECTIVE MEASURES TAKEN OR OTHER COMPLAINT RESOLUTION:_____

_____

_____

DOES COMPLAINANT AGREE WITH PROPOSED RESOLUTION? ☐ YES ☐ NO

IF NOT, EXPLAIN:_____

_____

CORRECTIVE ACTION

IF CORRECTIVE ACTION NECESSARY, DATE COMPLETED:_____

DATE FIRST LETTER SENT TO COMPLAINANT (COPY ATTACHED):_____

DATE FINAL LETTER SENT TO COMPLAINANT (COPY ATTACHED):_____

OTHER RELEVANT INFORMATION:_____

_____

IV. ENGINEERING ASSESSMENT

The engineering assessment of the Genesis Solar Energy Project (GSEP) consists of separate analyses that examine its facility design, engineering, efficiency, and reliability aspects. These analyses include the on-site power generating equipment and the project-related linear facilities.

A. FACILITY DESIGN

This review covers several technical disciplines including the civil, electrical, mechanical, and structural engineering elements related to project design and construction. It addresses consistency with applicable LORS, and does not extend to the project's environmental impacts under the California Environmental Quality Act (CEQA). The evidentiary presentations were uncontested (Ex. 1, 57, 60, 400; 7/12/10 RT 28:11-14, 33:23-25).

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Application for Certification (AFC) describes the preliminary facility design. In considering the adequacy of the plans, the Commission reviews whether the power plant and linear facilities are described with sufficient detail to assure the project can be designed and constructed in accordance with applicable engineering laws, ordinances, regulations, and standards (LORS). The review also includes, as appropriate, the identification of special design features that are necessary to deal with unique site conditions which could impact public health and safety or the operational reliability of the project. (Ex. 400, p. D.1-1.)

Staff considered potential geological hazards and reviewed the preliminary project design with respect to grading, flood protection, erosion control, site drainage, and site access in addition to the criteria for designing and constructing related linear facilities such as the transmission interconnection facilities. (Ex. 400, pp. D.1-2 to D.1-3); see also, the **Geology and Paleontology** section of this Decision.) The evidence establishes that the project will incorporate accepted industry standards. This includes design practices and construction methods for preparing and developing the site. Conditions **CIVIL-1** through **CIVIL-4** ensures that these activities will be conducted in compliance with applicable LORS.

Major structures, systems, and equipment include structures and associated components necessary for power production, components that are costly or time consuming to repair or replace, facilities used for storage of hazardous or toxic materials, and those capable of becoming potential health and safety hazards if not constructed properly. (Ex. 400, p. D.1-3.) **Table 2**, contained in Condition **GEN-2,** lists the major structures and equipment included in the initial engineering design for the project.[1] Conditions **GEN-3** through **GEN-8** requires that qualified individuals oversee and inspect construction of the facility. Similarly, Conditions **MECH-1** through **MECH-3** address compliance of the project's mechanical systems with appropriate standards, and a quality assurance/quality control program assures that the project will be designed, procured, fabricated, and installed as described. Condition **ELEC-1** provides assurance that design and construction of major electrical features will comply with applicable LORS. Compliance with design requirements will be verified through specific inspections and audits. (Ex. 400, p. D.1-4.)

The close proximity of the proposed GSEP site to the Mojave-Sonoran belt and relatively great distance from more seismically active areas to the west and northwest would suggest a relatively low to moderate probability of intense ground shaking in the project area. (Ex. 400, p. D.2-14.) The 2007 California Building Code (CBC) requires specific "dynamic" lateral force procedures for certain structures to determine their seismic design criteria; others may be designed using a "static" analysis procedure. To ensure that project structures are analyzed appropriately, Condition **STRUC-1** requires the project owner to submit its proposed lateral force procedures to the Chief Building Official[2] (CBO) for review and approval prior to the start of construction. (Ex. 400, p. D.1-3.)

The Conditions of Certification establish a design review and construction inspection process to verify compliance with applicable standards and special requirements. The project will be designed and constructed in conformance with the latest edition of the California Building Standards Code (currently the 2007 CBSC) and other applicable codes and standards in effect at the time design

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[1] The master drawing and master specifications lists described in Condition **GEN-2** include documents based on the project's *detailed* design and may include supplemental materials for structures and equipment not currently identified in Table 1.

[2] The Energy Commission is the CBO for facilities we certify. We may delegate CBO authority to local building officials and/or independent consultants to carry out design review and construction inspections. When CBO duties are delegated, we require a Memorandum of Understanding with the delegate entity to outline respective roles, responsibilities, and qualifications of involved individuals such as those described in Conditions of Certification **GEN-1** through **GEN-8**. The Conditions further require that every appropriate element of project construction be first approved by the CBO and that qualified personnel perform or oversee inspections. (Ex. 400, p. D.1-4.)

approval and construction actually begin. Condition of Certification **GEN-1** incorporates this requirement. (Ex. 400, pp. D.1-3 through D.1-4.)

Overall, the evidentiary record establishes that the project will be designed and constructed in compliance with all applicable LORS, and that these activities will not negatively impact public health and safety.

FINDINGS OF FACT

Based on the uncontroverted evidence, the Commission makes the following findings:

1. The Genesis Solar Energy Project is currently in the preliminary design stage.
2. The evidence summarized in this topic area addresses consistency with applicable LORS, and does not extend to an evaluation of the project's environmental impacts.
3. The facility can be designed and constructed in conformity with the applicable laws, ordinances, regulations, and standards (LORS) set forth in the appropriate portion of **Appendix A** of this Decision.
4. The Conditions of Certification set forth below provide, in part, that qualified personnel will perform design review, plan checking, and field inspections of the project.
5. The Conditions of Certification set forth below are necessary to ensure that the project is designed and constructed in accordance with applicable law and in a manner that protects public health and safety.

CONCLUSION OF LAW

1. We therefore conclude that implementation of the Conditions of Certification listed below ensure that the Genesis Solar Energy Project will be designed and constructed in conformance with the applicable LORS pertinent to the engineering aspects summarized in this section of the Decision.

CONDITIONS OF CERTIFICATION

GEN-1 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.

Verification: 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.

GEN-2 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.

Verification: 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 drawing and master specifications lists of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures and equipment listed in **Facility Design Table 2**, below. Major structures and equipment shall be added to or deleted from the table only with CPM approval. The project owner shall provide schedule updates in the monthly compliance report.

Facility Design Table 2
Major Structures and Equipment List

Equipment/System	**Quantity (Plant)**
Steam Turbine Generator Foundation and Connections	2
Start-up Boilers Foundations and Connections	2
Generator Step-up Transformer Foundation and Connections	2
Unit Auxiliary Transformer Foundation and Connections	2
Station Service Transformer Foundation and Connections	6
Surface Condenser Foundation and Connections	2
Cooling Tower Chemical Feed/Storage Area Structure, Foundation and Connections	2
Cooling Tower Electrical Enclosure Structure, Foundation and Connections	2
Cooling Tower Structure, Foundation and Connections	2
Raw/Fire Tank Structure, Foundation and Connections	2
Demineralized Water Tank and Pump Skid Structure, Foundation and Connections	2
Control Room/Warehouse Building Structure, Foundation and Connections	2
Water Treatment Area Structure, Foundation and Connections	2
Deaerator/Storage Tank Structure, Foundation and Connections	2
Feedwater Heaters Foundation and Connections	2
Gland Steam Condenser Foundation and Connections	2
Economizers Foundation and Connections	10
Re-heaters Foundation and Connections	8

Equipment/System	Quantity (Plant)
Evaporators Foundation and Connections	8
Superheaters Foundation and Connections	4
Expansion Tanks Structure, Foundation and Connections	2 Lots
Blowdown Tanks Structure, Foundation and Connections	2
Auxiliary Boiler Foundation and Connections	2
Generator Circuit Breaker Foundation and Connections	2
Main Electrical Enclosure Structure, Foundation and Connections	2
Ullage System Area Foundation and Connections	2
Waste Water Tank Structure, Foundation and Connections	2
Closed Cooling Water Heat Exchanger Foundation and Connections	4
Fire Pump House Structure, Foundation and Connections	2
Fire Protection Sprinkler House Structure, Foundation and Connections	6
Start Diesel Generator Foundation and Connections	2
Above Ground Diesel Fuel Storage Tank Structure, Foundation and Connections	2
Excitation Transformer Foundation and Connections	2
Turbine Area Flash Tank Structure, Foundation and Connections	2
Lube Oil and EHC Skid Structure, Foundation and Connections	2
Oil/Water Separator Foundation and Connections	2
Closed Cooling Water Expansion Tank Structure, Foundation and Connections	2
Nitrogen Bulk Storage and Vaporizer Structure, Foundation and Connections	2
Emergency Diesel Generator Foundation and Connections	2
Pipe Racks	1 Lot
Pumps Skid Structure, Foundation and Connections	1 Lot
Solar Field Reflectors and Receivers Foundations and Connections	1 Lot
Drainage Systems (including sanitary drain and waste)	1 Lot
High Pressure and Large Diameter Piping and Pipe Racks	1 Lot
HVAC and Refrigeration Systems	1 Lot
Temperature Control and Ventilation Systems (including water and sewer connections)	1 Lot
Building Energy Conservation Systems	1 Lot
Substation, Switchboards, Transformers, Buses and Towers	1 Lot
Electrical Cables/Duct Banks	1 Lot
Prefabricated Assemblies	1 Lot

GEN-3 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.

Verification: 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.

GEN-4 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

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.

Verification: 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 five days of the approval.

If the RE or the delegated engineer(s) is subsequently reassigned or replaced, the project owner has five 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 five days of the approval.

GEN-5 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

   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.

Verification: 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 five days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five 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 five days of the approval.

GEN-6 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.

Verification: 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 five 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 five days of the approval.

GEN-7 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.

Verification: 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 five days, of the reason for disapproval and the revised corrective action to obtain CBO's approval.

GEN-8 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.

Verification: 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.

CIVIL-1 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.

Verification: 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.

CIVIL-2 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.

Verification: 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.

CIVIL-3 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.

Verification: 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.

CIVIL-4 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.

Verification: 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.

STRUC-1 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;

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.

Verification: 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.

STRUC-2 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.

Verification: If a discrepancy is discovered in any of the above data, the project owner shall, within five 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 five 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 five days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.

STRUC-3 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.

Verification: 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.

STRUC-4 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.

Verification: 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.

MECH-1 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:

- American National Standards Institute (ANSI) B31.1 (Power Piping Code);
- ANSI B31.2 (Fuel Gas Piping Code);
- ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
- ANSI B31.8 (Gas Transmission and Distribution Piping Code);
- Title 24, California Code of Regulations, Part 5 (California Plumbing Code);

- Title 24, California Code of Regulations, Part 6 (California Energy Code, for building energy conservation systems and temperature control and ventilation systems);
- Title 24, California Code of Regulations, Part 2 (California Building Code);
- Riverside County codes.

The CBO may deputize inspectors to carry out the functions of the code enforcement agency.

Verification: 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.

MECH-2 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.

Verification: 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.

MECH-3 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.

Verification: 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.

ELEC-1 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;

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.

Verification: 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.

B. POWER PLANT EFFICIENCY

The Genesis Solar Energy Project (GSEP) will use solar energy to generate most of its capacity. The GSEP would consist of two independent concentrated solar electric generating plants with a nominal net electrical output of 125 MW each. The plants would use natural gas-fueled auxiliary boilers to reduce startup time and provide heat transfer fluid freeze protection. GSEP would use solar energy to generate most all of its capacity; fossil fuel (natural gas) would be used for power production during startup only.

Pursuant to the California Environmental Quality Act (CEQA), we must determine whether the consumption of fossil fuel (a non-renewable form of energy) will result in substantial impacts upon energy resources. (Cal. Code Regs., tit. 14 § 15126.4(a)(1), Appen. F.) This section of the Decision examines the efficiency of the project design and determines whether the project will incorporate measures that prevent or reduce wasteful, inefficient, or unnecessary energy consumption. There are no LORS that establish solar power plant efficiency criteria. There was no public comment on power plant efficiency and the evidence was uncontested. (Exs. 1; 12; 57; 60; 400; 7/12/10 RT 28:11-14, 33:23-25.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Applicant proposes to build and operate the GSEP, a solar thermal power plant producing a total of 250 MW (nominal net output) and employing the concentrated parabolic trough solar thermal technology. The project will consist of arrays of parabolic mirrors, solar steam generator heat exchangers and two steam turbine generators. The project is intended to decrease reliance on fossil fuel and increase reliance on renewable energy sources. (Ex. 400, pp. D.3-1 and D.3-4.)

The project's power cycle will be based on a steam cycle (also known as the Rankine cycle). The project will also utilize two auxiliary boilers fueled by natural gas to reduce startup time and to keep the temperature of the heat transfer fluid above its relatively high freezing point (54 degrees Fahrenheit [°F]). Except during startup and to keep the heat transfer fluid from freezing, the project will not use fossil fuel to generate electricity. (Ex. 400, p. D.3-3.)

Applicant and Staff evaluated alternative generating technologies. Staff independently concluded that given the project objectives, location, air pollution control requirements, and the commercial availability of various alternative technologies, that the selected solar thermal technology is a feasible selection. (Ex. 400, p. D.3-3.)

1. Fossil Fuel Use – Impacts

The GSEP will consume insignificant amounts of fossil fuel for power generation. The project would utilize two auxiliary boilers fueled by natural gas to reduce startup time and to keep the temperature of the heat transfer fluid above its relatively high freezing point (54 degrees Fahrenheit [°F]). Other than during startup, the project will not use fossil fuel to generate electricity. (Ex. 400, p. D.3-3.)

Natural gas would be delivered to the GSEP site via a new six-mile long, eight-inch diameter pipeline connected to an existing Southern California Edison (SCE) pipeline connection located north of Interstate 10. The estimated natural gas usage for each auxiliary boiler is 30 million British thermal units per hour (MMBtu/hr) or a total of 60 MMBtu/hr for the Project. The maximum annual natural gas usage is expected to be 60 million standard cubic feet per year (MMSCF/yr) for a maximum of 60,000 MMBtu/year. SCE's natural gas supply system is currently plentiful and California's access to natural gas resources from the Rocky Mountains, Canada and the southwest represent considerable energy resources in California. Therefore, it appears highly unlikely that the GSEP would create a substantial increase in fossil fuel demand. (Ex. 400, p. D.3-5.)

The evidence establishes that the project's fuel consumption would be negligible; therefore, the evaluation of alternatives that could reduce or eliminate the use of natural gas is not warranted. (Ex. 400, p. D.3-4.)

2. Solar Land Use – Impacts

Solar power plants occupy large tracts of land, therefore the focus for these types of facilities shifts from fuel efficiency to land use efficiency. To analyze the land use efficiency of a solar facility, Commission staff analyzed the project to determine its overall solar efficiency. The greater the project's solar efficiency, the less land the plant must occupy to produce a given power output. (Ex. 400, p. D.3-2.)

The most significant environmental impacts caused by solar power plants result from occupying large expanses of land. The extent of the project's land use impacts is likely in direct proportion to the number of acres affected. For this reason, Staff evaluated the land use efficiency of the project and expressed the results in terms of power produced, or MW per acre. (Ex. 400, p. D.3-2.)

According to the Staff analysis, the GSEP will produce power at the rate of 250 MW net, and will generate energy at the rate of 600,000 MW-hours net per year, while occupying

approximately 1,800 acres[1] (Ex. AFC, Sections 3.4.1, 3.42 and 3.10). Staff calculations for the GSEP establish:

Power-based efficiency: 250 MW ÷ 1,800 acres = **0.14 MW/acre** or **7.2 acres/MW**

Energy-based efficiency: 600,000 MWh/year ÷ 1,800 acres = **333 MWh/acre-year**

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[1] (the portion of the 1,800-acre site encompassing the solar field, the power block, the evaporation ponds, and the administration buildings)

Efficiency Table 1 — Solar Land Use Efficiency

Project	Generating Capacity (MW net)	Footprint (Acres)	Annual Energy Production (MWh net)	Annual Fuel Consumption (MMBtu LHV)	Land Use Efficiency (Power-Based) (MW/acre)	Land Use Efficiency (Energy – Based) (MWh/acre-year)	
						Total	Solar Only[1,2]
Genesis Solar	250	1,800	600,000	60,000	0.14	333	329
Ridgecrest Solar	250	1,440	500,000	44,818	0.17	347	343
Beacon Solar (08-AFC-2)	250	1,321	600,000	36,000	0.19	454	450
Ivanpah SEGS (07-AFC-5)	400	3,744	960,000	432,432	0.11	256	238
SES Solar One (08-AFC-13)	850	8,200	1,840,000	0	0.11	224	224
SES Solar Two (08-AFC-5)	750	6,500	1,620,000	0	0.12	249	249
Solar Millenium (Blythe)	1000	5,950	2,100,000	172,272	0.17	353	349
Solar Millenium (Palen)	500	2970	1,000,000	89,636	0.17	337	332
Mojave Solar	250	1684	630,000	94,280	0.15	374	366
Rice Solar	150	1,410	450,000	0	0.11	319	319
Fossil Facility Comparison: Avenal Energy (08-AFC-1)[3]	600	25	3,023,388	24,792,786	24.0	120,936	N/A

Source: (Ex. 400, p. D.3-8.)

[1] Similar to another Solar Millenium (Palen).
[2] Net energy output is reduced by natural gas-fired combined cycle proxy energy output; see **Efficiency Appendix A**.
[3] Example natural gas-fired combined cycle plant.

As seen in **Efficiency Table 1**, the GSEP, employing parabolic trough technology, is more efficient in use of land than the SES Solar One (imperial) and SES Solar Two (Calico) projects, which would employ the Stirling Energy Systems SunCatcher technology, and the Ivanpah Solar Electric Generating System project, which would employ BrightSource's power tower technology. GSEP, if constructed and operated as proposed, would occupy seven acres per MW of power output, a figure roughly 30 percent higher than some other solar power technologies and roughly 20 percent lower than some other solar power technologies. (Ex. 400, p. D.3-6.)

FINDINGS OF FACT

Based on the uncontroverted evidence of record, we make the following findings:

1. GSEP will provide approximately 250 MW of electrical power, using solar energy to generate most of its capacity and natural gas-fueled auxiliary boilers to reduce startup time and provide heat transfer fluid freeze protection.

2. The maximum annual natural gas usage for the GSEP is expected to be 60 million standard cubic feet per year (MMSCF/yr) for a maximum of 60,000 MMBtu/year.

3. Compared to the project's expected overall production rate of approximately 600,000 MWH per year, and compared to a typical fossil fuel fired power plant of equal capacity, the amount of the annual power production from fossil fuel is insignificant.

4. The evidence contains a comparative analysis of generation technologies, none of which is superior to the proposed project at meeting project objectives in an efficient manner.

5. The evidence establishes that the project's fuel consumption would be negligible; therefore, the evaluation of alternatives that could reduce or eliminate the use of natural gas is not warranted.

6. The impact of the project's fuel consumption on energy supplies and energy efficiency is less than significant.

7. GSEP will not require the development of new fuel supply resources.

8. The project will decrease reliance on fossil fuel, and will increase reliance on renewable energy resources.

9. The evidentiary record contains an analysis of the project's land use impacts compared to energy output, and analyses of alternative solar technologies and heat rejection systems.

10. The project will occupy approximately seven acres per MW of power output, a figure roughly 30 percent higher than some other solar power technologies and roughly 20 percent lower than some other solar power technologies.

11. No nearby power plant projects or other projects consuming large amounts of fossil fuel hold the potential for cumulative energy consumption impacts when aggregated with the project.

12. No Federal, State, or local laws, ordinances, regulations, or standards apply to the efficiency of this project.

CONCLUSIONS OF LAW

1. The Genesis Solar Energy Project will not create adverse effects upon energy supplies or resources, require additional sources of energy supply, or consume energy in a wasteful or inefficient manner.

2. No Conditions of Certification are required for this topic area.

C. POWER PLANT RELIABILITY

We must determine whether the project will be appropriately designed and sited in order to ensure safe and reliable operation. [Pub. Res. Code, § 25520(b); Cal. Code Regs., tit. 20, § 1752(c)(2).] However, there are no LORS that establish either power plant reliability criteria or procedures for attaining reliable operation.

The responsibility for maintaining system reliability falls largely to control area operators such as the California Independent System Operator (CAISO) that purchase, dispatch, and sell electric power throughout the State. (Ex. 400, p. D.4-1.) Protocols to ensure sufficient electrical system reliability have been established. For example, "must run" power purchase agreements and "participating generator" agreements are two mechanisms that contribute to an adequate supply of reliable power. (Ex. 400, p. D.4-2.)

The California Public Utilities Commission consults with CAISO to establish resource adequacy requirements for all load-serving entities (basically, publicly and privately owned utility companies). These requirements include maintaining a minimum reserve margin (extra generating capacity to serve in times of equipment failure or unexpected demand) and maintaining sufficient local generating resources to satisfy the load-serving entity's peak demand and operating reserve requirements. The CAISO has begun to establish specific criteria for each load-serving entity under its jurisdiction. These criteria guide each load-serving entity in deciding how much generating capacity and ancillary services to build or purchase, after which the load-serving entity issues power purchase agreements to satisfy these needs. (Ex. 400, p. D.4-2.)

According to the evidence, summarized below, these criteria have been developed on the assumption that individual power plants in the current competitive market will continue to exhibit historical reliability levels. However, it is possible that, if numerous power plants operated at reliability levels sufficiently lower than historical levels, this assumption would prove invalid. Therefore, to ensure adequate system reliability, we examine whether individual power plants will be built and operated to the traditional level of reliability reflected in the power generation industry. We take this approach because, where a power plant compares favorably to industry norms, it is not likely to degrade the overall reliability of the electric system it serves. (Ex. 400, pp. D.4-2 to D.4-3.) The evidence presented on this topic was uncontested and there was no public comment on power plant reliability. (Ex. 1; 12; 57; 60; 400; 7/12/10 RT 28:11-14, 33:23-25).

SUMMARY AND DISCUSSION OF THE EVIDENCE

Applicant intends that the Genesis Solar Energy Project (GSEP) provide dependable renewable power to the electricity grid, generally during the hours of peak power consumption such as hot summer afternoons. It expects an annual availability factor[1] in the range of approximately 96 to 98 percent for the project. (Ex. 400, p. D.4-2.) Both planned and unplanned outages subtract from a plant's availability. For practical purposes, a reliable power plant is one that is available when called upon to operate. The evidence shows that delivering acceptable reliability entails: 1) adequate levels of equipment availability; 2) plant maintainability with scheduled maintenance outages; 3) fuel and water availability; and 4) resistance to natural hazards. (Ex. 400, p. D.4-2.)

The record, summarized below, reflects Commission staff's evaluation of the proposed project against typical industry norms as a benchmark for assessing plant reliability.

1. Equipment Availability

Equipment availability will be ensured by use of appropriate quality assurance/quality control (QA/QC) programs during design, procurement, construction, and operation of the plant and by providing adequate maintenance and repair of the equipment and systems. The project owner will use a QA/QC program typical in the power industry. Equipment will be purchased from qualified suppliers and the project owner will perform receipt inspections, test components, and administer independent testing contracts. To ensure these measures are taken, we have incorporated appropriate Conditions of Certification in the **Facility Design** section of this Decision. (Ex. 400, p. D.4-3.)

2. Plant Maintainability

The GSEP will operate only when the sun is shining. Repairs or maintenance can thus occur at night. Moreover, redundant pieces of the equipment most likely to require service or repair will be provided in order to allow repairs when the plant is operating, if needed. (Ex. 400, pp. D.4-3 to D.4-4.)

[1] This is the percentage of time that the power plant is available to generate power.

The project owner will establish a maintenance program based on recommendations from the various equipment manufacturers. This will encompass both preventive and predictive maintenance techniques. Maintenance outages will likely be planned for periods of low electricity demand. The evidence establishes that these measures will ensure acceptable reliability. (Ex. 400, p. D.4-4.)

3. Fuel and Water Availability

Long-term supplies of fuel and water are needed for power plant reliability. The GSEP will use small amounts of natural gas to reduce start-up time and keep the temperature of the heat transfer fluid above its freezing point. Natural gas would be delivered to the GSEP site by a six-mile long, eight-inch diameter gas pipeline that will be connected to an existing Southern California Edison (SCE) pipeline. The evidence establishes that adequate supplies of natural gas are available to meet the project's needs. (Ex. 400, p. D.4-4.)

The GSEP will not require water for cooling since it will be using an air cooled condenser. (7/12/10 RT 6:16-21.)

The GSEP has proposed to use groundwater water from on-site wells for domestic and non-cooling industrial water needs, including steam cycle makeup, mirror washing, service water and fire protection water. This source of water supply appears to be sufficient for the project (see **Soil and Water Resources** section of this Decision). Therefore, the evidence shows that this source of water supply is a reliable source of water for the project. (Ex. 400, p. D.4-4.)

4. Natural Hazards

The GSEP will be designed and constructed to the latest applicable LORS. Compliance with current seismic design LORS represents an upgrading of performance during seismic shaking compared to older facilities since these LORS have been continually upgraded. Because it would be built to the latest seismic design LORS, the GSEP would likely perform at least as well as, and perhaps better than, existing plants in the electric power system. We have adopted Conditions of Certification in the **Facility Design** section of this Decision to ensure this occurs. (Ex. 400, p. D.4-5)

The GSEP site is relatively flat and generally slopes from north to south with elevations of approximately 400 to 370 feet above mean sea level. The Federal

Emergency Management Agency has not mapped the site for the presence of floodplains, but for the vast majority of the time, the area is dry and devoid of any surface flow anywhere in the project area. With proper plant design (ensured by adherence to the proposed **Facility Design** Conditions of Certification), we believe there should be no significant concerns with power plant functional reliability due to flooding. (Ex. 400, p. D.4-5)

5. Comparison to Industry Norms

The North American Electric Reliability Corporation (NERC) maintains industry statistics for availability factors and other related reliability data. However, no statistics are currently available for solar power plants. The record therefore contains a comparison of the project's predicted availability factor of fossil-fueled plants.[2] (Ex. 400, pp. D.4-5 to D.4-6.) NERC reports that, for the years 2002-2006, the availability factor for fossil fueled units is 86.01 percent. (Ex. 400, p. D.4-5.)

Moreover, the evidence shows that the concentrated parabolic trough solar thermal technology is not new. It has been employed for over 20 years at the nearby NextEra owned and operated Solar Electric Generating System facilities (SEGS) in the Mojave Desert. The GSEP will also use multi-pressure condensing steam turbine technology. Steam turbines incorporating this technology have been on the market for many years and typically exhibit high availability. Furthermore, because solar-generated steam is cleaner than burnt fossil fuel, the GSEP steam cycle units will likely require less frequent maintenance than units that burn fossil fuel. (Ex. 400, p. D.4-5.). We are persuaded by the evidence that the project will likely reach its predicted annual availability factor of approximately 96 to 98 percent.

Finally, the evidence shows that the GSEP will provide renewable energy on hot summer afternoons, when it is most needed. The evidence characterizes this as a "noteworthy project benefit." (Ex. 400, p. D.4-9.)

[2] Because the project's total net power output is 250 MW, Commission staff used the availability factor statistics for 200-299 MW fossil fueled units. (Ex. 400, p. D.4-6.)

FINDINGS OF FACT

Based on the uncontested evidence, we make the following findings:

1. No federal, state, or local/county LORS apply to the reliability of the Genesis Solar Energy Project.
2. A project's reliability is acceptable if it does not degrade the reliability of the utility system to which it is connected.

3. No North American Electric Reliability Corporation (NERC) statistics for solar power plants are currently available. Therefore, the evidence contains a comparison of the project's predicted availability factor to the average availability factor of fossil-fueled plants.

4. The NERC reports that, for the years 2002 through 2006, fossil-fueled units of 200-299 MW exhibited an availability factor of about 86.01 percent.

5. An availability factor of approximately 96 to 98 percent is achievable by the Genesis Solar Energy Project.

6. Implementation of Quality Assurance/Quality Control (QA/QC) programs during design, procurement, construction, and operation of the plant, as well as adequate maintenance and repair of the equipment and systems, will ensure the project is adequately reliable.

7. Appropriate Conditions of Certification included in the **Facility Design** section of this Decision ensure implementation of the QA/QC programs and conformance with seismic design criteria.

8. The project's natural gas supply is reliable.

9. The evidence shows that adequate, reliable supplies of groundwater are available.

10. The project will meet or exceed industry norms for reliability, including reliability during seismic events, and will not degrade the overall electrical system.

11. The project will incorporate an appropriate redundancy of function for its equipment.

12. The project will provide renewable energy on hot summer days, when it is most needed.

CONCLUSIONS OF LAW

1. We therefore conclude that the Genesis Solar Energy Project will meet industry norms and not degrade the overall reliability of the electrical system.

2. There are no LORS that establish either power plant reliability criteria or procedures for attaining reliable operation. No Conditions of Certification are required for this topic area.

D. TRANSMISSION SYSTEM ENGINEERING

The Commission's jurisdiction includes "…any electric power line carrying electric power from a thermal power plant …to a point of junction with an interconnected transmission system." (Pub. Res. Code, § 25107.) The Commission assesses the engineering and planning design of new transmission facilities associated with a proposed project to ensure compliance with applicable law. The record indicates that the Applicant in this case accurately identified all necessary interconnection facilities.

The California Independent System Operator (CAISO) is responsible for ensuring electric system reliability for participating entities, and determines both the standards necessary to achieve system reliability and whether a proposed project conforms to those standards. The Commission works in conjunction with the CAISO in assessing a project.

Commission Staff's analysis evaluates the project transmission lines and equipment, both from the power plant up to the point of interconnection with the existing transmission network as well as upgrades beyond the interconnection that are attributable to the project. Staff relies upon the responsible interconnecting authority for analysis of impacts on the transmission grid, as well as for the identification and approval of new or modified facilities required downstream from the proposed interconnection for mitigation purposes. The evidence presented on this topic was uncontested and there was no public comment on transmission systems engineering. (Exs. 1; 3; 54; 57; 60; 62; 400; 403; 405; 7/12/10 RT 28:11-14, 33:23-25.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Genesis Solar Energy Project (GSEP) will consist of two independent concentrated solar electric generating facilities with a nominal net electrical output of 125 MW each, for a total net electrical output of 250 MW. The auxiliary load for each generator would be 20 MW, resulting in a maximum net output of 250 MW at an 85 percent power factor. The project's planned operational date is summer of 2013. Each generating unit would be connected to the low side of its dedicated 13.8/230-kV generator step-up (GSU) transformer through 15-kV, 8000A isolated phase bus duct and an 8000A circuit breaker. The step-up transformer for the steam turbine generating unit would be rated at 13.8/230-kV and 90/120/150 MVA at 65 centigrade. The 230-kV side of the step-up transformer would be connected through a 1200A disconnect switch to the new

Genesis 230-kV switchyard. The plant will use parabolic through solar thermal technology to produce electrical power using steam turbine generators (STG) fed from solar steam generators (SSG). The SSG receives heated heat transfer fluid (HTF) from solar thermal equipment comprised of arrays of parabolic mirrors that collect energy from the sun. (Ex. 400, p. D.5-4.)

Southern California Edison (SCE) is responsible for ensuring electric system reliability in the SCE system for addition of the proposed generating plant. SCE will provide the analysis and reports in their Phase I and Phase II Studies, and their approval for the facilities and changes required in the SCE system for addition of the proposed transmission modifications. (Ex. 400, p. D.5-2.)

CAISO is responsible for ensuring electric system reliability for all participating transmission owners and is also responsible for developing the standards necessary to achieve system reliability. CAISO is responsible for completing the studies of the SCE system to ensure adequacy of the proposed transmission interconnection. CAISO will determine the reliability impacts of the proposed transmission modifications on the SCE transmission system in accordance with all applicable reliability criteria. According to the CAISO Tariff, CAISO will determine the "Need" for transmission additions or upgrades downstream from the interconnection point to ensure reliability of the transmission grid. CAISO will, therefore, review the Phase I Study performed by SCE and/or any third party provide their analysis, conclusions and recommendations. After completion of the SCE Phase II Study, CAISO will execute a Large Generator Interconnection Agreement (LGIA) between CAISO and the project owner. At the commission hearings, Staff presented the oral testimony of Mr. Mark Hesters regarding the findings by CAISO contained in the confidential Phase II study. Upon that evidence presented by Mr. Hesters, Staff also sponsored the documentary evidence provided by CAISO (Phase II study, redacted) which was the sole basis of the oral testimony provided at hearing. (Exs. 400, p. D.5-2; 405; and, 7/21/10 RT 42 et seq.)

The July 28, 2009, Transition Cluster Phase I Study was prepared by CAISO in coordination with SCE. The Phase I Study included 15 queue generation projects (cluster) in the Eastern Riverside County area totaling 9,690 MW net generation output, including the proposed 250 MW GSEP. The cluster of plants that was studied together in the Phase 2 study decreased significantly. The Phase 2 study looked at a cluster of five plants, which total 2,200 MW, including GSEP, the Solar Millennium Palen Project, the Solar Millennium Blythe Project and Rice Solar Energy Project. (Ex. 400, p. D.5-6; 7/21/10 RT 42:20-43:6.)

CEQA requires the analysis of reasonably foreseeable consequences of proposed projects based on the best available information. CAISO is the reliability authority for generator interconnections and its Phase II Study (Ex. 405) provides a forecast of the reliability impacts of the GSEP and its associated cluster of generators. (Ex. 400, pp. D.5-6 to D.5-7.)

1. Switchyard and Interconnection Facilities

The GSEP will interconnect to the proposed SCE Colorado River 230/500-kV substation as the primary point of interconnection. The plant site switchyard will be located near the unit two power block, and will require an overhead 795 kcmil, steel-reinforced, aluminum conductor unit tie line to interconnect the GSU transformers of each unit. The switchyard will be designed with a ring bus configuration and consist of three breakers and three line take off structures. The power from the switchyard will be transmitted through a generator-tie line that will be routed in a southeasterly ROW eventually connecting to the proposed Southern California Edison 230/500-kV Colorado River substation. The 230-kV single circuit transmission line will be constructed with 795 kcmil, steel-reinforced, aluminum conductor with a continuous ampacity rating of approximately 906 Amps per conductor or 1816 Amps per bundle. The generator tie line will travel in a southeasterly direction to a point where it will cross the existing Imperial Irrigation District's Blythe to Eagle-Mountain 161-kV transmission line. From the I-10 crossing, the generator-tie line will continue south, where it will eventually intersect with the Blythe Energy Project Transmission (BEPTL) line. From that point, the generator tie line will travel east and share a portion of the double circuit transmission poles with the BEPTL where it will eventually terminate at the interconnection point within the proposed Colorado River substation. Each circuit will be supported by mono-pole structures at approximately 800 feet intervals with final heights as determined during detailed design. (Ex. 400, pp. D.5-4 to D.5-5.)

Compliance with Condition of Certification **TSE-5** will ensure these facilities comply with LORS.

2. Study Results

The California ISO's generator interconnection study process is in transition from a serial process to an interconnection window cluster study process. The GSEP was studied under the window cluster process and the transmission reliability impacts of the proposed project are studied in the Phase I and Phase II Studies. The Phase I Study is similar to the former System Impact Study except it is now performed for a group of projects in the same geographical area of a utility that apply for interconnection in the same request window. The Phase II Study is performed after generators in each cluster meet specific milestones required to stay in the generator interconnection queue. The Phase II Study is then performed based on the number of generators left in each cluster. (Ex. 400, p. D.5-5.)

The Phase I Studies for projects in the transition cluster were conducted to determine the preferred and alternative generator interconnection methods and to identify any mitigation measures required to ensure system conformance with utility reliability criteria, NERC planning standards, WECC reliability criteria, and California ISO reliability criteria. Staff relied on the studies and any review conducted by the responsible agencies to determine the effect of the projects on the transmission grid and to identify any necessary downstream facilities or indirect project impacts required to bring the transmission network into compliance with applicable reliability standards. (Ex. 400, p. D.5-5.)

The Phase I Study analyzed the grid with and without the generator or generators in a cluster under conditions specified in the planning standards and reliability criteria. The standards and criteria define the assumptions used in the study and establish the thresholds by which grid reliability is determined. The studies must analyze the impact of the projects for their proposed first year(s) of operation and thus are based on a forecast of loads, generation and transmission. Load forecasts are developed by the interconnected utility, which would be SCE in this case. Generation and transmission forecasts are based on the interconnection queue. The studies are focused on thermal overloads, voltage deviations, system stability (excessive oscillations in generators and transmission system, voltage collapse, loss of loads or cascading outages), short circuit duties and substation evaluation. (Ex. 400, pp. D.5-5 to D.5-6.)

If the studies show that the interconnection of the project or cluster of projects causes the grid to be out of compliance with reliability standards, the study will then identify mitigation alternatives or ways in which the grid could be brought

into compliance with reliability standards. If the interconnecting utility determines that the only feasible mitigation includes transmission modifications or additions which require CEQA review as part of the "whole of the action," the Energy Commission must analyze those modifications or additions according to CEQA requirements. Where the Phase I Study identifies transmission modifications needed for the reliable interconnection of a cluster of generators, an analysis of the proposed generating project's impact on individual reliability criteria violations is required to determine whether or not the identified mitigation measures are a reasonably foreseeable consequence of the proposed project. (Ex. 400, p. D.5-6.)

The Phase II Study, which was received into evidence as Exhibit 405, found that the GSEP and the remaining projects in its cluster will require the construction or upgrade of transmission facilities in order to maintain grid reliability. However, those transmission facilities will require a license from the California Public Utilities Commission or other permitting authority. Staff's expert testified that in order to maintain system reliability, mitigation in the form of upgrades to or replacement of 16 circuit breakers would be necessary. Other mitigation would include looping the Colorado River substation connection to the Devers substation number two 500-kV transmission line into the Red Bluff substation. The record indicates that the as yet unbuilt Colorado River substation will have to be expanded but the expansion has been fully analyzed for environmental impacts in Exhibits 62 and 403. Finally, the Phase II Study requires upgrades to four 230-kV lines that come out of the Devers substation to the west. (Ex. 400, p. D.5-7; 7/21/10 RT 43:12-45:18.) However, the Staff witness made clear in his testimony that these four 230 kV lines were upgrades not directly related to the GSEP interconnection. (7/21/10 RT 45.)

In its 2nd Reply Brief, CURE argues that upgrades to the transmission system identified in the Phase II Transmission Cluster Study (Ex. 405.) are part of the "whole of the action" for the GSEP and therefore the Commission must do an environmental review of such activities. Applicant counters that if GSEP were analyzed separately (rather than as one of many power plants in the cluster study), the project would trigger only minor, if any system upgrades. Further, that even with the additional refinement of upgrades identified in the Phase II Study, it is still premature and speculative to identify the exact upgrades which all the projects in the cluster study will require. Applicant notes that any upgrades will be subject to full permitting and environmental review by the California Public Utility Commission (CPUC) upon application by Southern California Edison (SCE) for upgrade construction.

In its brief, CURE cites extensive case law concerning CEQA requirements for analysis of "the whole of the action" (CURE's 2nd Reply Brief pp. 12-14.) However, we are not persuaded by CURE's arguments for several reasons. First, the Phase II Study identifies upgrades needed for a cluster of projects. The study does not, however, identify any project-specific upgrades that are required only for the interconnection of the GSEP. Second, due to the "cluster" approach of the study, the impacts identified in the Phase II Study are still speculative, although more refined than those which appeared in the Phase I Study. It is not yet known if all of the projects analyzed in the Phase II Study will actually interconnect to the system, or whether some of them will fail to execute a Large Generator Interconnection Agreement (LGIA). Until all projects in the cluster complete their respective LPIAs, it is unclear what upgrades must be made. Third, if transmission upgrades are required after all LGIAs in the cluster are executed, then any necessary permitting and CEQA review will be carried out by the CPUC.

Condition of Certification **TSE-5** will ensure that GSEP's transmission system will comply with LORS, and requires the project owner to submit, among other things, design drawings and an interconnection agreement.

3. Compliance with LORS

The proposed interconnection facilities including the GSEP 230-kV switchyard, generator 230-kV overhead tie line to the new SCE Genesis 230-kV substation, and its termination at the new 230-kV substation are adequate in accordance with industry standards and good utility practices. With implementation of the proposed Conditions of Certification, the project will meet the requirements and standards of all applicable LORS. We find the Conditions of Certification are adequate to ensure that GSEP will not adversely impact the transmission grid. (Ex. 400, p. D.5-10.)

4. Public Comment

CURE submitted "comments" which were essentially identical to the arguments made in their briefs. The Decision addresses CURE's arguments, above.

FINDINGS OF FACT

Based on the uncontroverted evidence, we make the following findings and conclusions:

1. The GSEP will consist of two independent concentrated solar electric generating facilities with a nominal net electrical output of 125 MW each, for a total net electrical output of 250 MW. The auxiliary load for each generator would be 20 MW, resulting in a maximum net output of 250 MW at an 85 percent power factor.
2. The GSEP will interconnect to the proposed SCE Colorado River 230/500-kV substation as the primary point of interconnection.
3. It is speculative at this time to identify all transmission system upgrades which may be related to the interconnection of the GSEP and other power plants.
4. If transmission upgrades are required for the interconnection of the GSEP and other power plants, any necessary permitting and CEQA review will be performed by the CPUC.
5. The proposed transmission line is the first point of interconnection.
6. The Conditions of Certification are adequate to ensure that GSEP does not adversely impact the transmission grid.

CONCLUSIONS OF LAW

1. The proposed GSEP outlet transmission lines and terminations are acceptable and would comply with all applicable LORS. The project interconnection to the grid would not require additional downstream transmission facilities (other than those proposed by the Applicant) that require CEQA review.
2. We therefore conclude that with the implementation of the various mitigation measures specified in this Decision, the proposed transmission interconnection for the project will not contribute to significant adverse direct, indirect, or cumulative impacts.
3. The Conditions of Certification below ensure that the transmission-related aspects of GSEP will be designed, constructed, and operated in conformance with the applicable laws, ordinances, regulations, and standards identified in the appropriate portion of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

TSE-1 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.

Verification: 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 in Table 1: Major Equipment List 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.

Table 1: Major Equipment List
Breakers
Step-up transformer
Switchyard
Busses
Surge arrestors
Disconnects
Take-off facilities
Electrical control building
Switchyard control building
Transmission pole/tower
Grounding system

TSE-2 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 with 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.

Verification: 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 five 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 five days of the approval.

TSE-3 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.

Verification: 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 five days, the reason for the disapproval, along with the revised corrective action required to obtain the CBO's approval.

TSE-4 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.

Verification: 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.

TSE-5 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.

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:

   a. The Special Protection System (SPS) sequencing and timing if applicable,

   b. 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,

   c. The final Phase II Interconnection Study, including a description of facility upgrades, operational mitigation measures, and/or special protection system sequencing and timing if applicable; and

   d. A copy of the executed LGIA signed by CAISO and the project owner.

Verification: Prior to the start of construction of transmission facilities (or fewer days if mutually agreed upon by the project owner and CBO), the project owner shall submit to the CBO for approval:

a. 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;

b. 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"[1] 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;

c. 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 f), above;

d. The Special Protection System (SPS) sequencing and timing if applicable shall be provided concurrently to the CPM.

e. 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,

f. A copy of the executed LGIA signed by CAISO and the project owner.

TSE-6 The project owner shall inform the CPM and CBO of any impending changes that may not conform to requirements **TSE-5** a) through f), and have not received CPM and CBO approval, and request approval to implement such changes. A detailed description of the proposed change and complete engineering, environmental, and economic rationale for the change shall accompany the request. Construction involving changed equipment or substation configurations shall not begin without prior written approval of the changes by the CBO and the CPM.

Verification: Prior to the construction of transmission facilities, the project owner shall inform the CBO and the CPM of any impending changes that` may not conform to requirements of **TSE-5** and request approval to implement such changes.

TSE-7 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 CAISO a letter stating the proposed date of synchronization; and

[1] Worst-case conditions for the foundations would include for instance, a dead-end or angle pole.

2. At least one business day prior to synchronizing the facility with the grid for testing, provide telephone notification to CAISO Outage Coordination Department.

Verification: The project owner shall provide copies of CAISO letter to the CPM when it is sent to CAISO one week prior to initial synchronization with the grid. The project owner shall contact CAISO 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 CAISO shall be provided electronically to the CPM one day before synchronizing the facility with the California transmission system for the first time.

TSE-8 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.

Verification: Within 60 days after first synchronization of the project, the project owner shall transmit to the CPM and CBO:

a. "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, and these conditions shall be provided concurrently.

b. 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".

c. 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.

E. TRANSMISSION LINE SAFETY AND NUISANCE

The Genesis Solar Energy Project's transmission line must be constructed and operated in a manner that protects environmental quality, assures public health and safety, and complies with applicable law. This portion of the Decision assesses the potential for the generation tie line to create the various impacts mentioned below, as well as whether mitigation measures are required to reduce any adverse effects to insignificant levels. The analysis in the record takes into account both the physical presence of the line and the physical interaction of its electric and magnetic fields. The evidence submitted by Applicant and Staff was uncontested and there was no public comment on transmission line safety and nuisance. (Ex. 1, 57, 60, 62, 400; 7/12/10 RT 28:11-14, 33:23-25).

SUMMARY AND DISCUSSION OF THE EVIDENCE

The proposed GSEP 230-kV transmission tie-in will consist of the following individual components:

- The project's on-site 230-kV switchyard;
- A new, single-circuit 230-kV overhead transmission line extending 6.5 miles from the on-site project switchyard to the Blythe Energy Plant Transmission Line (BEPTL).
- GSEP's 230-kV line would share poles with the BEPTL, with power flowing to the planned Southern California Edison (SCE) Colorado River Substation approximately 25 miles to the east;
- Project-related upgrades at the Colorado River Substation.

The line will exit the facility in a southeast direction to a point where it will cross the existing Imperial County Irrigation District's Blythe to Eagle Mountain 161-KV transmission line and then Interstate 10 (I-10). From the I-10 crossing, the line will further extend east and share transmission poles with the BEPTL (still under construction directly south of the GSEP). From there the line will extend eastwards to ultimately terminate at the interconnection point within the planned Colorado River Substation. (Ex. 400, p. C.11-4.)

The proposed line conductors will be aluminum steel-reinforced cables supported on steel mono-pole structures placed approximately 880 feet apart and with heights of from 70 feet to a maximum of 145 feet (typical of similar SCE lines). The Applicant provided the details of the proposed support structures as related

to line safety, maintainability, and field reduction efficiency. (Ex. 400, pp. C.11-4 to C.11-5.)

Potential impacts from the project's generation tie line involve aircraft collisions, interference with radio frequency communication, audible noise, hazardous shocks, nuisance shocks, fire danger, and electric and magnetic field (EMF) exposure. (Ex. 400, pp. C.11-1 to C.11-2.) Regarding each of these potential impacts, the evidence conclusively establishes the following:

- *Aviation Safety*

Hazards to area aircraft arise from the potential for collision in the navigable airspace. The GSEP site is not located near a major commercial aviation center. The nearest airport is the Blythe Airport, approximately 15 miles east of the GSEP and 10 miles east of the proposed tie-in line. The evidence shows that the project is sufficiently distant so as not to pose a hazard to this facility. (Ex. 400, p. C.11-5.)

- *Interference with Radio-Frequency Communication*

This potential impact is one of the indirect effects of line operation and is produced by the physical interaction of the electric fields. It arises from corona discharge and is primarily a concern for lines larger than 345-kV. The project's 230-kV line will be built and maintained according to standard SCE practices that minimize surface irregularities and discontinuities and related corona noise. Such corona effects will further be minimized by the specific low-corona designs proposed by the Applicant. Since the line will traverse an uninhabited open space, corona-related radio-frequency interference or related complaints are not anticipated. Based on the evidence, related Condition of Certification is not required. (Ex. 400, p. C.11-6.)

- *Audible Noise*

This is typically perceived as a characteristic crackling, hissing, or frying sound or hum, especially in wet weather.[1] The noise level depends upon the strength of the line's electric field, and is a concern mainly from lines of 345-kV or higher. It can be limited through design, construction, and maintenance practices. The

[1] In fair weather, audible noise from modern transmission lines is generally indistinguishable from background noise at the edge of a right-of-way 100 or more feet wide. (Ex. 400, p. C.11-6.)

project's line (230-kV) will embody a low corona design to minimize field strengths. The evidence shows that the line is not expected to add significantly to the current background noise levels.[2] (Ex. 400, p. C.11-6.)

- *Hazardous Shocks*

Hazardous shocks could result from direct or indirect contact between an individual and the energized line. Adherence to minimum national safe operating clearances in areas where the line might be accessible to the public assures safety. Compliance with the CPUC's GO-95, as required in Condition of Certification **TLSN-1**, will ensure that adequate measures are implemented to minimize this potential impact. (Ex. 400, pp. C.11-6 to C.11-7.)

- *Nuisance Shocks*

Nuisance shocks are typically caused by direct contact with metal objects electrically charged by fields from an energized line. They are effectively minimized through grounding procedures for all metallic objects within the right-of-way as specified by the National Electrical Safety Code (NESC) as well as the joint guidelines of the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE). This is required in Condition of Certification **TLSN-4**. (Ex. 400, p. C.11-7.)

- *Fire Hazards*

Fire can be caused by sparks from the line's conductors or by direct contact between the line and nearby trees or other combustible objects. SCE's standard fire prevention and suppression measures, and compliance with the clearance-related aspects of GO-95 as required in Condition of Certification **TLSN-3**, ensure that appropriate fire prevention measures are implemented. (Ex. 400, p. 4.11-6.)

- *Exposure to Electric and Magnetic Fields*

Electric and magnetic fields (EMF) occur whenever electricity flows. The possibility of deleterious health effects from exposure to EMF has raised public health concerns about living and working near high-voltage lines. Due to the present scientific uncertainty regarding potential health effects from EMF

[2] Overall project noise levels are discussed in the **Noise** section of this Decision.

exposure, CPUC policy requires reduction of such fields in the design, construction, and maintenance of new or modified lines, if feasible, without affecting the safety, efficiency, reliability, and maintainability of the transmission grid. (Ex. 400, pp. C.11-7 to C.11-8.)

The CPUC requires each new or modified transmission line in California to be designed according to the EMF-reducing guidelines of the electric utility in the service area involved. EMF fields produced by new lines must be similar to the fields of comparable lines in that service area. (Ex. 400, p. C.11-8.) As with similar SCE lines, specific field strength-reducing measures will be incorporated into the proposed line's design to ensure the field strength minimization currently required by the CPUC in light of the concern over EMF exposure and health. SCE's specific field strength-reducing measures will be incorporated into the project line's design and include:

- Increasing the distance between the conductors and the ground to an optimal level;
- Reducing the spacing between the conductors to an optimal level;
- Minimizing the current in the line; and
- Arranging current flow to maximize the cancellation effects from the interaction of conductor fields. (Ex. 400, p. C.11-9.)

Applicant estimated the maximum electric and magnetic field intensities expected along the line's route.[3] Condition of Certification **TLSN-2** requires that actual field strengths be measured, according to accepted procedures, to verify that the field intensities are similar to those of other SCE lines. These measurements will reflect both the effectiveness of the field reduction techniques used and the project's potential contribution to area EMF levels. (Ex. 400, p. C.11-10.)

Since there are no residences in the vicinity of the project's line, there will not be the long-term human residential EMF exposures primarily responsible for the health concern of recent years. The only project-related EMF exposures of potential significance are the short-term exposures of plant workers, regulatory

[3] Estimates are calculated for the maximum electric and magnetic field intensities expected for the edge of the 100-foot right-of- way. The maximum electric field intensity at this location was calculated as 0.7-kV/m which reflects the effectiveness of the applied field-reducing design. The corresponding magnetic field value was calculated as 32 mG. These field strengths are as Staff would expect for an SCE line of the same voltage and current-carting capacity and reflect effective implementation of related SCE's field reduction measures. The corresponding magnetic field intensity was calculated as 143 mG at the edge of this right-of-way and is also similar to that of SCE lines of similar voltage rating and current-carrying capacity as required under current CPUC regulation. (Ex. 400, p. C.11-10.)

inspectors, maintenance personnel, visitors, or individuals in the immediate vicinity of the line. The evidence shows that these types of exposures are not significantly related to adverse health effects. (Ex. 400, p. C.11-15.)

Finally, the evidence addresses potential cumulative impacts. When field intensities are measured or estimated for a specific location, they reflect the interactive, and therefore cumulative, effects of fields from all contributing conductors. This interaction can be additive or subtractive depending on prevailing conditions. In the present case, the line's conductors will be located in a new right-of-way away from the field impact zones for other area lines. This eliminates the cumulative effects of fields from existing area lines. Since the proposed project's transmission line will be designed, built, and operated according to applicable field-reducing SCE guidelines (as currently required by the CPUC for effective field management), any contribution to cumulative area exposures should be at levels expected for SCE lines of similar voltage and current-carrying capacity. (Ex. 400, p. C.11-13.)

Overall, the evidence shows that the project's transmission tie line facilities will be designed, constructed, operated, and maintained in compliance with applicable LORS. Implementation of the Conditions of Certification will ensure that any impacts are reduced to less than significant levels. (Ex. 400, p. C.11-14.)

FINDINGS OF FACT

Based on the uncontroverted evidence, we make the following findings:

1. The Genesis Solar Energy Project's transmission facilities consist of an on-site 230-kV switchyard and a 6.5 mile long, 230-kV single-circuit overhead transmission line extending from the switchyard to the BEPTL currently under construction. Genesis' line would share BEPTL's poles for approximately 25 miles, reaching an interconnection point at the planned SCE Colorado River Substation.
2. The evidentiary record includes analyses of potential impacts from the project's generation tie line involving aircraft collisions, interference with radio frequency communication, audible noise, hazardous shocks, nuisance shocks, fire danger, and EMF exposure.
3. There are no residences along the route of the project's new generation tie line.
4. The available scientific evidence does not establish that EMF fields pose a significant health hazard to humans.

5. The electric and magnetic fields generated by the project's generation tie line will be managed to the extent the CPUC considers appropriate, based on available health effects information.

6. The project's generation tie line will comply with existing LORS for public health and safety.

7. The project's generation tie line will incorporate standard EMF-reducing measures established by the CPUC and used by SCE.

8. The project owner will provide field intensity measurements before and after line energization to assess EMF contributions from the project-related current flow.

9. The new generation tie line will not result in significant adverse impacts to public health and safety or cause significant direct, indirect, or cumulative impacts as a result of aviation collisions, radio frequency communication interference, fire danger, nuisance or hazardous shocks, or electric and magnetic field exposure.

CONCLUSIONS OF LAW

1. Implementation of the Conditions of Certification, below, will ensure that the Genesis Solar Energy Project's transmission tie line complies with all applicable laws, ordinances, regulations, and standards relating to **Transmission Line Safety and Nuisance** as identified in the pertinent portion of **Appendix A** of this Decision.

2. The Genesis Project's transmission line will not create a significant impact due to safety and nuisance factors.

CONDITIONS OF CERTIFICATION

TLSN-1 The project owner shall construct the proposed transmission line according to the requirements of California Public Utility Commission's GO-95, GO-52, GO-131-D, Title 8, and Group 2. High Voltage Electrical Safety Orders, sections 2700 through 2974 of the California Code of Regulations, and Southern California Edison's EMF reduction guidelines.

Verification: 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.

TLSN-2 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.

Verification: The project owner shall file copies of the pre-and post-energization measurements with the CPM within 60 days after completion of the measurements.

TLSN-3 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.

Verification: During the first 5 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.

TLSN-4 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.

Verification: At least 30 days before the lines are energized, the project owner shall transmit to the CPM a letter confirming compliance with this condition.

V. PUBLIC HEALTH AND SAFETY

A. GREENHOUSE GAS (GHG) EMISSIONS

1. Introduction and Summary

There is scientific consensus that climate change is occurring and that human activity contributes to that change. Man-made emissions of greenhouse gases, if not sufficiently curtailed, are likely to contribute further to continued increases in global temperatures. Indeed, the California Legislature has found that "[g]lobal warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California" (Cal. Health & Safety Code, sec. 38500, division 25.5, part 1).

GSEP, as a solar energy generation project, is exempt from the mandatory GHG emission reporting requirements for electricity generating facilities as currently required by the California Air Resources Board (ARB) for compliance with the California Global Warming Solutions Act of 2006 (AB 32 Núñez, Statutes of 2006, Chapter 488, Health and Safety Code sections 38500 et seq.) (ARB 2008a). However, the project may be subject to future reporting requirements and GHG reductions or trading requirements as these regulations become more fully developed and implemented.

SB 1368, enacted in 2006, and regulations adopted by the Energy Commission and the Public Utilities Commission pursuant to the bill, prohibits California utilities from entering into long-term commitments with any base load facilities that exceed the Emission Performance Standard (EPS) of 0.500 metric tonnes carbon dioxide (CO_2) per megawatt-hour (1,100 pounds CO_2/MWh). Specifically, the SB 1368 EPS applies to base load power from new power plants, new investments in existing power plants, and new or renewed contracts with terms of five years or more, including contracts with power plants located outside of California. If a project, instate or out of state, plans to sell base load electricity to a California utility that utility will have to demonstrate that the project meets the EPS. *Base load* units are defined as units that operate at a capacity factor higher than 60 percent. As a renewable electricity generating facility, GSEP is determined by rule to be compliant with the SB 1368 EPS.

The generation of electricity using fossil fuels, even in a back-up generator at a thermal solar plant, produces greenhouse gases in addition to the criteria air

pollutants that have been traditionally regulated under the federal and state Clean Air Acts. California is actively pursuing policies to reduce GHG emissions; among them is a policy to add non-GHG emitting renewable generation resources to the system.

The currently regulated greenhouse gases are carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFC), and perflurocarbons (PFC). CO_2 emissions are far and away the most common of these emissions; as a result, GHG emissions are often expressed in terms of "metric tons of CO_2-equivalent" ($MTCO_2e$) for simplicity.

Since the impact of the GHG emissions from a power plant's operation has global, rather than local effects, those impacts should be assessed not only by analysis of the plant's emissions, but also in the context of the operation of the entire electricity system of which the plant is an integrated part. Furthermore, the impact of the GHG emissions from a power plant's operation should be analyzed in the context of applicable GHG laws and policies, such as AB 32.

In this part of the Decision we consider:

- Whether GSEP GHG construction emissions will have significant impacts;
- Whether GSEP's operational plan to use very small amounts of natural gas and diesel/gasoline fuels for component freeze protection, facility maintenance activity, and back-up generators will have significant impacts; and
- Whether GSEP operation will be consistent with the state's GHG policies and will help achieve the state's GHG goals by causing a decrease in overall electricity system GHG emissions.

2. Policy and Regulatory Framework

We begin with the simple observation that, as the Legislature stated 35 years ago, "it is the responsibility of state government to ensure that a reliable supply of electrical energy is maintained at a level consistent with the need for such energy for protection of public health and safety, for promotion of the general welfare, and for environmental quality protection." (Pub. Res. Code, § 25001.) Today, as a result of legislation, the most recent addition to "environmental quality protection" is the reduction of GHG emissions. Several laws and statements of policy are applicable.

a. AB 32

The foundation of California's GHG policy is the California Global Warming Solutions Act of 2006. [Assembly Bill 32, codified in Health & Saf. Code, § 38560 et seq. (hereinafter AB 32).] AB 32 requires the California Air Resources Board ("CARB") to adopt regulations that will reduce statewide GHG emissions, by the year 2020, to the level of statewide GHG emissions that existed in 1990. Gubernatorial Executive Order S-3-05 (June 1, 2005) requires a further reduction, to a level 80 percent below the 1990 GHG emissions, by the year 2050.

Along with all other regulatory agencies in California, the Energy Commission recognizes that meeting the AB 32 goals is vital to the state's economic and environmental health. While AB 32 goals have yet to be translated into regulations that limit GHG emissions from generating facilities, the scoping plan adopted by ARB relies heavily on cost-effective energy efficiency and demand response, renewable energy, and prioritization of generation resources to achieve significant reductions of emissions in the electricity sector by 2020. Even more dramatic reductions in electricity sector emissions would likely be required to meet California's 2050 greenhouse gas reduction goal. Facilities under the Energy Commission's jurisdiction, such as GSEP, must be consistent with these policies.[1]

b. Renewable Portfolio Standard

California law requires the state's utilities to be obtaining at least 20 percent of their electricity supplies from renewable sources by the year 2020. (Pub. Util. Code, § 399.11 et seq.) Gubernatorial Executive Orders increase the requirement to 33 percent and require CARB to adopt regulations to achieve the goal. [Governor's Exec. Orders Nos. S-21-09 (Sept. 15, 2009), S-14-08 (Nov. 17, 2008).]

c. Emissions Performance Standard

Senate Bill (SB) 1368 of 2006, and regulations adopted by the Energy Commission and the California Public Utilities Commission (CPUC) pursuant to

[1] Of course, GSEP and all other stationary sources will need to comply with any applicable GHG LORS that take effect in the future.

the bill, prohibits utilities from entering into long-term commitments with any base load facilities that exceed an Emission Performance Standard (EPS) of 0.500 metric tonnes of CO_2 per megawatt-hour (this is the equivalent of 1100 pounds CO_2/MWh). (Pub. Util. Code, § 8340 et seq.; Cal. Code Regs., tit. 20, § 2900 et seq.; CPUC D0701039.) Currently, the EPS is the only example of laws, ordinances, regulations or standards (LORS) that has the effect of limiting power plant GHG emissions. GSEP, as a renewable energy generation facility, is determined by rule to comply with the Greenhouse Gas Emission Performance Standard requirements of SB 1368 (Chapter 11, Greenhouse Gases Emission Performance Standard, Article 1, Section 2903 [b][1]). However, even if it were not determined by rule to comply, the project would be exempt from SB 1368 because it would operate at or below a 60 percent capacity factor.

d. Loading Order

In 2003 the Energy Commission and the CPUC agreed on a "loading order" for meeting electricity needs. The first energy resources that should be utilized are energy efficiency and demand response (at the maximum level that is feasible and cost-effective), followed by renewables and distributed generation, combined heat and power (also known as cogeneration), and finally the most efficient available fossil fuel resources and infrastructure development.[2] CARB's AB 32 Scoping Plan reflects these policy preferences. (California Air Resources Board, Climate Change Scoping Plan, December 2008.)

We now turn to a discussion of whether, and how well, GSEP would advance these goals and policies. We begin by reviewing the project's emissions both during construction and during operation.

3. GHG Emissions During Construction of the Facility

Construction of industrial facilities such as power plants requires coordination of numerous equipment and personnel. The concentrated on-site activities result in short-term, unavoidable increases in vehicle and equipment emissions that include greenhouse gases. The construction would last approximately 37 months. The greenhouse gas emissions estimate, for the entire construction period, provided by the applicant[3] is below in **Greenhouse Gas Table 1**.

[2] California Energy Commission 2008, *2008 Integrated Energy Policy Report Update*, (IEPR) (CEC-100-2008-008-CMF.)

[3] As noted in the Air Quality Section Staff may be re-estimating certain construction emissions which would revise some of the values in **Greenhouse Gas Table 2**. If so, Staff will provide a revised construction GHG emission estimate as part of a Staff Assessment Addendum.

Greenhouse Gas Table 1
Estimated GSEP Potential Construction Greenhouse Gas Emissions

	CO_2-Equivalent (MTCO2E) [a,b]
Onsite Equipment	24,094
Gas Pipeline Equipment	1,544
Access Road Equipment	564
Transmission Line Equipment	1,185
Delivery Vehicles	3,520
Construction Worker Vehicles	22,067
Entire Construction Period Total	**52,974**

Source: Ex. 400, p. C.1-74, Greenhouse Gas **Table 2**.
[a] One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms
[b] The vast majority of the CO2E emissions, over 99 percent, is CO_2 from construction combustion sources.

There is no adopted, enforceable federal or state LORS applicable to GSEP construction emissions of GHG. Nevertheless, there is guidance from regulatory agencies on how the significance of such emissions should be assessed. For example, the most recent guidance from CARB staff recommends a "best practices" threshold for construction emissions. [CARB, Preliminary Draft Staff Proposal, Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act (Oct. 24, 2008), p. 9]. Such an approach is also recommended on an interim basis, or proposed, by major local air districts.

We understand that "best practices" includes the implementation of all feasible methods to control construction-related GHG emissions. As the "best practices" approach is currently recommended by the state agency primarily responsible not only for air quality standards but also for GHG regulation, we will use it here to assess the GHG emissions from GSEP construction.

In order to limit vehicle emissions of both criteria pollutants and GHG during construction, GSEP will use (1) operational measures, such as limiting vehicle idling time and shutting down equipment when not in use; (2) regular preventive maintenance to prevent emission increases due to vehicular engine problems; and (3) use of low-emitting diesel engines meeting federal emissions standards for construction equipment, whenever available. (Ex. 400, p. C.1-77.)

Control measures that we have adopted elsewhere in this Decision to address criteria pollutant emissions would further minimize greenhouse gas emissions to the extent feasible. Also, the requirement that the owner use newer construction

equipment will increase fuel efficiency and minimize tailpipe emissions. (see, e.g. Condition of Certification **AQ-SC5**.)

We find that the measures described above directly and indirectly limit the emission of GHGs during the construction of GSEP and that they are in accordance with current best practices. We therefore find that the evidence shows that the GHG emissions from construction activities would not exceed the level of significance. (Ex. 400, pp. C.1-85 to C.1-86.)

4. Direct/indirect Operation Impacts and Mitigation

a. Anticipated Emissions

For this solar project the primary fuel, solar energy, is greenhouse gas free, but there is a natural gas-fired auxiliary steam boiler for each of the two GSEP units. Operation of the GSEP would cause GHG emissions from the auxiliary boilers, fire water pump engines, emergency generator engines, maintenance fleet and employee trips, and sulfur hexafluoride emissions from new electrical component equipment. (Ex. 400, p. C.1-74.) Operations GHG emissions are shown in **Greenhouse Gas Table 2**. All emissions are converted to CO_2-equivalent and totaled.

Greenhouse Gas Table 2
Estimated GSEP Potential Operating Greenhouse Gas Emissions

	Annual CO_2-Equivalent (MTCO2E)[a]
Auxiliary Boilers [b]	3,520
Emergency Generators [b]	83.9
Fire Pumps [b]	17.5
Maintenance Vehicles [b]	194.1
Delivery Vehicles [b]	42
Employee Vehicles [b]	272.3
Equipment Leakage (SF_6)	3.4
Total Project GHG Emissions – MTCO2E [b]	**4,133**
Facility MWh per year	600,000
Facility GHG Emission Rate (MTCO2E/MWh)	0.007

Sources: Ex. 400, p. C.1-75, Greenhouse Gas **Table 3**.
[a] One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms.
[b] The vast majority of the CO2E emissions, over 99 percent, is CO_2 from these emission sources.

The proposed project is estimated to emit, directly from primary and secondary emission sources on an annual basis, over 4,000 metric tonnes of CO_2-equivalent GHG emissions per year. GSEP, as a renewable energy generation facility, is determined by rule to comply with the Greenhouse Gas Emission Performance Standard requirements of SB 1368 (Chapter 11, Greenhouse Gases Emission Performance Standard, Article 1, Section 2903 [b][1]). Regardless, GSEP has an estimated GHG emission rate of 0.007 MTCO2E/MWh, well below the Greenhouse Gas Emission Performance Standard of 0.500 MTCO2/MWh. (Ex. 400, p. C.1-75.)

b. Assessment of Operational Impacts

As we have previously noted, GHG emissions have global impacts. While it may be true that in general, when an agency conducts a CEQA analysis of a proposed project, it does not need to analyze how the operation of the proposed project is going to affect the entire system of projects in a large multistate region, analysis of the impacts of GHG emissions from power plants requires consideration of the project's impacts on the entire electricity system.

California's electricity system – which is actually part of a system serving the entire western region of the U.S., Canada, and Mexico – is large and complex. Hundreds of power plants, thousands of miles of transmission and distribution lines, and millions of points of electricity demand operate in an interconnected, integrated, and simultaneous fashion. Because the system is integrated, and because electricity is produced and consumed instantaneously, and will continue to be until large-scale electricity storage technologies are available, any change in demand and, most important for this analysis, any change in output from any generation source, is likely to affect the output from all generators (*Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts in Power Plant Siting Applications,* CEC-700-2009-004, pp. 20 to 22.) [4] (Hereinafter referred to as "Committee CEQA Guidance".)

The California Independent System Operator (CAISO) is responsible for operating the system so that it provides power reliably and at the lowest cost. Thus the CAISO dispatches generating facilities generally in order of cheapest to operate (i.e., typically the most efficient) to most expensive (i.e., typically the least efficient). (*Id*., p. 20.) Because operating cost is correlated with heat rate (the amount of fuel that it takes to generate a unit of electricity), and, in turn, heat

[4] The report was issued in March 2009 and is found on the Commission website at: **http://www.energy.ca.gov/2009publications/CEC-700-2009-004-CEC-700-2009-004.PDF**

rate is directly correlated with emissions (including GHG emissions), when a power plant runs, it usually will take the place of another facility with higher emissions that otherwise would have operated. Due to the integrated nature of the electrical grid, the operational plant and the displaced plant may be hundreds of miles apart (Committee CEQA Guidance, p. 20.) Because one plant's operation could affect GHG emissions hundreds of miles away, the necessity of assessing their operational GHG emissions on a system-wide basis becomes clear.

As California moves towards an increased reliance on renewable energy by implementing the Renewables Portfolio Standard (RPS), non-renewable energy resources will be displaced. These reductions in non-renewable energy, shown in **Greenhouse Gas Table 3**, are targeted to be as much as 36,500 GWh. These assumptions are conservative in that the forecasted growth in electricity retail sales assumes that the impacts of planned increases in expenditures on (uncommitted) energy efficiency are already embodied in the current retail sales forecast[5]. Energy Commission staff estimates that as much as 18,000 GWh of additional savings due to uncommitted energy efficiency programs may be forthcoming.[6] This would reduce non-renewable energy needs by a further 12,000 GWh given a 33 percent RPS. (Ex. 400, pp. C.1-77 to C.1-78.)

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[5] Energy efficiency savings are already represented in the current Energy Commission demand forecast adopted December 2009 (CEC 2009c).

[6] See *Incremental Impacts of Energy Efficiency Policy Initiatives Relative to the 2009 Integrated Energy Policy Report Adopted Demand Forecast* (CEC-200-2010-001-D, January, 2010), page 2. **Table 1** indicates that additional conservation for the three investor-owned utilities may be as high as 14,374 GWh. Increasing this value by 25 percent to account for the state's publicly-owned utilities yields a total reduction of 17,967 GWh.

Greenhouse Gas Table 3
Estimated Changes in Non-Renewable Energy Potentially Needed to Meet California Loads, 2008-2020

California Electricity Supply	**Annual GWh**	
Statewide Retail Sales, 2008, actual [a]	264,794	
Statewide Retail Sales, 2020, forecast [a]	289,697	
Growth in Retail Sales, 2008-20	24,903	
Growth in Net Energy for Load [b]	29,840	
California Renewable Electricity	**GWh @ 20% RPS**	**GWh @ 33% RPS**
Renewable Energy Requirements, 2020 [c]	57,939	95,600
Current Renewable Energy, 2008	29,174	
Change in Renewable Energy-2008 to 2020	28,765	66,426
Resulting Change in Non-Renewable Energy	176	(36,586)

Source: Ex. 400, p. C.1-78, Greenhouse Gas **Table 4**
Notes:
a. 2009 IPER Demand Forecast, Form 1.1c. Excludes pumping loads for entities that do not have an RPS.
b. 2009 IEPR Demand Forecast, Form 1.5a.
c. RPS requirements are a percentage of retail sales.

Based on the evidence, the GSEP would be capable of annually providing 600 GWh of renewable generation energy to replace resources that are or will likely be precluded from serving California loads. State policies, including GHG goals, are discouraging or prohibiting new contracts and new investments in high GHG-emitting facilities such as coal-fired generation, generation that relies on water for once-through cooling, and aging power plants. Some of the existing plants that are likely to require substantial capital investments to continue operation in light of these policies may be unlikely to undertake the investments and will retire or be replaced. (Ex. 400, p. C.1-78.)

High GHG -emitting resources, such as coal, are effectively prohibited from entering into new contracts for California electricity deliveries as a result of the Emissions Performance Standard adopted in 2007 pursuant to SB 1368. Between now and 2020, more than 18,000 GWh of energy procured by California utilities under these contracts will have to reduce GHG emissions or be replaced; these contracts are presented in **Greenhouse Gas Table 4**. (Ex. 400, p. C.1-78.)

Greenhouse Gas Table 4
Expiring Long-term Contracts with Coal-fired Generation 2009 – 2020

Utility	Facility [a]	Contract Expiration	Annual GWh Delivered to CA
PG&E, SCE	Misc In-state Qual.Facilities [a]	2009-2019	4,086
LADWP	Intermountain	2009-2013	3,163 [b]
City of Riverside	Bonanza, Hunter	2010	385
Department of Water Resources	Reid Gardner	2013 [c]	1,211
SDG&E	Boardman	2013	555
SCE	Four Corners	2016	4,920
Turlock Irrigation District	Boardman	2018	370
LADWP	Navajo	2019	3,832
		TOTAL	**18,522**

Source: Ex. 400, p. C.1-79, Greenhouse Gas **Table 5**Notes:

a. All facilities are located out-of-state except for the Miscellaneous In-state Qualifying Facilities.
b. Estimated annual reduction in energy provided to LADWP by Utah utilities from their entitlement by 2013.
c. Contract not subject to Emission Performance Standard, but the Department of Water Resources has stated its intention not to renew or extend.

This represents almost half of the energy associated with California utility contracts with coal-fired resources that will expire by 2030. If the State enacts a carbon adder[7], all the coal contracts (including those in **Greenhouse Gas Table 4**, which expire by 2020, and other contracts that expire beyond 2020 and are not shown in the table) may be retired at an accelerated rate as coal-fired energy becomes economically uncompetitive due to the carbon adder or the capital needed to capture and sequester the carbon emissions. Also shown are the approximate 500 MW of in-state coal and petroleum coke-fired capacity that may be unlikely to contract with California utilities for baseload energy due to the SB1368 Emission Performance Standard. As these contracts expire, new and existing generation resources will replace the lost energy and capacity. Some will come from renewable generation such as this proposed project; some will come from new and existing natural gas fired generation. All of these new facilities will have substantially lower GHG emissions rates than coal and petroleum coke-fired facilities which typically average about 1.0 $MTCO_2$/MWh without carbon capture and sequestration. Thus, new renewable facilities will

[7] A carbon adder or carbon tax is a specific value added to the cost of a project for per ton of associated carbon or carbon dioxide emissions. Because it is based on, but not limited to, actual operations and emission and can be trued up at year end, it is considered a simple mechanism to assign environmental costs to a project.

result in a net reduction in GHG emissions from the California electricity sector. (Ex. 400, p. C.1-79.)

The State Water Resource Control Board (SWRCB) has proposed major changes to once-through cooling (OTC) power plants units using ocean water on the California coast, shown in **Greenhouse Gas Table 5**. These units would likely require extensive capital to retrofit or retire or substantially curtail of dozens of generating units. In 2008, they collectively produced almost 58,000 GWh. The more recently built OTC facilities may well install dry or wet cooling towers and continue to operate. However, the aging OTC plants are not likely to be retrofit with dry or wet cooling towers to avoid use of ocean cooling water, without the power generation also being retrofit or replaced to use a more efficient and lower GHG emitting combined cycle gas turbine technology. Most of these existing OTC units operate at low capacity factors, suggesting a limited ability to compete in the current electricity market. Although the timing would be uncertain, new resources would out-compete aging plants and would displace the energy provided by OTC facilities and likely accelerate their retirements. (Ex. 400, p9. C.1-79 to C.1-80.)

Any additional costs associated with complying with the SWRCB regulation would be amortized over a limited revenue stream today and into the foreseeable future. Their energy and much of their dispatchable, load-following capability will have to be replaced. These units constitute over 15,000 MW of merchant capacity and 17,800 GWh of merchant energy. Of this, much but not all of the capacity and energy are in local reliability areas, requiring a large share of replacement capacity – absent transmission upgrades – to locations in the same local reliability area. **Greenhouse Gas Table 5** provides a summary of the utility and merchant energy supplies affected by the OTC regulations. (Ex. 400, p. C.1-80.)

New renewable generation resources will emit substantially less GHG emissions on average than other energy generation sources. Existing aging and OTC natural gas facility generation typically averages 0.6 to 0.7 $MTCO_2$/MWh, which is much less efficient, higher GHG emitting, than a renewable energy project like GSEP. A project like GSEP, located far from the coastal load pockets (i.e. electricity demand areas) like the Los Angeles Local Reliability Area (LRA), would more likely provide energy support to facilitate the retirement of some aging and/or OTC power plants, but would not likely provide any local capacity support at or near the coastal OTC units. Regardless, due to its low greenhouse gas emissions, GSEP would serve to reduce GHG emissions from California's electricity sector. (Ex. 400, p. C.1-80.)

Greenhouse Gas Table 5
Aging and Once-Through Cooling Units: 2008 Capacity and Energy Output [a]

Plant, Unit Name	Owner	Local Reliability Area	Aging Plant?	Capacity (MW)	2008 Energy Output (GWh)	GHG Emission Rate ($MTCO_2/MWh$)
Diablo Canyon 1, 2	Utility	None	No	2,232	17,091	Nuclear
San Onofre 2, 3	Utility	L.A. Basin	No	2,246	15,392	Nuclear
Broadway 3 [b]	Utility	L.A. Basin	Yes	75	90	0.648
El Centro 3, 4 [b]	Utility	None	Yes	132	238	0.814
Grayson 3-5 [b]	Utility	LADWP	Yes	108	150	0.799
Grayson CC [b]	Utility	LADWP	Yes	130	27	0.896
Harbor CC	Utility	LADWP	No	227	203	0.509
Haynes 1, 2, 5, 6	Utility	LADWP	Yes	1,046	1,529	0.578
Haynes CC	Utility	LADWP	No	560	3,423	0.376
Humboldt Bay 1, 2 [a]	Utility	Humboldt	Yes	107	507	0.683
Olive 1, 2 [b]	Utility	LADWP	Yes	110	11	1.008
Scattergood 1-3	Utility	LADWP	Yes	803	1,327	0.618
Utility-Owned				7,776	39,988	0.693
Alamitos 1-6	Merchant	L.A. Basin	Yes	1,970	2,533	0.661
Contra Costa 6, 7	Merchant	S.F. Bay	Yes	680	160	0.615
Coolwater 1-4 [b]	Merchant	None	Yes	727	576	0.633
El Segundo 3, 4	Merchant	L.A. Basin	Yes	670	508	0.576
Encina 1-5	Merchant	San Diego	Yes	951	997	0.674
Etiwanda 3, 4 [b]	Merchant	L.A. Basin	Yes	666	848	0.631
Huntington Beach 1, 2	Merchant	L.A. Basin	Yes	430	916	0.591
Huntington Beach 3, 4	Merchant	L.A. Basin	No	450	620	0.563
Mandalay 1, 2	Merchant	Ventura	Yes	436	597	0.528
Morro Bay 3, 4	Merchant	None	Yes	600	83	0.524
Moss Landing 6, 7	Merchant	None	Yes	1,404	1,375	0.661
Moss Landing 1, 2	Merchant	None	No	1,080	5,791	0.378
Ormond Beach 1, 2	Merchant	Ventura	Yes	1,612	783	0.573
Pittsburg 5-7	Merchant	S.F. Bay	Yes	1,332	180	0.673
Potrero 3	Merchant	S.F. Bay	Yes	207	530	0.587
Redondo Beach 5-8	Merchant	L.A. Basin	Yes	1,343	317	0.810
South Bay 1-4	Merchant	San Diego	Yes	696	1,015	0.611
Merchant-Owned				15,254	17,828	0.605
Total In-State OTC				23,030	57,817	

Source: Ex. 400, p. C.1-81, **Table 6**
a.OTC Humboldt Bay Units 1 and 2 are included in this list. They must retire in 2010 when the new Humboldt Bay Generating Station (not ocean-cooled), currently under construction, enters commercial operation. NOTE: "a" Units are aging but are not OTC.

The proposed GSEP promotes the state's efforts to move towards a high-renewable, low-GHG electricity system, and, therefore, reduce the amount of natural gas used by electricity generation and related greenhouse gas emissions.

Its use of solar power, resultant limited GHG emissions, and likely replacement of older existing plant capacity, furthers the state's strategy to promote generation system efficiency and reduce fossil fuel use and GHG emissions.

Net GHG emissions for the integrated electric system will decline when new renewable power plants are added to: 1) move renewable generation towards the 33 percent target; 2) improve the overall efficiency, or GHG emission rate, of the electric system; or 3) serve load growth or capacity needs more efficiently, or with fewer GHG emissions. We find that GSEP furthers the state's progress toward achieving these important goals and is consistent with the state policies we discussed in Section 2 of this chapter.

5. Cumulative Impacts on Greenhouse Gases

Cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or . . . compound or increase other environmental impacts." (CEQA Guidelines § 15355.) "A cumulative impact consists of an impact that is created as a result of a combination of the project evaluated in the EIR together with other projects causing related impacts." (CEQA Guidelines § 15130[a][1].) Such impacts may be relatively minor and incremental, yet still be significant because of the existing environmental background, particularly when one considers other closely related past, present, and reasonably foreseeable future projects.

GHG assessment is by its very nature a cumulative impact assessment. GSEP would emit a limited amount of greenhouse gases and, therefore, we have analyzed its potential cumulative impact in the context of its effect on the electricity system, resulting GHG emissions from the system, and existing GHG regulatory requirements and GHG energy policies. The evidence supports our finding that GSEP would not cause or contribute to a significant adverse cumulative impact on GHG, and would in fact result in a decrease in GHG from the generation of electricity in California.

6. Closure and Decommissioning

Eventually the facility would close, either at the end of its useful life or due to some unexpected situation such as a natural disaster or catastrophic facility breakdown. When the facility closes, all sources of air emissions would cease to operate and thus impacts associated with those greenhouse gas emissions would no longer occur. The only other expected, albeit temporary, GHG emissions would be equipment exhaust (off-road and on-road) from dismantling

activities. These activities would be of much a shorter duration than construction of the proposed project, equipment used to dismantle the facility are assumed to have lower comparative GHG emissions due to technology advancement, and would be required to be controlled in a manner at least equivalent to that required during construction. It is assumed that the beneficial GHG impacts of this facility, displacement of fossil fuel fired generation, would be replaced by the construction of newer more efficiency renewable energy or other low GHG generating technology facilities. Also, the recycling of the facility components (steel, concrete, etc.) could indirectly reduce GHG emissions from decommissioning activities. Therefore, while there would be temporary adverse greenhouse gas CEQA impacts during decommissioning they are determined to be less than significant. (Ex. 400, p. C.1-80.)

7. Mitigation Measures/Proposed Conditions of Certification

No Conditions of Certification related to Greenhouse Gas emissions are proposed. The project owner would comply with any future applicable GHG regulations formulated by the ARB, such as GHG reporting or emissions cap and trade markets.

FINDINGS OF FACT

1. The GHG emissions from the GSEP project construction are likely to be 52,974 $MTCO_2$ equivalent ("MTCO2E") during the 37-month construction period, which is the annual equivalent of 17,180 $MTCO_2E$.

2. The GSEP will use best practices to control its construction-related GHG emissions.

3. Construction-related GHG emissions are less than significant if they are controlled with best practices.

4. State government has a responsibility to ensure a reliable electricity supply, consistent with environmental, economic, and health and safety goals.

5. California utilities are obligated to meet whatever demand exists from any and all customers.

6. Under SB 1368 and implementing regulations, California's electric utilities may not enter into long-term commitments with base load power plants with CO_2 emissions that exceed the Emissions Performance Standard ("EPS") of 0.500 $MTCO_2$ / MWh.

7. The maximum annual CO_2 emissions from GSEP operation will be 4,133 $MTCO_2$, which constitutes an emissions performance factor of 0.007 $MTCO_2$ / MWh.

8. AB 32 requires CARB to adopt regulations that will reduce statewide GHG emissions, by the year 2020, to the 1990 level. Executive Order S-3-05 requires a further reduction, by the year 2050, to 80 percent below the 1990 level.

9. The California Renewable Portfolio Standard (RPS) requires the state's electric utilities obtain at least 33 percent of the power supplies from renewable sources, by the year 2020.

10. California's power supply loading order requires California utilities to obtain their power first from the implementation of all feasible and cost-effective energy efficiency and demand response, then from renewables and distributed generation, and finally from the most efficient available fossil-fired generation and infrastructure improvement.

11. There is no evidence in the record that construction or operation of GSEP will be inconsistent with the loading order.

12. When it operates, GSEP will displace generation from less-efficient (i.e., higher-heat-rate and therefore higher-GHG-emitting) power plants.

13. GSEP will replace power from coal-fired power plants that will be unable to contract with California utilities under the SB 1368 EPS, and from once-through cooling power plants that must be retired.

14. GSEP operation will reduce overall GHG emissions from the electricity system.

15. The role of fossil fuel-fired generation will diminish as storage technology advances, coupled with efficiency and conservation measures, making round-the-clock availability of renewables generation feasible.

CONCLUSIONS OF LAW

1. GSEP construction-related GHG emissions will not cause a significant adverse environmental impact.

2. The GHG emissions from a power plant's operation should be assessed in the context of the operation of the entire electricity system of which the plant is an integrated part.

3. GSEP operational GHG emissions will not cause a significant environmental impact.

4. As a renewable electricity generating facility, GSEP is determined by rule to be compliant with SB 1368.

5. GSEP operation will help California utilities meet their RPS obligations.

6. GSEP operation will be consistent with California's loading order for power supplies.

7. GSEP operation will foster the achievement of the GHG goals of AB 32 and Executive Order S-3-05.

8. GSEP will be consistent with the goals and policies enunciated above.

9. The GSEP will:

   a) not increase the overall system heat rate;

   b) not interfere with generation from existing renewables or with the integration of new renewable generation; and

   c) have the ability to reduce system-wide GHG emissions.

B. AIR QUALITY

This section examines the potential adverse impacts of criteria air pollutant emissions resulting from project construction and operation. In consultation with the local air pollution control district, the Commission determines whether the project will likely conform with applicable LORS, whether it will likely result in significant air quality impacts, including violations of ambient air quality standards, and whether the project's mitigation measures will likely reduce potential impacts to insignificant levels.

Applicant and Staff reached agreement on all relevant issues, including the Conditions of Certification. The evidence contained in the record is undisputed. (Exs. 1; 2; 3; 5; 11; 32; 37; 51; 53; 57; 60; 61; 400; 404; 440; 444; 7/12/10 RT 28:11-14, 33:23-25; 7/21/10 RT 13:9-39:10.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

National Ambient Air Quality Standards (NAAQS) have been established for seven air contaminants identified as "criteria air pollutants." These include sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O3), nitrogen dioxide (NO_2), lead (Pb), particulate matter less than 10 microns in diameter (PM10) and particulate matter less than 2.5 microns in diameter (PM2.5). The review of potential impacts also includes the precursor pollutants for ozone, which are nitrogen oxides (NO_X) and volatile organic compounds (VOC), and the precursors for PM10 and PM2.5, which are primarily NO_X, sulfur oxides (SO_X), and ammonia (NH_3). Sulfur oxides (SO_X) react in the atmosphere to form particulate matter and are major contributors to acid rain. (Ex. 400, p. C.1-2.)

Both the U.S. EPA and the California Air Resources Board (CARB) have established allowable maximum ambient concentrations for the criteria pollutants identified above. The California Ambient Air Quality Standards (CAAQS) are more stringent than federal standards. Federal and State ambient air quality standards are shown below in **AIR QUALITY Table 1** of this Decision. (Ex. 400, p. C.1-7.)

AIR QUALITY Table 1
State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O_3)	8 Hour	0.075 ppm[a] (147 µg/m^3)	0.070 ppm (137 µg/m^3)
	1 Hour	—	0.09 ppm (180 µg/m^3)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual	0.053 ppm (100 µg/m^3)	0.03 ppm (57 µg/m^3)
	1 Hour	0.100 ppm[b]	0.18 ppm (339 µg/m^3)
Sulfur Dioxide (SO_2)	Annual	0.030 ppm (80 µg/m^3)	—
	24 Hour	0.14 ppm (365 µg/m^3)	0.04 ppm (105 µg/m^3)
	3 Hour	0.5 ppm (1300 µg/m^3)	—
	1 Hour	—	0.25 ppm (655 µg/m^3)
Particulate Matter (PM10)	Annual	—	20 µg/m^3
	24 Hour	150 µg/m^3	50 µg/m^3
Fine Particulate Matter (PM2.5)	Annual	15 µg/m^3	12 µg/m^3
	24 Hour	35 µg/m^3	—
Sulfates (SO_4)	24 Hour	—	25 µg/m^3
Lead	30 Day Average	—	1.5 µg/m^3
	Calendar Quarter	1.5 µg/m^3	—
Hydrogen Sulfide (H_2S)	1 Hour	—	0.03 ppm (42 µg/m^3)
Vinyl Chloride (chloroethene)	24 Hour	—	0.01 ppm (26 µg/m^3)
Visibility Reducing Particulates	8 Hour	—	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

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Notes: [a] The 2008 standard is shown above, but as of September 16, 2009 this standard is being reconsidered. The 1997 8-hour standard is 0.08 ppm.
[b] – The U.S. EPA is in the process of implementing this new standard, which became effective April 12, 2010. This standard is based on the 3-year average of the 98th percentile of the yearly distribution of 1-hour daily maximum concentrations.

(Ex. 400, p. C.1-8, **Table 2**.)

In general, an area is designated as “attainment” if the concentration of a particular air contaminant does not exceed the standard. Likewise, an area is designated as "non-attainment” for an air contaminant if that contaminant standard is violated. Where not enough ambient data are available to support designation as either attainment or non-attainment, the area can be designated

as unclassified. An area could be attainment for one air contaminant while non-attainment for another, or attainment for the federal standard and non-attainment for the state standard for the same air contaminant. (Ex. 400, p. C.1-8.)

The Genesis Solar Energy Project (GSEP) site is located in the Mojave Desert Air Basin (MDAB) and is under the jurisdiction of the Mojave Desert Air Quality Management District (MDAQMD). The Riverside County portion of the MDAB is designated as non-attainment for the state ozone standards and PM10 standards. This area is designated as attainment or unclassified for all federal criteria pollutant ambient air quality standards and the state CO, NO_2, SO_2, and PM2.5 standards. **Air Quality Table 2** summarizes the area's attainment status for various applicable state and federal standards. (Ex. 400, p. C.1-9.)

Air Quality Table 2
Federal and State Attainment Status
Project Site Area within Riverside County

Pollutant	Attainment Status [a]	
	Federal	State
Ozone	Attainment [b]	Moderate Nonattainment
CO	Attainment	Attainment
NO_2	Attainment [c]	Attainment
SO_2	Attainment	Attainment
PM10	Attainment [b]	Nonattainment
PM2.5	Attainment	Attainment

Source: ARB 2009b, U.S.EPA 2009a.
[a] Attainment = Attainment or Unclassified, where Unclassified is treated the same as Attainment for regulatory purposes.
[b] Attainment status for the site area only, not the entire MDAB.
[c] Nitrogen dioxide attainment status for the new federal 1-hour NO_2 standard is scheduled to be determined by January 2012.
(Ex. 400, C.1-9, **Table 3**.)

The background concentrations for PM10 are well above the most restrictive existing ambient air quality standards, while the background concentrations for the other pollutants are all below the most restrictive existing ambient air quality standards. The analysis in evidence uses the maximum criteria pollutant concentrations from the past three years of available data collected at the monitoring stations within the MDAB as the baseline in the analysis of potential ambient air quality impacts for the GSEP. The highest concentrations are shown in **Air Quality Table 3**. (Ex. 400, pp. C.1-13 to C.1-14.)

Air Quality Table 3
Background Concentrations Used in Staff Assessment (μg/m^3)

Pollutant	Averaging Time	Recommended Background	Limiting AAQS [b]	Percent of Standard
NO_2	1 hour	119	339	35%
	Annual	19	57	33%
CO	1 hour	2,645	23,000	12%
	8 hour	878	10,000	9%
PM10	24 hour	83	50	166%
	Annual	30.5	20	153%
PM2.5	24 hour [a]	20.5	35	59%
	Annual	8.7	12	73%
SO_2	1 hour	23.6	655	4%
	3 hour	15.6	1,300	1%
	24 hour	13.1	105	12%
	Annual	3.5	80	4%

Note:
[a] PM2.5 24-hour data shown in **Air Quality Table 3** are 98th percentile values which is the basis of the ambient air quality standard and the basis for determination of the recommended background concentration.
[b] The limiting AAQS is the most stringent of the CAAQS or NAAQS for that pollutant and averaging period.

(Ex. 400, p. C.1-13, **Table 5**.)

The GSEP will consist of two independent concentrated solar electric generating facilities (aka power plants or units) with a nominal net electrical output of 125 megawatts (MW) each, for a total net electrical output of 250 MW. The project will use well-established parabolic trough solar thermal technology to produce electrical power using steam turbine generators (STG) fed from solar steam generators (SSG) which transfers energy from the solar heated heat transfer fluid (HTF) to the steam that drives the STG. (Ex. 400, p. C.1-14.)

Each plant will use one natural gas-fueled auxiliary boiler to reduce start-up time and provide HTF freeze protection. Freeze protection will maintain the HTF at a minimum temperature of 100 degrees Fahrenheit (°F). These boilers will be the project's primary stationary emission sources. (Ex. 400, p. C.1-15.)

The Project proposes to use an air cooled condenser (dry cooling) for power plant cooling. Water for non-cooling uses such as mirror washing will be supplied from on-site groundwater wells, which will also be used to supply water for employee use (*e.g.,* drinking, showers, sinks, and toilets). A package water treatment system will be used to treat the water to meet potable standards. A sanitary septic system and on-site leach field will be used to dispose sanitary

wastewater. On-site evaporation ponds will be used to contain other process wastewater. Dewatered residues from the ponds will be sent to an appropriate off-site landfill as non-hazardous waste. (Ex. 400, p. C.1-15.)

Other construction elements of the project include the access road, the natural gas pipeline connection, and the transmission line tie-in connection. The project's access road from the I-10 will be approximately 6.5 miles long. Natural gas will be supplied via an 8-inch, 6 mile long pipeline that will be connected with the Southern California Gas Company pipeline located just north of the I-10. The transmission line connection will include the construction of an approximately 6.5-mile (including the construction of 60 transmission line poles) 230-kV gen-tie transmission line that will meet the Blythe Energy Project Transmission Line (currently in construction) which it will share, requiring new line cables be strung to the Colorado River Substation. The new transmission line, access road, and natural gas pipeline will be co-located in one linear corridor to serve the main project facility. (Ex. 400, pp. C.1-14 to C.1-15.)

1. Construction Emissions

The total duration of project construction for GSEP is estimated to be approximately 37 months. Different areas within the project site and the construction laydown areas will be disturbed at different times over the construction period. Total construction disturbance area will be approximately 1,800 acres, and the permanent disturbance area of the project operations will be approximately 1,360 acres. The maximum acreage disturbed on any one day during construction is estimated by Applicant to be 160 acres. Combustion emissions will result from the off-road construction equipment, including diesel construction equipment used for site grading, excavation, and construction of onsite structures, and water and soil binder spray trucks used to control construction dust emissions. Fuel combustion emissions also will result from exhaust from on-road construction vehicles, including heavy duty diesel trucks used to deliver materials, other diesel trucks used during construction, and worker personal vehicles and pickup trucks used to transport workers to and from and around the construction site. Fugitive dust emissions will result from site grading/excavation activities, installation of new transmission lines, water and gas pipelines, construction of power plant facilities, roads, and substations, and vehicle travel on paved/unpaved roads. (Ex. 400, pp. C.1-15 to C.1-16.)

Applicant modeled the project's construction emissions to determine impacts using estimated peak onsite hourly, daily and annual construction equipment

exhaust emissions). To determine the construction impacts on ambient standards (i.e. 1-hour through annual) it was assumed that the emissions will occur during a daily construction schedule of 10 hour days (8 am to 6 pm). The predicted project concentration levels were added to a conservatively estimated background of existing emission concentration levels (**Air Quality Table 3**) to determine the cumulative effect. The results of Applicant's modeling analysis are presented in **Air Quality Table 4**. The construction modeling analysis includes both the onsite fugitive dust and vehicle tailpipe emission sources estimated by Applicant (with applicant-proposed control measures). (Ex. 400, p. C.1-22.)

Air Quality Table 4
Maximum Project Construction Impacts

Pollutants	Avg. Period	Project Impact [a] ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Standard ($\mu g/m^3$)	Percent of Standard
NO_2	1-hr.	84.1	119	203.1	339	60%
	Annual	0.34	19.0	19.3	57	34%
CO	1-hr	41.6	2,645	2,687	23,000	12%
	8-hr	10.8	878	889	10,000	9%
PM10	24-hr	45.0	83	128	50	256%
	Annual	0.47	30.5	31.0	20	155%
PM2.5	24-hr	9.5	20.5	30.0	35	86%
	Annual	0.11	8.7	8.8	12	73%
SO_2	1-hr	0.09	23.6	23.7	665	4%
	3-hr	0.06	15.6	15.7	1,300	1%
	24-hr	0.02	13.1	13.1	105	12%
	Annual	<0.001	3.5	3.5	80	4%

Note:
[a] – These results do not include the fugitive dust emission revision performed by Applicant in the revised data responses.
(Ex. 400, p. C.1-23, **Table 10**)

This modeling analysis indicates, with the exception of PM10 that the project will not create new exceedances or contribute to existing exceedances for any of the modeled air pollutants. The record indicates that Applicant's air dispersion modeling procedures for particulate emissions were very conservative and would significantly over-predict emission impacts at the fence line. Specifically, the use of area sources for the fugitive dust emissions, and the input assumptions of a release height of 0.5 meters with an initial vertical dimension of zero meters, will over-predict impacts. Nevertheless, the record indicates that a more refined

modeling analysis for the fugitive dust emissions, even considering an increase in emissions from a more refined fugitive dust emission estimate, would provide results similar in magnitude to those shown above in **Air Quality Table 4**. (Ex. 400, p. C.1-23.)

In addition, the conditions that would create worst-case project modeled impacts (low wind speeds) are not the same conditions when worst-case background is expected. Additionally, the worst-case predicted PM10 impacts occur at the fence line and drop off quickly with distance from the fence line. In light of the existing PM10 non-attainment status for the project site area, the record indicates the construction PM10 emissions to be potentially CEQA significant so that that the off-road equipment and fugitive dust PM10 emissions must be mitigated. (Ex. 400, p. C.1-23.)

In light of the existing ozone non-attainment status for the project site area, the record shows the construction NO_X and VOC emissions may also be CEQA significant so that the off-road equipment NO_X and VOC emissions must also be mitigated. (Ex. 400, p. C.1-23.)

The record indicates that with implementation of mitigation measures the construction impacts will not contribute substantially to exceedances of PM10 or ozone standards. (Ex. 400, p. C.1-23.)

The applicant proposed measures for reducing engine emissions during construction of the GSEP are listed below:

- Applicant will work with the construction contractor to use, to the extent feasible, EPA/Air Resources Board (ARB) Tier II/Tier III engine compliant equipment for equipment over 100 hp.
- Ensure periodic maintenance and inspections per the manufacturer's specifications.
- Reduce idling time through equipment and construction scheduling.
- Use California low sulfur diesel fuels (<=15 ppmw S). (Ex. 400, p. C.1-24)

Control strategies proposed by the applicant for fugitive dust emissions during construction of the GSEP include:

- An on-site construction mitigation manager who will be responsible for the implementation and compliance of the construction mitigation program. The documentation of the ongoing implementation and compliance with

the proposed construction mitigations will be submitted on a periodic basis.

- All unpaved roads and disturbed areas in the GSEP and laydown construction sites will be watered as frequently as necessary to control fugitive dust. The frequency of watering will be on an average schedule of every three hours during the daily construction activity period. Watering may be reduced or eliminated during periods of precipitation.
- On-site vehicle speeds will be limited to 15 miles per hour (mph) on unpaved areas within the Project construction site.
- The construction site entrance(s) will be posted with visible speed limit signs.
- All construction equipment vehicle tires will be inspected and cleaned as necessary to be free of dirt prior to leaving the construction site via paved roadways.
- Gravel ramps will be provided at the tire cleaning area.
- All unpaved exits from the construction site will be graveled or treated to reduce track-out to public roadways.
- All construction vehicles will enter the construction site through the treated entrance roadways, unless an alternative route has been provided.
- Construction areas adjacent to any paved roadway will be provided with sandbags or other similar measures as specified in the construction SWPPP to prevent runoff to roadways.
- All paved roads within the construction site will be cleaned on a periodic basis (or less during periods of precipitation), to prevent the accumulation of dirt and debris.
- The first 500 feet of any public roadway exiting the construction site will be cleaned on a periodic basis (or less during periods of precipitation), using wet sweepers or air-filtered dry vacuum sweepers, when construction activity occurs or on any day when dirt or runoff from the construction site is visible on the public roadways.
- Any soil storage piles and/or disturbed areas that remain inactive for longer than 10 days will be covered, or treated with appropriate dust suppressant compounds.
- All vehicles used to transport solid bulk material on public roadways and have the potential to cause visible emissions will be covered, or the

materials will be sufficiently wetted and loaded onto the trucks in a manner to minimize fugitive dust emissions. A minimum freeboard height of two feet will be required on all bulk materials transport.

- Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) will be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition will remain in place until the soil is stabilized or permanently covered with vegetation.
- Disturbed areas will be re-vegetated or covered with gravel or other dust suppressant material as soon as practical and restored in accordance with BLM requirements. (Ex. 400, pp. C.1-24 to C.1-25.)

These mitigation measures, updated and revised in consideration of the construction emissions impact potential of this very large solar energy project, are contained in Conditions of Certification **AQ-SC1** through **AQ-SC5**. We find that the proposed Conditions of Certification will mitigate all construction air quality impacts of the project to less than significant levels. (Ex. 400, p. C.1-25.)

2. Initial Commissioning Emissions

Initial commissioning refers to a period prior to beginning commercial operation when the equipment undergoes initial tests. Because of this project's use of a non-fuel fired generating technology, the evidence indicates that there will be no major changes in emissions from the facility commissioning activities compared to that of normal operation. (Ex. 400, p. C.1-20.)

3. Operation Emissions

Applicant modeled the GSEP operation emissions to determine impacts using estimated peak onsite hourly, daily and annual operating emissions. The predicted project concentration levels were added to a conservatively estimated background of existing emission concentration levels (**Air Quality Table 3**) to determine the cumulative effect. **Air Quality Table 5** presents the results of the modeling analysis. The operation modeling analysis includes emissions from the stationary sources and the onsite fugitive dust and vehicle tailpipe emission sources estimated by Applicant after proposed control measures. (Ex. 400, p. C.1-26.)

Air Quality Table 5
Project Operation Emission Impacts

Pollutants	Avg. Period	Project Impact [a] ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Standard ($\mu g/m^3$)	Percent of Standard
NO_2	1-hr. Fed. [b]	81.5	96.5	178	188	95%
	1-hr. Calif.	189.9	119	308.9	339	91%
	Annual	0.06	19.0	19.1	57	33%
CO	1-hr	12.3	2,645	2,657	23,000	12%
	8-hr	2.5	878	881	10,000	9%
PM10	24	15.9	83	98.8	50	198%
	Annual	4.3	30.5	34.8	20	174%
PM2.5	24	3.4	20.5	23.9	35	68%
	Annual	0.9	8.7	9.6	12	80%
SO_2	1-hr	0.184	23.6	23.8	665	4%
	3-hr	0.102	15.6	15.7	1,300	1%
	24-hr	0.008	13.1	13.1	105	12%
	Annual	0.0003	3.5	3.5	80	4%

Note:

[a] – These results do not include the fugitive dust emission revision performed by Applicant after the data responses.
[b] – These results are for the federal short-term NO_2 standard that became effective April 12, 2010. This standard is based on a 3-year average of the 98th percentile of the yearly distribution of daily maximum1-hour concentrations.
(Ex. 400, p. C.1-26, **Table 11** and Ex. 444, p. C-12, Table 11 Addendum.)

This modeling analysis indicates, with the exception of 24-hour and annual PM10 impacts that the GSEP will not create new exceedances or contribute to existing exceedances for any of the modeled air pollutants. The conditions that would create worst-case project modeled impacts (low wind speeds) are not the same conditions when worst-case background is expected for PM10/PM2.5. Additionally, the worst-case PM2.5 and PM10 impacts occur at the fence line and drop off quickly with distance from the fence line. Therefore, the record shows that the operation impacts, when considering Staff's mitigation measures, will not contribute substantially to exceedances of the PM10 CAAQS. (Ex. 400, p. C.1-26.)

Given the existing PM10 and ozone non-attainment status for the project site area, the record shows that the operation NO_X, VOC, and PM emissions to be

potentially CEQA significant and that the off-road equipment and fugitive dust emissions must be mitigated. (Ex. 400, C.1-27.)

The modeling analysis shows that, after implementation of the recommended emission mitigation measures, the project's operation will not cause new exceedances of the NAAQS. Therefore, it has been determined that no adverse NEPA impacts will occur after implementation of the mitigation measures. (Ex. 400, C.1-27.)

Best Available Control Technology (BACT) will be used to mitigate the project's stationary source NO_X, VOC, SO_2, and PM10/PM2.5 emissions. Additional mitigation, specified in Conditions of Certification **AQ-SC6** and **AQ-SC7,** will reduce maintenance vehicle emissions, both tailpipe emission and fugitive dust emissions that could contribute to further ozone and PM10 violations. The BACT, along with mitigation measures contained in Conditions of Certification **AQ-SC6** and **AQ-SC7**, will reduce the air quality impacts below the level of significance. (Ex. 400, p. c.1-31.) The project's HTF ullage system with venting features will result in some vapor emissions of VOCs along with fugitive VOCs from the HTF piping system; however, these emissions will be mitigated through use of BACT as noted above, and through implementation of MDAQMD Conditions **AQ-8 through AQ-16**.

4. Cumulative Impacts and Mitigation

"Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." (CEQA Guidelines, § 15355.) Such impacts can be relatively minor yet still be significant when combined with other closely related past, present, and known or reasonably foreseeable future projects. (Ex. 400, p. C.1-36.)

Criteria pollutants have impacts that are usually cumulative by their nature. Even if a project would not cause a violation of a federal or state criteria pollutant standard by itself, it may contribute to violations of criteria pollutant standards because of pre-existing elevated background conditions. Air districts attempt to reduce background criteria pollutant levels by adopting attainment plans, which are multi-faceted programmatic approaches to attainment. Attainment plans typically include new source review requirements that provide offsets and use BACT, combined with more stringent emissions controls on existing sources. (Ex. 400, p. C.1-37.)

Applicant, in consultation with MDAQMD and SCAQMD, confirmed that there are no projects within a six miles radius from the GSEP site that are under construction or have received permits to be built or operate in the foreseeable future. Therefore, it has been determined that no stationary sources requiring a cumulative modeling analysis exist within a six mile radius of the project site. However, there are several pending solar and wind projects in the I-10 corridor area between Desert Center and Blythe including two thermal solar projects, the Blythe Solar Power Project and Palen Solar Power Project siting cases, which are currently being evaluated by the Energy Commission and BLM. This potential for significant additional development within the air basin and corresponding increase in air basin emissions will be mitigated with the measures included in Conditions of Certification **AQ-SC6** and **AQ-SC7** that are designed to mitigate the project's cumulative impacts by reducing the dedicated on-site vehicle emissions and fugitive dust emissions during site operation. With these recommended mitigation measures, the record shows that the CEQA cumulative air quality impacts are less than significant. (Ex. 400, p. C.1-40.)

The record shows that since the project's cumulative air quality impacts have been mitigated to less than significant, there is no environmental justice issue for air quality. (Ex. 400, p. C.1-41.)

5. Compliance with LORS

The MDAQMD issued Final Determination of Compliance on July 20, 2010, after resolution of all comments received on the PDOC and obtaining additional information from Applicant. Compliance with all District rules and regulations was demonstrated to the District's satisfaction. The District's FDOC conditions are presented in the Conditions of Certification (**AQ-1** to **AQ-51**). (Ex. 400, p. C.1-41; Ex. 404).

a. Federal

The District is responsible for issuing the federal New Source Review (NSR) permit and has been delegated enforcement of the applicable New Source Performance Standard (Subparts Dc and IIII). However, the GSEP does not require a federal NSR or Title V permit and GSEP will not require a PSD permit from U.S.EPA prior to initiating construction. (Ex. 400, p. C.1-41.)

The project requires the approval of a federal agency (BLM), but is located in an area that is in attainment or unclassified with all federal ambient air quality

standards. Therefore, the project is not subject to the general conformity regulations (40 CFR Part 93). (Ex. 400, p. C.1-41.)

b. State

The project owner will demonstrate that the project will comply with Section 41700 of the California State Health and Safety Code, which restricts emissions that would cause nuisance or injury, with the issuance of the District's Final Determination of Compliance and the Energy Commission's affirmative finding for the project. (Ex. 400, p. C.1-41.)

The emergency generator and fire water pump engines are also subject to the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines. This measure limits the types of fuels allowed, established maximum emission rates, and establishes recordkeeping requirements. The proposed Tier 2 emergency engine and Tier 3 fire water pump engine meet the current emission limit requirements of this measure. This measure will also limit the engines' testing and maintenance operation to no more than 50 hours per year. (Ex. 400, p. C.1-41; Ex. 404.)

c. Local

The District rules and regulations specify the emissions control and offset requirements for new sources such as the GSEP. Best Available Control Technology will be implemented, and emission reduction credits (ERCs) are not required to offset the project's emissions by District rules and regulations based on the permitted stationary source emission levels for the project. Compliance with the District's new source requirements will ensure that the project will be consistent with the strategies and future emissions anticipated under the District's air quality attainment and maintenance plans. (Exs. 400, pp. C.1-40 to C.1-41; 404.)

Applicant provided an air quality permit application to the MDAQMD and the District issued a FDOC on July 20, 2010 (Ex. 404). The FDOC states that the project will comply with all applicable District rules and regulations. The FDOC evaluates whether and under what conditions the project will comply with the District's applicable rules and regulations, as described below. (Exs. 400, p. C.1-41; 404.)

Regulation II – Permits

RULE 201 AND 203 – PERMIT TO CONSTRUCT AND PERMIT TO OPERATE

Rule 201 establishes the emission source requirements that must be met to obtain a Permit to Construct. Rule 203 prohibits use of any equipment or the use of which may emit air contaminants without obtaining Permit to Operate. Applicant has complied with this rule by submitting the AFC and District permit applications materials. (Ex. 400, p. C.1-42.)

Regulation IV – Prohibitions

RULE 401 - VISIBLE EMISSIONS

This rule limits visible emissions from emissions sources, including stationary source exhausts and fugitive dust emission sources. In the FDOC, the District has determined that the facility will comply with this rule. (Exs. 400, p. C.1-42; 404.)

RULE 402 - NUISANCE

This rule restricts discharge of emissions that would cause injury, detriment, annoyance, or public nuisance. The facility will comply with this rule (identical to California Health and Safety Code 41700). (Ex. 400, p. C.1-42.)

RULE 403 - FUGITIVE DUST

This rule limits fugitive emissions from certain bulk storage, earthmoving, construction and demolition, and manmade conditions resulting in wind erosion. With the implementation of Conditions of Certification **AQ-SC3**, **AQ-SC4**, and **AQ-SC7** the facility will comply with this rule. (Ex. 400, p. C.1-42.)

RULE 404 - PARTICULATE MATTER CONCENTRATION

The rule limits particulate matter (PM) emissions based on the volume discharge rate. The GSEP stationary sources subject to this rule (HTF heaters and emergency engines) will comply with the PM concentration limits of this regulation. (Ex. 400, p. C.1-42.)

RULE 406 - SPECIFIC CONTAMINANTS

The rule prohibits sulfur emissions, calculated as SO_2, in excess of 500 ppmv. Compliance with this rule is assured with the required use of pipeline quality natural has for the boilers and heaters and California low sulfur diesel fuel for the emergency generator and fire pump engines. (Ex. 400, p. C.1-43.)

RULE 407 - LIQUID AND GASEOUS AIR CONTAMINANTS

The rule prohibits carbon monoxide emissions in excess of 2,000 ppmv. The heaters and emergency generator and fire pump engines will have CO emissions well below this concentration limit. The facility will comply with this rule. (Ex. 400, p. C.1-43.)

RULE 409 - FUEL BURNING EQUIPMENT - COMBUSTION CONTAMINANTS

This rule limits discharge into the atmosphere from fuel burning equipment combustion contaminants exceeding in concentration at the point of discharge, 0.1 grain per cubic foot of gas calculated to 12 percent of carbon dioxide (CO_2) at standard conditions. The GSEP stationary sources will have particulate concentrations below the limit of this rule. (Ex. 400, p. C.1-43.)

RULE 431 - SULFUR CONTENT OF FUELS

The rule prohibits the burning of gaseous fuel with a sulfur content of more than 800 ppm and liquid fuel with a sulfur content of more than 0.5 percent sulfur by weight. The facility will comply with this rule. Compliance with this rule is assured with the required use of pipeline quality natural gas and California low sulfur diesel fuel for the emergency engines. (Ex. 400, p. C.1-43.)

Regulation IX – Standards of Performance for New Stationary Sources

RULE 900 – STANDARD OF PERFORMANCE FOR NEW STATIONARY SOURCE (NSPS)

This rule incorporates the Federal NSPS (40 CFR 60) rules by reference. The proposed boilers are subject to subpart Dc. The District conditions ensure compliance with the requirements of this rule. (Ex. 400, p. C.1-43.)

The proposed Tier 2 and Tier 3 engines meet the current emission limit requirements of NSPS Subpart IIII. The exact model and size of the engines are only estimated at this time and it is uncertain exactly when the emergency engines will be purchased and whether Tier 4 engine emission limits may apply at that time. So, Staff has added a requirement to the verification of District Condition of Certification (**AQ-31** and **AQ-40**) to require Applicant to provide documentation that demonstrates that the engines purchased meet the appropriate NSPS standards for new engines at the time of purchase. (Ex. 400, p. C.1-43.)

Regulation XIII – New Source Review

RULE 1303 – NEW SOURCE REVIEW

This rule requires implementation of BACT for any emission source unit which emits or has the potential to emit 25 lbs/day or more and requires offsets if specific annual emission limits are exceeded. The FDOC concluded that the emergency engines trigger BACT and the engines complied. The other stationary sources did not trigger BACT but will meet BACT requirements based on Applicant's proposed controls. The FDOC concluded that offsets were not required for the project. (Exs. 400, pp. C.1-43 to C.1-44; 404, p. 12)

RULE 1306 – ELECTRIC ENERGY GENERATING FACILITIES

Describes actions to be taken for permitting of power plants. Compliance with this rule will be achieved with the completion of the FDOC. (Ex. 400, p. C.1-44.)

FINDINGS OF FACT

Based on the evidence, we find as follows:

1. The GSEP site is located within the jurisdiction of the Mojave Desert Air Quality Management District.

2. The GSEP facility will consist of two independent concentrated solar electric generating facilities (aka power plants or units) with a nominal net electrical output of 125 megawatts (MW) each, for a total nominal net electrical output of 250 MW.

3. Other construction elements of the GSEP include the access road, the natural gas pipeline connection, and the transmission line tie-in connection.

4. Construction of the GSEP is expected to take about 37 months.

5. The project's construction-related emission impacts are temporary and short-term in nature.

6. The project's construction-related impacts are mitigated to below a level of significance by measures identified in the Conditions of Certification **AQ-SC1** through **AQ-SC5**.

7. The Riverside County potion of the MDAB District is classified as non-attainment for the state ozone standards and PM10 standards. This area meets applicable standards for all other criteria pollutants.

8. During operation each plant will use one natural gas-fueled auxiliary boiler to reduce start-up time and provide HTF freeze protection.

9. The natural gas-fueled auxiliary boilers will be the project's primary stationary emission source.

10. The project will employ the best available technology (BACT) to control stationary source emissions of criteria pollutants (i.e., NO_X, VOCs, SO_2, and PM10/PM2.5) during the operational phase.

11. Along with BACT noted above, the mitigation measures in the Conditions of Certification **AQ-SC6 to AQ-SC7** regarding mobile sources and fugitive dust will reduce the operational phase air quality impacts below the level of significance.

12. The District issued a Final Determination of Compliance that finds the GSEP will comply with all applicable District rules for project operation.

13. The record contains an adequate analysis of the project's contributions to cumulative air quality impacts.

CONCLUSIONS OF LAW

1. The mitigation measures imposed are sufficient to ensure that the GSEP will conform with all applicable laws, ordinances, regulations, and standards relating to air quality.

2. Implementation of the Conditions of Certification listed below ensures that the GSEP will not result in any significant direct, indirect, or cumulative impacts to air quality.

CONDITIONS OF CERTIFICATION

AQ-SC1 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).

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall submit to the CPM for approval, the name, resume, qualifications, and contact information for the on-site AQCMM and all AQCMM Delegates.

AQ-SC2 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**.

Verification: At least 30 days prior to the start of any ground disturbance, the project owner shall submit the AQCMP to the CPM for approval. The AQCMP shall include effectiveness and environmental data for the proposed soil stabilizer. The CPM will notify the project owner of any necessary modifications to the plan within 15 days from the date of receipt.

AQ-SC3 Construction Fugitive Dust Control: The AQCMM shall submit documentation to the 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 that would not comply with the performance standards identified in **AQ-SC4** from leaving the project site. The following fugitive dust mitigation measures shall be included in the Air Quality Construction Mitigation Plan (AQCMP) required by AQ-SC2 and any deviation from the AQCMP mitigation measures shall require prior 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.

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.

Verification: 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, and AQCMM to verify compliance with this Condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC4 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 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 before that time.

Verification: The AQCMM shall provide the CPM a Monthly Compliance Report 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.

AQ-SC5 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. The following off-road diesel construction equipment mitigation measures shall be included in the Air Quality Construction Mitigation Plan (AQCMP) required by **AQ-SC2**, and any deviation from the AQCMP mitigation measures shall require prior 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 and lower than 750 hp 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. Engines larger than 750 hp shall meet Tier 2 engine standards. In the event that a Tier 3 engine is not available for any off-road equipment larger than 50 hp and smaller than 750 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 (NO_X) 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.

d. All heavy earth-moving equipment and heavy duty construction-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.

Verification: 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 maintain compliance with this Condition;

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

C. Any other documentation deemed necessary by the CPM, and the AQCMM to verify compliance with this Condition, including any District permits necessary for temporary stationary diesel engines, or ARB certification for state registered portable equipment. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC6 The project owner, when obtaining dedicated on-road or off-road vehicles for mirror washing activities and other facility maintenance activities, shall only obtain vehicles that meet California on-road vehicle emission standards or appropriate U.S.EPA/California off-road engine emission standards for the latest model year available when obtained.

Verification: 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.

AQ-SC7 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 that would not comply with the performance standards identified in **AQ-SC4** 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.

Verification: 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.

AQ-SC8 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 federal air permit. The project owner shall submit to the CPM any modification to any federal air permit proposed by the District or U.S. Environmental Protection Agency (U.S. EPA), and any revised federal air permit issued by the District or U.S. EPA, for the project.

Verification: The project owner shall submit any ATC, PTO, and proposed federal air permit modifications to the CPM within 5 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 ATC/PTO documents and all federal air permits to the CPM within 15 days of receipt.

DISTRICT CONDITIONS

DISTRICT FINAL DETERMINATION OF COMPLIANCE CONDITIONS

(MDAQMD 2010b)

APPLICATION NO. 00010788 AND 00010789 (TWO - 30 MMBTU/HR NATURAL GAS FIRED AUXILIARY BOILER)

EQUIPMENT DESCRIPTION:

Two, 30 MMBtu/hr natural gas boilers with low-NOx burner systems.

AQ-1 Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-2 This equipment shall be exclusively fueled with natural gas and shall be operated and maintained in strict accord with the

recommendations of its manufacturer or supplier and/or sound engineering principles.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-3 Emissions from this equipment shall not exceed the following hourly emission limits at any firing rate, verified by fuel use and annual compliance tests:

a. NOx as NO_2:

   1. 0.330 lb/hr operating at 100% load (based on 9.0 ppmvd corrected to 3% O_2 and averaged over one hour)

b. CO:

   1. 0.563 lb/hr operating at 100% load (based on 50 ppmvd corrected to 3% O_2 and averaged over one hour)

c. VOC as CH_4:

   1. 0.088 lb/hr operating at 100% load

d. SOx as SO_2:

   1. 0.008 lb/hr operating at 100% load

e. PM10:

   1. 0.150 lb/hr operating at 100% load

Verification: As part of the Annual Compliance Report, the project owner shall include information demonstrating compliance with boiler operating emission rates.

AQ-4 The project owner shall maintain an operations log for this equipment on-site and current for a minimum of five (5) years, and said log shall be provided to District personnel on request. The operations log shall include the following information at a minimum:

a. Total operation time (hour/day, hours/month and cumulative hours-/rolling twelve months);

b. Fuel use (daily, monthly and cumulative hours/rolling twelve months);

c. Maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NOx, CO, PM10, VOC and SOx (including calculation protocol); and,

d. Any permanent changes made to the equipment that would affect air pollutant emissions, and indicate when changes were made.

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-5 This equipment shall not be operated for more than 1,000 hours per rolling twelve month period and more than 14 hours per calendar day.

Verification: The project owner shall submit to the CPM the boiler hours of use records demonstrating compliance with this condition as part of the Annual Operation Report.

AQ-6 The project owner shall perform initial compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District within 180 days of initial start up:

a. NOx as NO_2 in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).

b. VOC as CH_4 in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18).

c. SOx as SO_2 in ppmvd at 3% oxygen and lb/hr.

d. CO in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Method 10).

e. PM10 in mg/m^3 at 3% oxygen and lb/hr (measured per USEPA Reference Methods 5 and 202 or CARB Method 5).

f. Flue gas flow rate in dscf per minute.

g. Opacity (measured per USEPA reference Method 9).

Verification: The project owner shall notify the District and the CPM within fifteen (15) working days before the execution of the compliance test required in this condition. The test results shall be submitted to the District and to the CPM within 180 days of initial start up.

AQ-7 The project owner shall perform annual compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District no later than six weeks prior to the expiration date of this permit. The following compliance tests are required:

a. NOx as NO_2 in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).

b. VOC as CH_4 in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18).

c. SOx as SO_2 in ppmvd at 3% oxygen and lb/hr.

d. CO in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Method 10).

e. PM10 in mg/m^3 at 3% oxygen and lb/hr (measured per USEPA Reference Methods 5 and 202 or CARB Method 5).

f. Flue gas flow rate in dscf per minute.

g. Opacity (measured per USEPA reference Method 9).

Verification: The project owner shall notify the District and the CPM within fifteen (15) working days before the execution of the compliance test required in this condition. The test results shall be submitted to the District and to the CPM within the timeframe required by this condition.

APPLICATION NO. 00010842 AND 00010843 (TWO – HTF ULLAGE EXPANSION TANK)

EQUIPMENT DESCRIPTION:

Two HTF ullage/expansion tanks.

AQ-8 Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-9 This system shall store only HTF, specifically the condensable fraction of the vapors vented from the ullage system.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-10 This system shall be operated at all times with the carbon adsorption system as follows:

a. The carbon adsorption system shall provide 98% control efficiency of VOC emissions vented from the HTF ullage system.

b. The project owner shall prepare and submit a monitoring and change-out plan for the carbon adsorptions system which

ensures that the system is operating at optimal control efficiency at all times for District approval prior to start up.

c. This equipment shall be properly maintained and kept in good operating condition at all times.

d. This equipment must be in use and operating properly at all times the HTF ullage system is venting.

e. Total emissions of VOC to the atmosphere shall not exceed 1.5 lbs/day and 540 lbs/year calculated based on the most recent monitoring results.

f. During operation, the project owner shall monitor VOC measured at outlet from the carbon beds. Sampling is to be performed on a weekly basis. Samples shall be analyzed pursuant to U.S.EPA Test Method 25 – Gaseous Non-methane Organic Emissions. Initial test shall be submitted to the District within 180 days after startup.

g. FID shall be considered invalid if not calibrated on the day of required use.

h. The project owner shall maintain current and on-site for the duration of the project a log of the weekly test results, which shall be provided to District personnel upon request, with date and time the monitoring was conducted.

i. Prior to January 31 of each new year, the project owner of this unit shall submit to the District a summary report of all VOC emissions (as hexane).

Verification: The project owner shall submit information demonstrating compliance with the substantive and recordkeeping provisions of this condition in the Annual Compliance Report.

AQ-11 Vent release shall be monitored in accordance with a District approved Inspection, Monitoring and Maintenance plan.

Verification: The inspection, monitoring, and maintenance plan for the vent release shall be submitted to the CPM for review at least 30 days before taking delivery of the HTF.

AQ-12 The project owner shall establish an inspection and maintenance program to determine repair, and log leaks in HTF piping network and expansion tanks. Inspection and maintenance program and documentation shall be available to District staff upon request.

a. All pumps, compressors and pressure relief devices (pressure relief valves or rupture disks) shall be electronically, audio, or visually inspected once every operating day.

b. All accessible valves, fittings, pressure relief devices (PRDs), hatches, pumps, compressors, etc. shall be inspected quarterly using a leak detection device such as a Foxboro OVA 108 calibrated for methane.

c. Inspection frequency for accessible components, except pumps, compressors and pressure relief valves, may be changed from quarterly to annual when two percent or less of the components within a component type are found to leak during an inspection for five consecutive quarters.

d. Inspection frequency for accessible components, except pumps, compressors and pressure relief valves, shall be increased to quarterly when more than two percent of the components within a component type are found to leak during any inspection or report.

e. If any evidence of a potential leak is found the indication of the potential leak shall be eliminated within 7 calendar days of detection.

f. VOC leaks greater than 10,000-ppmv shall be repaired within 24-hours of detection.

g. After a repair, the component shall be re-inspected for leaks as soon as practicable, but no later than 30 days after the date on which the component is repaired and placed in service.

h. The project owner shall maintain a log of all VOC leaks exceeding 10,000-ppmv, including location, component type, date of leak detection, emission level (ppmv), method of leak detection, date of and repair, date and emission level of reinspection after leak is repaired.

i. The project owner shall maintain records of the total number of components inspected, and the total number and percentage of leaking components found, by component types made.

j. The project owner shall maintain record of the amount of HTF replaced on a monthly basis for a period of 5 years.

Verification: The inspection and maintenance plan shall be submitted to the CPM for review and approval at least 30 days before taking delivery of the HTF. As part of the Annual Compliance Report, the project owner shall provide the quantity of used HTF fluid removed from the system and the amount of new HTF fluid added to the system each year. The project owner shall make the site available for inspection of HTF piping Inspection and Maintenance Program records and HTF system equipment by representatives of the District, ARB, and the Energy Commission.

AQ-13 The project owner shall submit to the District a compliance test protocol within sixty (60) days of start-up and shall conduct all required compliance/certification tests in accordance with a District-approved test plan. Thirty (30) days prior to the compliance/certification tests the project owner shall provide a written test plan for District review and approval. Written notice of the compliance/certification test shall be provided to the District ten (10) days prior to the tests so that an observer may be present. A written report with the results of such compliance/certification tests shall be submitted to the District within forty-five (45) days after testing.

Verification: The project owner shall provide a compliance test protocol to the District for approval and CPM for review at least no later than sixty (60) days after start-up and submit a test plan to the District for approval and CPM for review at least thirty (30) days prior to the compliance tests. The project owner shall notify the District and the CPM within ten (10) working days before the execution of the compliance tests required in **AQ-14** and **AQ-15**, and the test results shall be submitted to the District and to the CPM within forty-five (45) days after the tests are conducted.

AQ-14 The project owner shall perform the following initial compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District within 180 days of initial start up. The following compliance tests are required:

a. VOC as CH_4 in ppmvd and lb/hr (measured per USEPA Reference Methods 25A and 18 or equivalent).

b. Benzene in ppmvd and lb/hr (measured per CARB method 410 or equivalent).

Verification: The project owner shall submit the test results to the District and to the CPM within 180 days after initial start up.

AQ-15 The project owner shall perform the following annual compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be

submitted to the District no later than six weeks prior to the expiration date of this permit. The following compliance tests are required:

a. VOC as CH_4 in ppmvd and lb/hr (measured per USEPA Reference Methods 25A and 18 or equivalent).

b. Benzene in ppmvd and lb/hr (measured per CARB method 410 or equivalent).

Additionally, records of all compliance tests shall be maintained on site for a period of five (5) years and presented to District personnel upon request.

Verification: As part of the Annual Compliance Report, the project owner shall include the test results demonstrating compliance with this condition and the project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-16 Emissions from this equipment may not exceed the following emission limits, based on a calendar day summary:

a. VOC as CH_4 – 1.5 lb/day, verified by compliance test.

b. Benzene – 0.6 lb/day, verified by compliance test.

Verification: As part of the Annual Compliance Report, the project owner shall include the test results demonstrating compliance with this condition and the project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-17 If current non-criteria substances become regulated as toxic or hazardous substances and are used in this equipment, the project owner shall submit to the District a plan demonstrating how compliance will be achieved and maintained with such regulations.

Verification: The project owner shall submit a compliance plan of the toxic or hazardous substances for District approval and CPM review if current non-criteria substances in the HTF become regulated as toxic or hazardous substances.

APPLICATION NO. 00010787 AND 00010841 (TWO COOLING TOWERS)

EQUIPMENT DESCRIPTION:

Two 7-cell cooling towers with drift eliminator rate of 0.0005% and water circulation rate of 94,623 gpm.

AQ-18 Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-19 This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-20 The drift rate shall not exceed 0.0005 percent with a maximum circulation rate of 94,623 gallons per minute. The maximum hourly PM10 emission rate shall not exceed 2.36 pounds per hour, as calculated per the written District-approved protocol.

Verification: The manufacturer guarantee data for the drift eliminator, showing compliance with this condition, shall be provided to the CPM and the District 30 days prior to cooling tower operation. As part of the Annual Compliance Report the project owner shall include information on operating emission rates to demonstrate compliance with this condition.

AQ-21 The project owner shall perform weekly specific conductivity tests of the blow-down water to indirectly measure total dissolved solids (TDS). Quarterly tests of the below down water will be done to confirm the relationship between conductance and TDS. The TDS shall not exceed 5,000 ppmv on a calendar monthly basis.

Verification: The cooling tower recirculation water TDS content test results shall be provided to representatives of the District, ARB, and the Energy Commission upon request.

AQ-22 The project owner shall conduct all required cooling tower water tests in accordance with a District-approved test and emissions calculation protocol. Thirty (30) days prior to the first such test the project owner shall provide a written test and emissions calculation protocol for District review and approval.

Verification: The project owner shall provide an emissions calculation and water sample testing protocol to the District for approval and CPM for review at least 30 days prior to the first cooling tower water test.

AQ-23 This equipment shall not be operated for more than 3,200 hours per rolling twelve month period and more than 15 hours per calendar day.

Verification: The project owner shall submit to the CPM the cooling tower operating data demonstrating compliance with this condition as part of the Annual Operation Report.

AQ-24 The project owner shall maintain an operations log for this equipment on-site and current for a minimum of five (5) years, and said log shall be provided to District personnel on request. The operations log shall include the following information at a minimum:

a. Total operation time (hours per day, hours per month, and hours per rolling twelve month period); and

b. The date and result of each blow-down water test in TDS ppm, and the resulting mass emission rate.

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-25 A maintenance procedure shall be established that states how often and what procedures will be used to ensure the integrity of the drift eliminators. This procedure is to be kept on-site and available to District personnel on request.

Verification: The project owner shall make available at request the written drift eliminator maintenance procedures for inspection by representatives of the District, ARB, and the Energy Commission.

APPLICATION NO. 00010790 AND 00010791 (TWO - 1,341 HP EMERGENCY IC ENGINE)

EQUIPMENT DESCRIPTION:

Two, 1,341 HP diesel fueled emergency generator engines, each driving a generator.

AQ-26 This equipment shall be installed, operated and maintained in strict accord with those recommendations of the manufacturer/supplier and/or sound engineering principles which produce the minimum emissions of contaminants. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit.

Verification: The project owner shall make the site available for inspection of equipment and records by representatives of the District, ARB, and the Energy Commission

AQ-27 This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15 ppm) on a weight per weight basis per CARB Diesel or equivalent requirements.

Verification: 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.

AQ-28 A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed and maintained on this unit to indicate elapsed engine operating time. (Title 17 CCR §93115.10(e)(1)).

Verification: At least thirty (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.

AQ-29 This unit shall be limited to use for emergency power, defined as in response to a fire or when commercially available power has been interrupted. In addition, this unit shall be operated no more than 50 hours per year for testing and maintenance, excluding compliance source testing. Time required for source testing will not be counted toward the 50 hour per year limit.

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-30 The project owner shall maintain a operations log for this unit current and on-site, either at the engine location or at a on-site location, for a minimum of two (2) years, and for another year where it can be made available to the District staff within 5 working days from the District's request, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:

a) Date of each use and duration of each use (in hours);

b) Reason for use (testing & maintenance, emergency, required emission testing);

c) Calendar year operation in terms of fuel consumption (in gallons) and total hours; and,

d) Fuel sulfur concentration (the project owner may use the supplier's certification of sulfur content if it is maintained as part of this log).

Verification: The project owner shall submit records required by this condition that demonstrating compliance with the sulfur content and engine use limitations of conditions **AQ-27** and **AQ-29** in the Annual Compliance Report, including a photograph showing the annual reading of engine hours. The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-31 This unit shall not be used to provide power during a voluntary agreed to power outage and/or power reduction initiated under an Interruptible Service Contract (ISC); Demand Response Program

(DRP); Load Reduction Program (LRP) and/or similar arrangement(s) with the electrical power supplier.

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-32 This engine may operate in response to notification of impending rotating outage if the area utility has ordered rotating outages in the area where the engine is located or expects to order such outages at a particular time, the engine is located in the area subject to the rotating outage, the engine is operated no more than 30 minutes prior to the forecasted outage, and the engine is shut down immediately after the utility advises that the outage is no longer imminent or in effect.

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-33 This unit is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR 93115). In the event of conflict between these conditions and the ATCM, the more stringent shall govern.

Verification: Not necessary.

AQ-34 This unit is subject to the requirements of the Federal National Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60 Subpart IIII).

Verification: The project owner shall submit the engine specifications at least 30 days prior to purchasing the engines for review and approval demonstrating that the engines meet NSPS and ARB ATCM emission limit requirements at the time of engine purchase.

APPLICATION NO. 00010792 AND 00010793 (TWO - 315 HP EMERGENCY IC ENGINE)

EQUIPMENT DESCRIPTION:

Two, 315 HP diesel fueled emergency fire pump engines, each driving a fire suppression water pump.

AQ-35 This equipment shall be installed, operated and maintained in strict accord with those recommendations of the manufacturer/supplier and/or sound engineering principles which produce the minimum emissions of contaminants. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit.

Verification: The project owner shall make the site available for inspection of equipment and records by representatives of the District, ARB, and the Energy Commission

AQ-36 This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15 ppm) on a weight per weight basis per CARB Diesel or equivalent requirements.

Verification: 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.

AQ-37 A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed and maintained on this unit to indicate elapsed engine operating time. (Title 17 CCR §93115.10(e)(1)).

Verification: At least thirty (30) days prior to the installation of the engine, the project owner shall provide the District and the CPM the specification of the hour timer.

AQ-38 This unit shall be limited to use for emergency power, defined as in response to a fire or due to low fire water pressure. In addition, this unit shall be operated no more than 50 hours per year for testing and maintenance, excluding compliance source testing. Time required for source testing will not be counted toward the 50 hour per year limit. The 50 hour limit can be exceeded when the emergency fire pump assembly is driven directly by a stationary diesel fueled CI engine operated per and in accord with the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 1998 edition. This requirement includes usage during emergencies. {Title 17 CCR 93115.3(n)}

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-39 The project owner shall maintain an operations log for this unit current and on-site, either at the engine location or at a on-site location, for a minimum of two (2) years, and for another year where it can be made available to the District staff within 5 working days from the District's request, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:

a) Date of each use and duration of each use (in hours);

b) Reason for use (testing & maintenance, emergency, required emission testing);

c) Calendar year operation in terms of fuel consumption (in gallons) and total hours; and,

d) Fuel sulfur concentration (the project owner may use the supplier's certification of sulfur content if it is maintained as part of this log).

Verification: The project owner shall submit records required by this condition that demonstrating compliance with the sulfur content and engine use limitations of conditions **AQ-36** and **AQ-38** in the Annual Compliance Report, including a photograph showing the annual reading of engine hours. The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-40 This unit is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR 93115). In the event of conflict between these conditions and the ATCM, the requirements of the ATCM shall govern.

Verification: Not necessary.

AQ-41 This unit is subject to the requirements of the Federal National Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60 Subpart IIII).

Verification: The project owner shall submit the engine specifications at least 30 days prior to purchasing the engines for review and approval demonstrating that the engines meet NSPS and ARB ATCM emission limit requirements at the time of engine purchase.

APPLICATION NO. 0001246 (ONE – GASOLINE STORAGE TANK)

EQUIPMENT DESCRIPTION:

One – Above ground gasoline storage tank and fuel receiving and dispensing equipment.

AQ-42 The toll-free telephone number that must be posted is 1-800-635-4617.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-43 The project owner shall maintain a log of all inspections, repairs, and maintenance on equipment subject to Rule 461. Such logs or records shall be maintained at the facility for at least two (2) years and available to the District upon request. Records of Maintenance, Tests, Inspections, and Test Failures shall be maintained and available to District personal upon request; record

form shall be similar to the Maintenance Record form indicated in EO VR-401-A, Figure 2N.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-44 Any modifications or changes to the piping or control fitting of the vapor recovery system require prior approval from the District.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-45 Pursuant to EO VR-401-A, vapor vent pipes are to be equipped with Husky 5885 pressure relief valves or as otherwise allowed by EO.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-46 The project owner shall perform the following tests within 60 days of construction completion and annually thereafter in accord with the following test procedures:

a. Determination of Static Pressure Performance of Vapor Recovery Systems at Gasoline Dispensing Facilities with Aboveground Storage Tanks shall be conducted per EO VR-401-A Exhibit 4, and

b. Phase I Adapters, Emergency Vents, Spill Container Drain Valve, Dedicated gauging port with drop tube and tank components, all connections, and fittings shall NOT have any detectable leaks; test methods shall be per EO VR-401-A Table 2-1, and

c. Liquid Removal Test (if applicable) per TP-201.6, and

- Summary of Test Data shall be documented on a Form similar to EO VR-401-A Form 1

- The District shall be notified a minimum of 10 days prior to performing the required tests with the final results submitted to the District within 30 days of completion of the tests.

- The District shall receive passing test reports no later than six (6) weeks prior to the expiration date of this permit.

Verification: The project owner shall notify the District at least 10 days prior to performing the required tests. The test results shall be submitted to the District within 30 days of completion of the tests and shall be made available to the CPM if requested.

AQ-47 Pursuant to California Health and Safety Code sections 39600, 39601 and 41954, this aboveground tank shall be installed and maintained in accordance with Executive Order (EO) VR-401-A for EVR Phase I, and Standing Loss requirements: http://www.arb.ca.gov/vapor/eos/eo-vr401/eo-vr401a/eo-401a.pdf.

Additionally, Phase II Vapor Recovery System shall be installed and maintained per G-70-116-F with the exception that hanging hardware shall be EVR Balance Phase II type hanging hardware (VST or other CARB Approved EVR Phase II Hardware).

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-48 Pursuant to EO VR-401-A: Maintenance and repair of system components, including removal and installation of such components in the course of any required tests, shall be performed by OPW Certified Technicians.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-49 Pursuant to EO VR-401-A, Maintenance Intervals for OPW; Tank Gauge Components; Dust Caps Emergency Vents; Phase I Product and Vapor Adapters, and Spill Container Drain Valve, shall be conducted by an OPW trained technician annually.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-50 The annual throughput of gasoline shall not exceed 600,000 gallons per year. Throughput Records shall be kept on site and available to District personnel upon request. Before this annual throughput can be increased the facility may be required to submit to the District a site specific Health Risk Assessment in accord with a District approved plan. In addition public notice and/or comment period may be required.

Verification: The project owner shall submit to the CPM gasoline throughput records demonstrating compliance with this condition as part of the Annual Compliance Report. The project owner shall maintain on site the annual gasoline throughput records and shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-51 The project owner shall; install, maintain, and operate EVR Phase I in compliance with CARB Executive Order VR-401-A, and Phase II vapor recovery in accordance with G-70-116-F. In the event of conflict between these permit conditions and/or the referenced EO's the more stringent requirements shall govern.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

C. PUBLIC HEALTH

The public health analysis supplements the previous discussion on air quality and considers the potential public health effects from project emissions of toxic air contaminants (TACs). In this analysis, we review the evidence concerning whether emissions of pollutants for which there are no established air quality standards (noncriteria pollutants) will result in significant adverse impacts that violate standards for public health protection or create adverse health impacts.[1] The evidence on public health was undisputed (Exs. 1; 11; 51; 57; 60; 400; 7/12/10 RT 28:11-14, 33:23-25).

SUMMARY AND DISCUSSION OF THE EVIDENCE

Project construction and operation will result in routine emissions of TACs. Those substances are categorized as noncriteria pollutants because there are no ambient air quality standards established to regulate their emissions.[2] In the absence of specific standards, state and federal regulatory programs use a health risk assessment process to evaluate the potential for public exposure to unhealthy levels and establish the degree of mitigation necessary. (Ex. 400, p. C.5-3.)

1. Health Risk Assessment

The risk assessment procedure consists of the following steps:

- Identify the types and amounts of hazardous substances that the GSEP could release to the environment;
- Estimate worst-case concentrations of project emissions in the environment using dispersion modeling;
- Estimate amounts of pollutants that people could be exposed to through inhalation, ingestion, and dermal contact;[3] and

[1] This Decision discusses other potential public health concerns under various topics. For instance, the accidental release of hazardous materials is discussed in **Hazardous Materials Management.** Electromagnetic fields are discussed in **Transmission Line Safety and Nuisance**. Potential impacts from the project's wastewater streams are discussed in the **Soil and Water Resources** section. Facility releases of hazardous and non-hazardous wastes are described in the **Waste Management** section.

[2] Criteria pollutants are discussed in the **Air Quality** section, supra.

[3] These are the primary exposure pathways, or ways in which people might come into contact with toxic substances. (Ex. 400, p. C.5-3.)

- Characterize potential health risks by comparing worst-case exposure to safe standards based on known health effects. (*Id*.)

Typically, the initial risk analysis for a project is performed at a "screening level" which is designed to conservatively estimate actual health risks. The risks for screening purposes are based on examining conditions that would lead to the highest, or worst-case, risks and then using those conditions in the study. Such conditions include:

- Using the highest levels of pollutants that could be emitted from the plant;
- Assuming weather conditions that would cause the maximum ambient concentration of pollutants;
- Using air quality computer modeling which predicts the greatest plausible impacts;
- Calculating health risks at the location where the pollutant concentrations are estimated to be the highest;
- Assuming that an individual's exposure to cancer-causing agents occurs over a 70 year lifetime; and
- Using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses). (Ex. 400, pp. C.5-3 to C.5-5.)

The risk assessment process[4] addresses two categories of health impacts: chronic (long-term) noncancer effects and cancer risk (also long-term). Since only long-term health effects have been established for diesel particulate matter (DPM), which would be a TAC emitted during the GSEP construction phase, no acute (short-term) health effects are calculated for this project. (Ex. 400, p. C.5-4.)

Chronic health effects are those that arise as a result of long-term exposure to lower concentrations of pollutants. The exposure period is considered to be approximately from 12 percent to 100 percent of a lifetime, or from 8 to 70 years. Chronic health effects include diseases such as reduced lung function and heart disease. (Ex. 400, p. C.5-4.)

[4] Exposure to multiple toxic substances may result in health effects that are equal to, less than, or greater than effects resulting from exposure to the individual substances. The health risk assessment assumes that the effects of each substance are additive for a given organ system. (Ex. 400, p. C.5-5.)

The analysis for non-cancer health effects compares the maximum project contaminant exposure levels to safe levels called “reference exposure levels” or RELs. These exposure levels are designed to protect the most sensitive individuals in the population[5] and represent the amounts of toxic substances to which sensitive people can be exposed and suffer no adverse health effects. The RELs are based on the most adverse health effects reported, and include margins of safety. Health protection is expected if the estimated worst case exposure is below the pertinent REL. (Ex. 400, p. C.5-4.)

For carcinogenic substances, the health assessment considers the risk of developing cancer and assumes that continuous exposure to the cancer-causing substance occurs over a 70-year lifetime. Cancer risk is expressed in chances per million of developing cancer, and is a function of the maximum expected pollutant concentration, the probability that a particular pollutant will cause cancer, and the length of the exposure period. The calculated risk is not meant to project the actual expected incidence of cancer, but rather is a theoretical upper-bound number based on worst-case assumptions. The conservative nature of the screening assumptions used means that actual cancer risks due to project emissions are likely to be considerably lower than those estimated. (Ex. 400, p. C.5-5.)

The screening analysis is performed to assess worst-case risks to public health associated with the proposed project. If the screening analysis predicts no significant risks, then no further analysis is required. However, if risks are above the significance level, then further analysis, using more realistic site-specific assumptions, would be performed to obtain a more accurate assessment of potential public health risks.

2. Significance Criteria

The evidence shows that the potential significance of project related health impacts is determined separately for short-term, long-term non-cancer and long-term carcinogenic health effects. (*Id.*) For chronic non-cancer health effects, the significance is assessed by calculating a *hazard index* for the exposure being considered. This index is a ratio obtained by comparing exposure from facility emissions to the REL (safe) exposure level for a specific toxicant. A ratio of less than 1.0 signifies that the worst-case exposure is below the safe level. The

[5] Characterized as infants, children, the aged, and those suffering from illnesses or diseases that make them more susceptible to effects of toxic substance exposure as sensitive individuals. (Ex. 400, p. C.5-4.)

hazard indices for every toxic substance that has the same type of health effect is added to yield a Total Hazard Index. A Total Hazard Index of less than one indicates that cumulative worst-case exposures are less than the reference exposure levels. (Ex. 400, pp. C.5-5 to C.5-6.)

For possible cancer risks, the evidence shows that the standards contained in the implementing regulations for the Safe Drinking Water and Toxic Enforcement Act (Health and Safety Code, § 25249.5 et seq.) are used. This hazard level reflects a cancer risk of 10 in 1,000,000 based upon each cancer causing substance separately. Staff applies an even more health-protective approach since it determines significance based on the total risk from all cancer-causing chemicals from the source in question. (Ex. 400, p. C.5-6.)

The evidence assesses the health impacts of the Genesis Project's non-criteria pollutant emissions for the construction phase and the operation phase separately.

3. Construction Impacts

These are short-term in nature (about 37 months) and caused primarily by exposure to toxic substances in contaminated soil disturbed during site preparation and grading, as well as from construction equipment emissions. With respect to the potential for contaminated soil, the Applicant provided a Phase I Environmental Site Assessment which indicated that there were no recognized toxic substances in the GSEP site's soil. This Assessment is discussed in the **Waste Management** section. As noted earlier, assessment of chronic (long-term) health effects assumes continuous exposure to toxic substances over a significantly longer time period, typically from eight to seventy years. (Ex. 400, pp. C.5-10 to C.5 -11.)

The Applicant conducted a health risk assessment for diesel particulate matter (DPM) from construction equipment emissions in accordance with methods provided by the South Coast AQMD in their guidance documents on modeling cancer risk from mobile sources. The Applicant's modeling of worst-case construction emissions adjusted to a 37-month period (lifetime exposure adjustment factor of 0.0126) found that the cancer risk was estimated to be 0.1 in one million at the maximum impact receptor (MIR), which is below the level of significance (10 in one million). The chronic hazard index was found to be 0.005 at the MIR, below the level of significance of 1.0. (Ex. 400, p. C.5-11.)

The recommended control measures contained in the **AIR QUALITY** section of this Decision in Condition of Certification **AQ-SC3** reduce the maximum calculated PM10 as well as PM2.5 concentrations. These measures include extensive fugitive dust control measures which are assumed to result in 90 percent reduction of fugitive dust emissions. In order to mitigate potential impacts from particulate emissions during the operation of diesel-powered construction equipment, the record indicates the use of ultra low-sulfur diesel fuel, an oxidation catalyst and soot filters on diesel equipment is required. The catalyzed diesel particulate filters are passive, self-regenerating filters that reduce particulate matter, carbon monoxide, and hydrocarbon emissions through catalytic oxidation and filtration. The degree of particulate matter reduction is comparable for both mitigation measures in the range of approximately 85-92 percent. Such filters will reduce diesel emissions during construction and further reduce the impacts associated with diesel exhaust. (Ex. 400, pp. C.5.11 to C.5-12.) (See the **Air Quality** section of this Decision to control particulate matter.)

4. Operational Impacts

The evidence shows that the main public health risks attributable to the Genesis Project will stem from the two TACs:

- DPM from two diesel-fueled emergency generators which would be tested periodically, two diesel-fueled emergency fire pumps, and from maintenance vehicles used for mirror washing and other routine activities.
- Volatile Organic Compounds (VOCs) emanating from the Heat Transfer Fluid (HTF) ullage system's vents and fugitive VOCs from the HTF pipe network. The auxiliary boiler system will also emit VOCs. (Ex. 400, p. C.5-12.)

The Applicant performed a health risk assessment of the VOCs from the HTF thermal degradation products expected to be emitted via ullage system vents and fugitive emissions via pipe connections, etc. HTF may decompose in trace amounts into the following VOCs forming gases in the ullage system:

- 89.9 percent by weight Benzene
- 9.8 percent by weight Phenol
- 0.3 percent by weight Other VOCs

- Potential health impacts will be mitigated by use of carbon adsorption technology in the HTF ullage system which is expected to result in 99 percent control of VOCs. VOCs from all sources, including the auxiliary boiler and HTF ullage system, will be controlled through Best Available Control Technology (BACT) and the requirements of Mojave Desert Air Quality Management District (MDAQMD) Conditions **AQ-1 through AQ-40**. See the **Air Quality** section for a discussion of BACT and listing of these Conditions. (Ex. 400, p. C.5-13.)

The GSEP's potential TACs and the contribution to health risks are shown in **PUBLIC HEALTH Table 1**.

Public Health Table 1
Types of Health Impacts and Exposure Routes Attributed to Toxic Emissions*

Substance	Oral Cancer	Oral Noncancer	Inhalation Cancer	Noncancer (Chronic)	Noncancer (Acute)
Acetaldehyde			✔	✔	
Acrolein				✔	✔
Arsenic	✔	✔	✔	✔	✔
Benzene			✔	✔	✔
Biphenyl					
1-3 Butadiene			✔	✔	
Cadmium		✔	✔	✔	
Copper				✔	✔
Diesel Exhaust			✔	✔	
Ethylbenzene				✔	
Formaldehyde			✔	✔	✔
Hexane				✔	
Naphthalene		✔	✔	✔	
Polycyclic Aromatic Hydrocarbons (PAHs)	✔	✔	✔	✔	
Substance	**Oral Cancer**	**Oral Noncancer**	**Inhalation Cancer**	**Noncancer (Chronic)**	**Noncancer (Acute)**
Propylene				✔	
Propylene oxide			✔	✔	✔
Selinium				✔	✔
Toluene				✔	✔
Xylene				✔	✔

Source: Ex. 400, p. C.5-13.

Public Health Table 2 shows both acute and chronic hazard indices are under the significance level of 1.0 and cancer risk is under the significant level of 10 in 1,000,000, indicating that no cancer or short- or long-term adverse health effects are expected.

Public Health Table 2
Operation Hazard/Risk at the Maximum Impact Receptor

Type of Hazard/Risk	Hazard Index/Risk	Significance Level	Significant?
Acute Noncancer	0.007	1.0	No
Chronic Noncancer	0.001	1.0	No
Individual Cancer	3.3 in one million	10 in one million	No

Source: Ex. 400, p. C.5-15.

5. Cooling Tower Emissions and Health Risks

Risks from cooling tower emissions stem from Legionellosis. This is a bacterium that is ubiquitous in natural aquatic environments and widely distributed in man-made water systems. It is the principal cause of legionellosis, more commonly known as Legionnaires' disease. Untreated or inadequately treated cooling systems, such as industrial cooling towers and building heating, ventilating, and air conditioning systems have been associated with outbreaks of legionellosis. (Ex. 400, p. C.5-19.)

According to the evidence, good preventive maintenance is very important in the efficient operation of cooling towers and other evaporative equipment. Preventive maintenance includes having effective drift eliminators, periodically cleaning the system if appropriate, maintaining mechanical components in working order, and maintaining an effective water treatment program with appropriate biocide concentrations. (Ex. 400, p. C.5-20.)

In order to ensure that Legionella growth is kept to a minimum, Condition of Certification **PUBLIC HEALTH-1** is necessary. This Condition specifically requires the project owner to prepare and implement a biocide and anti-biofilm agent monitoring program to ensure that proper levels of biocide and other agents are maintained within the cooling tower water at all times, that periodic measurements of Legionella levels are conducted, and that periodic cleaning is conducted to remove bio-film buildup. This will assure that the risk associated with bacterial growth and dispersal will be reduced to less than significant. (Ex. 400, p. C.5-20.)

6. Cumulative Impacts

For the purpose of the public health cumulative analysis, emissions from construction or operation of the GSEP could potentially combine with emissions from past, present and reasonably foreseeable projects to result in adverse health effects to the public. Cumulative impacts in the area of public health could occur if emission sources are close enough so that their plumes combine. Due to differences in emission source elevations, terrain features, wind direction, and other meteorological factors, it is unlikely that emission plumes from two or more facilities would combine unless they are located in very close proximity. Furthermore, dispersion of plumes tends to occur in parallel, preventing the mixing of plumes from separate locations. On the basis of numerous previous air dispersion modeling conducted by Staff to assess public health cumulative impacts, Staff finds that the geographic area considered for cumulative impacts on Public Health is only within the project boundaries or within 1/4 mile of project emission sources.

The only existing facility located within approximately nine miles of the project site are the Ironwood and Chuckwalla State Prisons, which have a “no” risk prioritization score according to CARB. This means that emissions from these facilities are either below the levels for which a health risk assessment is required or else the calculated risk from this facility is insignificant. The nearest existing source of emissions is Interstate 10, a major route for trucks delivering goods to and from California, located about 4 miles south of the GSEP. As mentioned above, none of these emission sources are close enough to cause cumulative impacts with the proposed GSEP. In conclusion, public health impacts of the GSEP project would not combine with impacts of any past, present, or reasonably foreseeable projects to result in cumulatively considerable local or regional impacts. (Ex. 400, p. C.5-25.)

FINDINGS OF FACT

Based on the uncontested evidence, we make the following findings and conclusions:

1. Construction and normal operation of the project will result in the release of criteria and noncriteria pollutants that have the potential to adversely impact public health.

2. Potential construction-related adverse health effects arise from diesel equipment emissions and fugitive dust. These criteria pollutants are

discussed in the **AIR QUALITY** section of this Decision, and will be mitigated to levels consistent with applicable standards.

3. Emissions of criteria pollutants, which are discussed in the **AIR QUALITY** section of this Decision, will be mitigated to insignificant levels consistent with applicable standards.

4. TAC emissions will be mitigated to levels consistent with applicable standards through implementation of conditions contained in the **AIR QUALITY** section.

5. Applicant performed a health risk assessment, using well-established scientific protocol, to analyze potential adverse health effects of toxic air contaminants.

6. The accepted method used by state regulatory agencies in assessing the significance for chronic non-carcinogenic public health effects of noncriteria pollutants is known as the hazard index method. A similar method is used for assessing the significance of potential carcinogenic effects.

7. Application of the hazard index method establishes that emission of non-criteria pollutants from the project will not cause chronic adverse public health effects.

8. The maximum non-cancer and the maximum cancer risks associated with the project are substantially below the significance thresholds commonly accepted for risk analysis purposes.

9. The project owner will implement a Cooling Water Management Plan to minimize the potential for growth of Legionella bacteria and other micro-organisms in cooling tower emissions.

10. Cumulative impacts from noncriteria pollutants were analyzed in accordance with the provisions of CEQA and are not expected to be significant.

CONCLUSIONS OF LAW

1. We therefore conclude that emissions of noncriteria pollutants from the construction and operation of the Genesis Project do not pose a significant direct, indirect, or cumulative adverse public health risk.

2. The project will comply with the applicable laws, ordinances, regulations, and standards specified in the appropriate portion of **Appendix A** of this Decision.

CONDITION OF CERTIFICATION

Public Health-1 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 the Cooling Technology Institute's "Best Practices for Control of Legionella" guidelines.

Verification: 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.

D. WORKER SAFETY AND FIRE PROTECTION

Industrial workers are exposed to potential health and safety hazards on a daily basis. Implementation of various existing laws and standards suffices to reduce these hazards to minimal levels. (Ex. 400, p. C.14-5.) Therefore, this subsection focuses on whether Applicant's proposed health and safety plans are in accordance with all applicable LORS and thus adequate to protect industrial workers. The record also addresses the availability and adequacy of fire protection and emergency response services, as well as potential threats from wildfires. The evidence on this topic was uncontested by all parties, except CURE (Ex. 1; 11; 51; 60; 62; 66; 400; 402; 433; 436; 517 – 522; 7/12/10 RT 28:11-14, 33:23-25, 39:10-14, 331:13-389:15; 391-423).

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Worker Safety

Industrial environments are potentially dangerous during construction and operation of facilities. Workers at the proposed Genesis Solar Energy Project (GSEP) will be exposed to loud noises, moving equipment, trenches, and confined space entry and egress problems. They may experience falls, trips, burns, lacerations, and numerous other injuries. They may be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, electrical sparks, and electrocution. (Ex. 400, p. C.14-5.)

Workers at the GSEP would be exposed to hazards typical of construction and operation of a solar thermal electric power generating facility. (Ex. 400, p. C.14-5). This solar power plant will present a unique work environment that includes a solar field located in the high desert. The solar field features thousands of mirrors that heat a heat transfer fluid (HTF) to approximately 750°F. The pipe containing the HTF will reach temperatures at the mirror focal point as high as 1100 °F. Experience at existing solar generating stations shows that these mirrors break, the pipes age, and HTF can leak and catch fire from ball joints or frayed flex hoses. The area under the solar arrays must be kept free from weeds and thus herbicides will be applied as necessary. Exposure to workers via inhalation and ingestion of dusts containing herbicides poses a health risk. Finally, workers will inspect the solar array for HTF leaks and broken mirrors at least once each day by driving up and down dirt paths between the rows of mirrors and even under the mirrors. Cleaning the mirrors will also be conducted on a routine schedule. All these activities will take place year-round and

especially during the summer months of peak solar power generation, when outside ambient temperatures routinely reach 115 °F and above. (Ex. 400, pp. C.14-9 to C.4-10.) Thus, it is important that the project have well-defined policies and procedures, training, hazard recognition, and controls to minimize injuries and protect workers.

The evidence extensively details the type and content of various plans which must be developed to ensure the protection of worker health and safety, as well as compliance with applicable LORS. (Ex. 400, pp. C.14-5 to C.14-9.) For example, the project owner will develop and implement a "Construction Safety and Health Program" and an "Operations and Maintenance Safety and Health Program," both of which must be reviewed by the Compliance Project Manager prior to project construction and operation. A separate "Injury and Illness Prevention Program," a "Personal Protective Equipment Program," an "Emergency Action Plan," a "Fire Prevention Plan," and other general safety procedures will be prepared for both the construction and operation phases of the project. (*Id*.) In addition, a worker heat stress protection plan that implements and expands on existing Cal OSHA regulations (8 Cal. Code Regs., § 3395) requiring heat illness prevention; and the development and implementation of Best Management Practices (BMP) for the storage and application of herbicides used to control weeds beneath and around the solar array will be implemented by the project owner.

Conditions of Certification **WORKER SAFETY-1** and **-2** ensure that these measures will be developed and implemented. In addition, the evidence shows that joint training exercises with the Riverside County Fire Department (RCFD) in fire suppression, rescue, hazmat spill response, and EMS response is critical to being prepared to address an emergency. Therefore, Condition of Certification **WORKER SAFETY-9** would require the project owner to participate in joint training exercises with the RCFD. The project owner would coordinate this training with other Energy Commission-licensed solar power plants within Riverside County such that the Genesis Project would only be required to host the annual training on a rotating basis with the other solar power plants. (Ex. 400, pp. C.14-7 to 4.14-9.)

OSHA and Cal-OSHA standards encourage employers to monitor worker safety by employing a "competent person" who has knowledge and experience enforcing workplace safety standards, can identify hazards relating to specific project operations, and has authority to take appropriate action. To implement the intent to provide a safe workplace during power plant construction, Condition **WORKER SAFETY-3** requires the project owner to designate a power plant

Construction Safety Supervisor. This individual will coordinate and implement the Construction and Operation Safety and Health Programs, as well as investigate any safety-related incidents and emergency responses. (Ex. 400, p. C.14-11.)

To reduce and/or eliminate safety hazards during project construction and operation, it is also necessary to employ a professional Safety Monitor. The Safety Monitor, who is hired by the project owner but reports to the Chief Building Official and the Compliance Project Manager (CPM), will track compliance with OSHA/Cal-OSHA regulations and serve as an on-site OSHA expert. This professional will periodically audit safety compliance during construction, commissioning, and the transition to operational status as well as ensure that safety procedures and practices are fully implemented. (Ex. 400, p. C.14-12.) Condition **WORKER SAFETY-4** describes the role of the Safety Monitor.

The project owner will maintain an automatic portable defibrillator on-site to provide immediate response in the event of medical emergency.[1] Condition **WORKER SAFETY-5** requires the project owner to ensure this device is available during construction and operation, and that appropriate personnel are trained to use it. (Ex. 400, p. C.14-26.)

To minimize potential exposure of workers and also the public to coccidioidomycosis or "Valley Fever" during soil excavation and grading, extensive wetting of the soil prior to and during construction activities should be employed and dust masks should be worn at certain times during these activities. The dust (PM10) control measures found in the Air Quality section of this Decision should be strictly adhered to in order to adequately reduce the risk of workers contracting Valley Fever. To provide additional protection to workers that could experience elevated exposure during construction activities, Condition of Certification **WORKER SAFETY-8** would require that the dust control measures found in proposed Conditions **AQ-SC3** and **AQ-SC4** be supplemented with additional requirements including implementing methods equivalent to the requirements of Rule 402 of the Kern County Air Pollution Control District (as amended Nov. 3, 2004). (Ex. 400, pp. C.14-12 to C.14-18.)

[1] Staff's testimony indicates that the potential for both work-related and non work-related heart attacks exists at power plants. The quickest medical intervention can be achieved with the use of an on-site defibrillator. Many modern industrial and commercial enterprises maintain defibrillators for emergency use. Staff therefore endorses this as an appropriate safety and health precaution. (Ex. 400, p. C.14-26.)

At the evidentiary hearing, Intervenor CURE raised concerns regarding potential harm to workers that may be associated with heat transfer fluid (HTF) spills and clean up. (7/12/10 RT 348:24-351:14). Similar concerns were raised by CURE at the evidentiary hearing for the Beacon Solar Energy Project (BSEP) on 3/22/10 and therefore we took official notice of the testimony and evidence provided in the BSEP proceeding (7/12/10 RT 332:14-23). As with the BSEP proceedings, most of the concerns raised by CURE had to do with spills and cleanup at GSEP, including worker exposure to benzene, which is covered in the **Waste Management** and **Public Health and Safety** sections of this Decision. At the evidentiary hearing for the Beacon Solar Energy Project, CURE's expert made general references to potential harm to workers from HTF spills, however, the testimony was not supported with any detailed evidence of actual specific harm to workers (BSEP 3/22/10 RT 426:16–427:7; 427:24–428:4). The BSEP Committee found that, according to Applicant's expert, in 20 years of history at the SEGS facilities, no workers had ever been harmed by HTF (BSEP 3/22/10 RT 460:13-461:7). Likewise, CURE's expert addressed the same concerns for HTF exposure in GSEP. The record shows in GSEP that the potential for injuries to workers caused by HTF spills are mitigated to a less than significant level by thorough implementation and use of various safety plans and programs (7/12/10 RT 358:16 – 359:7). We find that with the implementation of Conditions of Certification **WORKER SAFETY-1** through **WORKER SAFETY-8**, risks to the safety of GSEP workers will be reduced below significance.

The GSEP site lies within an area of the California desert which had wartime military training activity. Unexploded ordnance (UXO) are found occasionally on desert lands. CURE, also argues that mitigation to reduce impacts from UXO to construction worker safety below significance requires a specific UXO survey in the project area (Ex. 517, pp. 8-9; 7/12/10 RT 381:2-8). This issue is dealt with in detail in the **Waste Management** section of this Decision. There we found that the likelihood of encountering UXO at the GSEP site is low, but possible. Therefore, Condition of Certification **WASTE-5** will require a complete UXO identification, training and reporting plan which dictates that if an UXO is found, then a geophysical survey would be undertaken to investigate adjacent areas for surface, near surface or buried ordnance in all proposed land disturbance areas. Condition of Certification **WASTE-5** mitigates impacts from UXO to construction worker safety below significance.

2. Fire Protection and Emergency Response

Project construction and operation pose the potential for both small fires and major structural fires. Electrical sparks, combustion of fuel oil, hydraulic fluid, mineral oil, insulating fluid or flammable liquids, explosions, and over-heated equipment may cause small fires.

The project will rely upon both on-site and local fire protection services. The on-site fire protection system provides the first line of defense for such occurrences. The Construction Fire Prevention Plan (Condition **WORKER SAFETY-1**) must address and detail measures to minimize the likelihood of fires during construction. These measures include the placement of portable fire extinguishers, safety procedures, and training. (Ex. 400, p. C.14-18.) Local fire support services are under the RCFD jurisdiction. Station 45 (15 miles from the project site) in Blythe would the first responder with a response time of approximately 28 minutes. The next closest station would be Lake Tamarisk Station #49, located about 35 miles west of the GSEP with a response time of about 35 minutes. RCFD fire stations are staffed full-time with a minimum of three personnel per shift which include paramedics. (Ex. 400, p. C.14-4.)

During operation the project will meet the fire protection and suppression requirements of the California Fire Code, all applicable recommended National Fire Protection Association (NFPA) standards (including Standard 850 addressing fire protection at electric generating plants), and all Cal/OSHA requirements. Fire suppression elements will include both fixed and portable fire extinguishing systems. (Ex. 400, p. C.14-18.) The fire protection system will be designed to protect personnel and limit property loss and plant downtime in the event of a fire. In addition to the fixed fire protection system, smoke detectors, flame detectors, high temperature detectors, appropriate class of service portable extinguishers, and fire hydrants must be located throughout the facility at code-approved intervals. These systems are standard requirements of the NFPA and the Uniform Fire Code (UFC). (Ex. 400, p. C.14-18.)

We also require, in Condition of Certification **WORKER SAFETY-6**, that the project owner provide a second access point to ensure adequate fire department access for emergency vehicles and equip this secondary gate with either the Opticom System or a keypad for fire department personnel to open the gate. (Ex. 400, pp. C.14-18 to C.14-19; 7/12/10 RT 398:12-18, 401:12-24.)

The main – and only – planned access road to the GSEP site would be a paved road starting at the Wiley Wells Road interchange with I-10 and end approximately 6.5 miles later at the site. The evidence shows that if a hazmat spill occurred along I-10 near the Wiley Wells Road, or at the Wiley Wells Road interchange or rest area, the spill could close off all access to the power plant. If a fire, hazmat, or emergency medical service (EMS) event were to occur at the power plant, the RCFD would not be able to travel through a hazmat cloud to gain access to the GSEP site and the power plant would effectively be isolated. If the spilled hazmat vapor cloud were to drift towards the GSEP site, evacuation of power plant personnel would be impossible. Furthermore, if an accident on or wash-out of the main access road were to block the road, once again the facility would be isolated. (Ex. 400, p. C.14-19.)

A second road from I-10 to the site would have to go through sensitive habitat which would require extensive and time-consuming environmental and cultural assessment. The Bureau of Land Management (BLM) has tentatively and informally identified an existing dirt road coming off the Ford Dry Lake interchange and heading northeast to within approximately 2 miles of the GSEP site, a distance estimated at approximately seven miles, as a possible route for a second road. The evidence shows that placing a 24-foot wide all-weather gravel road at this location would potentially impact many biological and cultural areas. (Ex. 400, p. C.14-19.) The record indicates that an agreement between the Applicant and the RCFD concluded that a reasonable alternative would be no access road. (7/12/10 RT 418:6-15). Instead, the Applicant will purchase two all-terrain vehicles for the RCFD that can handle emergencies (7/12/2010 RT 417: 8-17). Ultimately, the Applicant and the RCFD agreed on terms which have now been incorporated into Condition of Certification **WORKER SAFETY-6** (7/12/10 RT 409:13-24).

Finally, Condition of Certification **WORKER SAFETY-1** requires the project owner, prior to construction and operation of the project, to provide the final Fire Prevention Program to the Compliance Project Manager and the local fire authorities for approval. The final Fire Prevention Program must contain a Construction Personal Protective Equipment Program; a Construction Exposure Monitoring Program; a Construction Injury and Illness Prevention Program; a Construction Heat Stress Protection Plan that implements and expands on existing Cal OSHA regulations as found in 8 CCR 3395; a Construction Emergency Action Plan; and a Construction Fire Prevention Plan.

The record shows that the GSEP would pose significant added demands on local fire protection services. In addition, the RCFD's Hazmat Response Team is not adequately equipped and staffed to respond to hazardous materials incidents at the proposed facility with an adequate response time. The GSEP would cause a significant individual and cumulative impact on the local fire department. Staff's expert testified that an agreement between the Applicant and the RCFD was the best way to resolve the issue, since these parties are in the best position to ascertain GSEP's impacts and appropriate mitigation measures (7/12/2010 RT 420:14-25 and 421:1-23). Ultimately, the Applicant and the RCFD agreed on terms which have now been incorporated into Condition of Certification **WORKER SAFETY-7**. Conditions of Certification **WORKER SAFETY-7** would require the GSEP to either reach an agreement with the RCFD regarding funding of its project-related share of capital costs to build fire protection/response infrastructure (e.g., a new fire station in the vicinity) and provide appropriate equipment or to fund fire department capital improvements in the amount of $850,000 and to make an annual payment of $375,000 to mitigate both its individual impact on the fire department and its share of a cumulative impact on the fire department. (7/12/2010 RT 421:3-23.)

Regarding temporary mitigation while construction of a new fire station is underway, since project-related impacts to the RCFD begin immediately, the project owner will be required to make the first annual payment for additional firefighters before construction begins and continue with those annual payments through decommissioning. The evidence shows that although the need for additional firefighters exists from the start, immediately adding firefighters to the nearest fire station (Station 45 at the Blythe Airport) is not easily accomplished. The station is equipped with two engines and one must be kept as a reserve at all times as per code and practice. The engine in use can only accommodate four firefighters as it is equipped with four seats and four sets of self-contained breathing apparatus. Since the need will be urgent upon the start of construction of the GSEP, the additional firefighters funded by the project will have to be dispersed to other stations until a new station can be completed. (Ex. 400, pp. C.14-20 to C.14-25.)

With the implementation of the Conditions of Certification **WORKER SAFETY-1, -2,** and **-9**, we find that the fire risks associated with the GSEP will be mitigated to less than significant.

3. Cumulative Impacts

The record shows that there are three projects (including the GSEP) or developments in the area or region that would require the response from off-site fire departments for fire, hazardous materials, or emergency medical services emergencies including the Blythe, Palen, and Genesis Solar Energy Projects. The need for fire department response to solar power plants may not be frequent but past experience has shown that there is a significant chance that it will occur. A significant cumulative Worker Safety/Fire Protection impact is defined as the simultaneous need for a fire department to respond to multiple locations such that its resources and those of the mutual aid fire departments (which routinely respond in every-day situations to emergencies at residences, commercial buildings, and heavy industry) are over-whelmed and cannot effectively respond. Existing locations that might require a fire department response along with those facilities which might likely be built were considered. Cumulative impacts are both possible and probable because despite the many safeguards implemented to prevent and control fires, hazardous material releases, and injuries or accidents, the distance of the GSEP site from the RCFD fire stations impacts the response times and available equipment. The GSEP's cumulative impacts on the local fire department in conjunction with other known projects in the area will be significant. (Ex. 400, p. C.14-30.)

As required by Condition of Certification **WORKER SAFETY-1** and **WORKER SAFETY-2**, the Applicant will develop and implement a fire prevention program for the GSEP independent of any other projects considered for potential cumulative impacts. As required by Condition of Certification **WORKER SAFETY-7**, the Applicant will be required to fund capital improvements and staffing for the RCFD. With mitigation measures contained in the Conditions below, the GSEP's contribution to a Worker Safety/Fire Protection cumulative impact will be less than significant. (Ex. 400, p. C.14-26.)

FINDINGS OF FACT

Based on the evidence, the Commission makes the following findings:

1. Industrial workers are exposed to potential health and safety hazards on a daily basis.

2. To protect workers from job-related injuries and illnesses, the project owner will implement comprehensive Safety and Health Programs for both the construction and the operation phases of the project.

3. The project will employ an on-site professional Safety Monitor during construction and operation.

4. The GSEP will include on-site fire protection and suppression systems as the first line of defense in the event of a fire.

5. The Riverside County Fire Department (RCFD) will provide fire protection and emergency response services to the project.

6. Condition of Certification **WORKER SAFETY-6** requires that the project owner provide a second access point to ensure adequate fire department access for emergency vehicles and equip this secondary gate with either the Opticom System or a keypad for fire department personnel to open the gate.

7. The operation of the GSEP, without mitigation, will result in significant direct and cumulative impacts on the Riverside County Fire Department.

8. Adherence to Condition of Certification **WORKER SAFETY-8** and Conditions **AQ-SC3** and **AQ-SC4** will reduce the risk of workers or the public contracting Valley Fever to a less than significant level.

9. With Condition of Certification **WORKER SAFETY-7**, fire and emergency service resources are adequate to meet project needs.

10. With the implementation of the Conditions of Certification **WORKER SAFETY-1** through **WORKER SAFETY-8,** impacts to worker safety and fire protection from the GSEP will be less than significant.

11. With the implementation of the Conditions of Certification **WORKER SAFETY-1,** fire risks associated with the GSEP will be mitigated to less than significant.

12. With mitigation measures contained in the conditions below, the GSEP's contribution to a Worker Safety/Fire Protection cumulative impact will be less than significant.

CONCLUSION OF LAW

1. We therefore conclude that the Genesis Solar Energy Project will not create significant health and safety impacts to workers, and will comply

with all applicable laws, ordinances, regulations, and standards listed in the appropriate portion of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

WORKER SAFETY-1 The project owner shall submit to the Compliance Project Manager (CPM) a copy of the Project Construction Safety and Health Program containing the following:

- a Construction Personal Protective Equipment Program;
- a Construction Exposure Monitoring Program;
- a Construction Injury and Illness Prevention Program;
- a Construction heat stress protection plan that implements and expands on existing Cal OSHA regulations as found in 8 CCR 3395;
- a Construction Emergency Action Plan; and
- 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.

Verification: 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.

WORKER SAFETY-2 The project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety and Health Program containing the following:

- an Operation Injury and Illness Prevention Plan;
- an Operation heat stress protection plan that implements and expands on existing Cal OSHA regulations (8 CCR 3395);
- a Best Management Practices (BMP) for the storage and application of herbicides;
- an Emergency Action Plan;
- Hazardous Materials Management Program;

- Fire Prevention Plan (8 Cal Code Regs. § 3221); and
- 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.

Verification: 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.

WORKER SAFETY-3 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:

- have overall authority for coordination and implementation of all occupational safety and health practices, policies, and programs;
- assure that the safety program for the project complies with Cal/OSHA and federal regulations related to power plant projects;
- assure that all construction and commissioning workers and supervisors receive adequate safety training;
- complete accident and safety-related incident investigations and emergency response reports for injuries and inform the CPM of safety-related incidents; and
- assure that all the plans identified in Conditions of Certification **WORKER SAFETY-1** and **-2** are implemented.

Verification: 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:

- record of all employees trained for that month (all records shall be kept on site for the duration of the project);
- summary report of safety management actions and safety-related incidents that occurred during the month;
- report of any continuing or unresolved situations and incidents that may pose danger to life or health; and
- report of accidents and injuries that occurred during the month.

WORKER SAFETY-4 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.

Verification: At least sixty (60) 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.

WORKER SAFETY-5 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.

Verification: 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.

WORKER SAFETY-6 The project owner shall:

- Identify and provide a second access gate for emergency personnel to enter the site. This secondary access gate shall be at least one-

quarter mile from the main gate and shall be accessed via a gravel road off the main road near the facility fence line. The location shall be submitted to the Riverside County Fire Department (RCFD) for review and comment and to the CPM for review and approval.

- Provide two all-terrain fire engines, as identified and chosen by the RCFD, for emergency personnel to enter the site in the event the access to the plant is unavailable. The applicant will be required to provide funding for replacement of similar equipment based on the 20 year depreciation methodology used by the Riverside County Fire Department throughout the life of the project.
- If at some point in the future an alternate means of emergency access to the project site, other than the all-terrain fire engines, is available, reviewed by the RCFD, and approved by the CPM, the need for the project owner to provide the all-terrain fire engines or funding for equipment maintenance or replacement would no longer be required.

Verification: At least 60 days prior to the start of site mobilization, the project owner shall submit to the Riverside County Fire Department and the CPM preliminary plans showing the location of a second access gate to the site, a description of how the gate will be opened by the fire department, and a description and map showing the location and composition of the gravel road that will provide access from the main access road to the second access gate. At least thirty (30) days prior to the start of site mobilization, the project owner shall submit final plans 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 180 days prior to the initial receipt of heat transfer fluid on-site, the project owner shall:

a. Submit proof to the CPM in the form of a signed statement from the Chief of the RCFD that the all-terrain fire engines have been delivered to the RCFD and are acceptable to the RCFD.

b. If an alternative means of emergency access to the site is provided prior or subsequent to the purchase of the all-terrain fire engines, the project owner shall submit to the RCFD for review and comment and to the CPM for review and approval plans describing the specifications for the alternative means of emergency access. The project owner shall also provide to the CPM documentation demonstrating that the RCFD approves the alternate means.

WORKER SAFETY-7 The project owner shall either:

(1) 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

(2) 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.

Verification: 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 or

(2) Documentation that a letter of credit in the amount of $850,000 has been provided to the RCFD and that a letter of credit in the amount of $375,000 will be provided each year at the start of commercial operations.

WORKER SAFETY-8 The project owner shall develop and implement an enhanced Dust Control Plan that includes the requirements described in **AQ-SC3** and additionally requires:

i. site worker use of dust masks (NIOSH N-95 or better) whenever visible dust is present;

ii. implementation of methods consistent with Rule 402 of the Kern County Air Pollution Control District (as amended Nov. 3, 2004); and

iii. implementation of enhanced dust control methods (increased frequency of watering, use of dust suppression chemicals, etc. consistent with **AQ-SC4**) immediately whenever visible dust comes from or onto the site or when PM10 measurements exceed 50 $\mu g/m^3$.

Verification: At least sixty (60) 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-9 The project owner shall participate in 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.

Verification: At least ten (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 the annual compliance report to the CPM, the project

owner shall include the date, list of participants, training protocol, and location of the joint training.

E. HAZARDOUS MATERIALS MANAGEMENT

This analysis considers whether the construction and operation of the Genesis Solar Energy Project (GSEP) will create significant impacts to public health and safety resulting from the use, handling, transportation, or storage of hazardous materials. This analysis does not address the potential exposure of workers to hazardous materials used at the project site, which is covered in the **Worker Safety and Fire Protection** portion of this Decision. Several site-specific factors affect the potential for project-related hazardous materials to cause adverse impacts. These include meteorological conditions, terrain characteristics, any special site factors, and the proximity of population centers and sensitive receptors. In addition, sensitive subgroups such as the young, elderly, and those with existing conditions may be at heightened risk from exposure to emitted pollutants. (Ex. 400, p. C.4-6.)

The evidence submitted by Applicant and Staff regarding heat transfer fluid (HTF) was disputed by Intervenor CURE. The Committee took official notice of the transcript of the evidentiary hearing in Beacon Solar Energy Project (08-AFC-2) (BSEP). ((Exs. 1; 12; 60; 63; 400; 402; 517; 518; 519; 520; 521; 522; 7/12/10 RT 331:13-389:15; BSEP 3/22/10 RT 424:9 – 510:20).).

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Potential Risks

The evidence described the method used to assess risks posed by hazardous materials. This method included the following elements:

- A review of chemicals, the amounts proposed for on-site use, and a determination of the need and appropriateness of their use.
- Chemicals which will be used in small amounts, or whose physical state is such that there is virtually no chance that a spill will migrate off the site and impact the public, were removed from further consideration.
- Measures proposed to prevent spills were reviewed and evaluated. These included engineering controls such as automatic shut-off valves and different size transfer-hose couplings, as well as administrative controls such as worker training and safety management programs.
- Measures proposed to respond to accidents were reviewed and evaluated. These measures included engineering controls such as catchment basins and methods to keep vapors from spreading, as well as administrative controls such as training emergency response crews.

- An analysis of the theoretical impacts on the public of a worst-case spill of hazardous materials even with the mitigation measures in place. (Ex. 400, pp. C.4-2 to 4.4-3.)

Hazardous materials used during construction will include paint, solvents, gasoline, diesel fuel, motor oil, lubricants and welding gas. No acutely toxic hazardous materials will be used on site during construction, and none of these materials pose significant potential for off-site impacts as a result of the quantities on site, their relative toxicity, their physical state, and/or their environmental mobility. Any impact of spills or other releases of these materials will be limited to the site because of the small quantities involved, their infrequent use (and therefore reduced chances of release), and/or the temporary containment berms used by contractors. Petroleum hydrocarbon-based motor fuels, mineral oil, lube oil, and diesel fuel are all very low volatility and represent limited off-site hazards even in larger quantities. (Ex. 400, pp. C.4-7.)

Appendix A (incorporated in Condition of Certification **HAZ-1** at the end of this section) lists the hazardous materials that will be used and stored on-site. Condition **HAZ-1** prohibits the project owner from using hazardous materials not listed in **Appendix A**, or storing them in greater quantities than specified, without prior approval of the Energy Commission's Compliance Project Manager (CPM). During operations, hazardous chemicals such as cleaning agents, water treatment chemicals, welding gasses, activated carbon, and various other chemicals other will be used and stored on-site and represent limited off-site hazard due to their small quantities, low volatility, and/or low toxicity. (Ex. 400, p. C.4-7.)

Natural gas at the proposed GSEP will be used to fuel the auxiliary boilers. It will not be stored on-site but delivered by Southern California Edison via a new 6-mile pipeline that will connect to an existing main north of Interstate 10 (I-10). The risk of a fire and/or explosion on site can be reduced to insignificant levels through adherence to applicable codes and the development and implementation of effective safety management practices. The National Fire Protection Association (NFPA) code 85A requires both the use of double-block and bleed valves for gas shut off and automated combustion controls. These measures will significantly reduce the likelihood of an explosion in gas-fired equipment. The safety management plan proposed by the Applicant will address the handling and use of natural gas, and will significantly reduce the potential for equipment failure because of either improper maintenance or human error. (Ex. 400, p. C.4-8.)

The risk of a fire and/or explosion on-site can be reduced to insignificant levels through adherence to applicable codes and the development and implementation of effective safety management practices. The NFPA codes (NFPA 54, 58 and 85A) require the use of double block and bleed valves for gas shut-off and automated combustion controls. These measures will significantly reduce the likelihood of an explosion in gas-fired equipment. The Safety Management Program (**Condition HAZ-3**) will address both the handling and use of natural gas and significantly reduce the potential for equipment failure due to either improper maintenance or human error. (Ex. 400, p. C.4-7.)

Therminol VP1 is the heat transfer fluid (HTF) that will be used in the solar panels to collect solar heat and transfer it in order to generate steam to run the steam turbines. Therminol is a mixture of 73.5 percent diphenyl ether and 26.5 percent biphenyl, and is a solid at temperatures below ~54 °F. Therminol can therefore be expected to remain liquid if a spill occurs. While the risk of off-site migration is minimal, Therminol is highly flammable and fires have occurred at other solar generating stations that use it. Approximately 2.0 million gallons of HTF will be contained in the GSEP the ullage tank, the expansion tank, the HTF heaters, pipes and heat exchanger during project operation.

Isolation valves will be placed throughout the HTF piping system designed to automatically block off sections of the piping in which a loss of pressure is detected. The record indicates that the placement of additional isolation valves in the HTF pipe loops throughout the solar array will add significantly to the safety and operational integrity of the entire system by allowing a loop to be closed if a leak develops in a ball joint, flex-hose, or pipe, instead of closing off the entire HTF system and shutting down the plant. Condition of Certification **HAZ-4** requires the installation of a sufficient number of isolation valves that can be activated either manually or remotely. (Ex. 400, p. C.4-8.) The record indicates that the isolation valves will be designed to limit the maximum HTF leakage in any continuous loop system to 1250 gallons. (7/12/10 RT 365:10-12) Inspection and maintenance procedures, including-daily visual inspections of the components within the entire HTF system on operating days will reduce the potential for smaller leaks. Specifically, the requirement to inspect and fix leaks is provided under Condition of Certification **AQ-13**. (Ex. 400, pp., C.l-55-C.1-56.) Additional administrative controls are required by Conditions of Certification **HAZ-2**: preparation of a Hazardous Materials Business Plan, a Process Safety Management Plan, and a Spill Prevention, Control, and Countermeasure Plan) and **HAZ-3** (development of a Safety Management Plan). (Ex. 400, p. C4-lO.)

With the implementation of these Conditions of Certification, we find that impacts from handling HTF will be reduced below significance.

2. Risk Mitigation

The potential for accidents resulting in the release of hazardous materials is greatly reduced by the implementation of a Safety Management Program (see **HAZ-3**), which includes both engineering and administrative controls. Engineering controls help prevent accidents and releases (spills) from moving off-site and impacting the community by incorporating engineering safety design criteria into the project's design. Administrative controls help prevent accidents and releases from moving off-site and impacting the community by establishing worker training programs and process safety management programs. (Ex. 400, pp. C.4-9 to C.4-10.) Note that the GSEP site is in a remote desert area with the closest residential community comprised of the Ironwood and Chuckwalla State Prisons located approximately nine miles away.

The GSEP engineering safety features include:

- storage of small quantity hazardous materials in original, properly labeled containers;
- construction of secondary containment areas surrounding each of the bulk hazardous materials storage areas designed to contain accidental releases that might happen during storage or delivery plus the volume of rainfall associated with a 25-year, 24-hour storm;
- physical separation of stored chemicals in isolated containment areas in order to prevent accidental mixing of incompatible materials, which could result in the evolution and release of toxic gases or fumes;
- installation of a fire protection system for hazardous materials storage areas; and,
- continuous monitoring of HTF piping system by plant staff and by automatic pressure sensors designed to trigger isolation valves if a leak is detected. (Ex. 400, p. C.4-9.)

Condition of Certification **HAZ-2** requires the Applicant to prepare a Hazardous Materials Business Plan that will incorporate state requirements for the handling of hazardous materials, including worker training on chemical hazards, health and safety issues, hazard communication, proper use of personal protective equipment, operation and maintenance of systems that use hazardous materials,

fire safety and prevention, as well as emergency response actions including facility evacuation, hazardous material spill cleanup. Federal regulations require a Spill Prevention Control and Countermeasure Plan for petroleum-containing hazardous materials. (Ex. 400, p. C.4-9.)

The GSEP project owner will be required to designate an individual with the responsibility and authority to ensure a safe and healthful workplace. This project health and safety official will oversee the health and safety program and have authority to halt any action or modify any work practice to protect the workers, facility, and the surrounding community if the health and safety program is violated (see also the **Worker Safety and Fire Protection** section in this Decision). (Ex. 400, p. C.4-9.)

GSEP plant personnel will be trained as a hazardous materials response team which will be the first responder to hazardous materials incidents. In the event of a large incident involving hazardous materials, backup support will be provided by the Riverside County Fire Department which has a hazmat response unit capable of handling any incident at the proposed GSEP and will respond in about 1.5-2 hours. (Ex. 400, p. C.4-10.)

Nevertheless, the facility will prepare and implement a Spill Prevention Control and Countermeasures (SPCC) Plan which includes information on hazardous materials contingency and emergency response procedures, spill containment and prevention systems, personnel training, spill notification, on-site spill containment, prevention equipment and capabilities, etc. Emergency procedures will be established which include evacuation, spill cleanup, hazard prevention, and emergency response. (Ex. 400, p. C.4-10.)

Finally, regarding the prevention of impacts and mitigation of HTF spills, CURE's expert testified at length that the Conditions of Certification in the Hazardous Materials section of the Revised Staff Assessment (Ex. 400) failed to address his concerns about the safe handling of HTF spills. (7/12/10 RT 375:19-378:8.) However, his testimony focuses entirely on hazardous waste, which, as explained by Staff's expert, is distinct from hazardous materials (7/12/10 RT 358:3-8). Therefore, CURE's issues regarding HTF spills are handled in the **Waste Management** section of this Decision.

3. Transportation Risk Reduction

The evidence shows that transport of HTF poses the predominant risk associated with hazardous materials being delivered to the project site. Approximately two million gallons of HTF will be transported to the site before construction is complete, requiring roughly 330 deliveries (assuming about 6,000 gallons per tanker). The risk of exposure to significant concentrations of HTF during transportation to the facility is insignificant because of the remote possibility that an accidental release of a sufficient quantity could be dangerous to the public. The transportation of similar volumes of hazardous materials on the nation's highways is neither unique nor infrequent. The evidence establishes, and we find, that the risk of impact to the public resulting from accidental release of HTF during transportation to the facility is insignificant. (Ex. 400, p. C.4-11.)

4. Seismic Issues

The record shows that an earthquake could cause the failure of a GSEP hazardous materials storage tank and/or solar field piping. An earthquake could also cause the failure of the secondary containment system (berms and dikes), as well as electrically controlled valves and pumps. The failure of all these preventive control measures might then result in leaks of chemicals that may cause fires or impact the environment. The Applicant stated that the piping in the solar array will be constructed to be flexible and to allow movement (necessary to accommodate thermal expansion). The piping will be attached with ball joints and won't be fixed to a rigid structure; therefore reducing the likelihood of failure during an earthquake. (Ex. 400, p. C.4-11.)

The evidence indicates that after the January 1994 Northridge earthquake, some damage was caused to several large and small storage tanks at the water treatment system of a cogeneration facility. The tanks with the greatest damage, including seam leakage, were older tanks, while newer tanks sustained lesser damage with displacements and attached line failures. Similar analysis of the February 2001 Nisqually earthquake near Olympia, Washington showed no hazardous materials storage tanks were impacted by this quake. GSEP will be designed and constructed to the applicable standards of the 2007 California Building Code for Seismic Zone 4. On the basis of occurrences at Northridge with older tanks and the lack of failures during the Nisqually earthquake with newer tanks, the record discloses, and we find, that tank failures at the GSEP during seismic events are not likely and do not represent a significant risk to the public. (Ex. 400, p. C.4-12.)

5. Site Security

The hazardous materials used by the GSEP are listed by several federal agencies (USEPA, Homeland Security, DOJ) in Vulnerability Assessments requiring special site security measures to prevent unauthorized access. In order to ensure that this facility (or a shipment of hazardous material) is not the target of unauthorized access, Conditions of Certification **HAZ-5** and **HAZ-6** address both construction security and operational security plans. These plans will require the implementation of site security measures. (Ex. 400, p. C.4-12.)

The evidence categorizes the GSEP as “low vulnerability” but security measures for this facility are still required. The security measures include perimeter fencing and breach detectors, possibly guards, alarms, site access procedures for employees and vendors, site personnel background checks, and law enforcement contact in the event of a security breach. Site access for vendors will be strictly controlled. Consistent with current state and federal regulations governing the transport of hazardous materials, hazardous materials vendors will have to maintain their transport vehicle fleets and employ only drivers who are properly licensed and trained. The project owner will be required, through contractual language with vendors, to ensure vendors supplying hazardous materials strictly adhere to the U.S. DOT requirements that hazardous materials vendors prepare and implement security plans under 49 CFR 172.800 and ensure that all hazardous materials drivers are in compliance with personnel background security checks under 49 CFR Part 1572, Subparts A and B. (Ex. 400, p. C.4-13.)

6. Cumulative Risks

The record contains analysis of the potential for impacts due to a simultaneous release of any of the hazardous chemicals from the GSEP with any other nearby facilities. Because of the small amounts of the hazardous chemicals to be stored at the facility, the evidence shows that there is practically no possibility of producing an off-site impact. The Applicant will develop and implement a hazardous materials handling program for the GSEP independent of any other projects considered for potential cumulative impacts. The facility, as proposed by the Applicant and with the additional mitigation measures proposed by Staff, poses a minimal risk of accidental release that could result in off-site impacts. It is unlikely that an accidental release that has very low probability of occurrence (about one in one million per year) will independently occur at this site and another facility at the same time. Therefore, the record concludes that the facility

will not contribute to a significant hazardous materials-related cumulative impact. (Ex. 400, pp. C.4-17 to C.4-18.)

FINDINGS OF FACT

Based on the uncontroverted evidence of record, the Commission makes the following findings and conclusions:

1. The Genesis Solar Energy Project will use hazardous materials during construction and operation, including natural gas and a heat transfer fluid (HTF) called Therminol VP1.

2. The major public health and safety dangers associated with these hazardous materials include the accidental release of Therminol VP1 as well as fire and explosion from natural gas.

3. With the implementation of Conditions of Certification **HAZ-2** through **HAZ-4** and **AQ-13**, we find that impacts from handling HTF will be reduced below significance.

4. The risk of fire and explosion from natural gas will be reduced to insignificant levels through adherence to applicable codes and the implementation of effective safety management practices.

5. The project owner will submit an approved Safety Management Plan for handling propane and an approved Hazardous Materials Business Plan prior to delivery of any hazardous materials to the site.

6. Therminol is highly flammable and fires have occurred at other solar generating stations that use it.

7. The placement of additional isolation valves in the HTF pipe loops throughout the solar array will add significantly to the safety and operational integrity of the entire system by allowing a loop to be closed if a leak develops in a ball joint, flex-hose, or pipe.

8. Condition of Certification **HAZ-4** requires the installation of a sufficient number of isolation valves that can be activated either manually or remotely.

9. Isolation valves will substantially reduce and mitigate HTF spills.

10. The containment, berming, and secondary containment of the existing design of the GSEP is sufficient to safeguard against off-site migration of hazardous materials.

11. The potential for accidents resulting in the release of hazardous materials is greatly reduced by the implementation of a Safety Management Program as required by Condition of Certification **HAZ-3**.

12. The Riverside County Fire Department HazMat Unit is adequately trained and equipped to respond to an emergency at GSEP in a timely manner.

13. Potential impacts from the other hazardous substances used on-site are not considered significant since quantities will be limited and appropriate storage will be maintained in accordance with applicable law.

14. The risk of impact to the public resulting from accidental release of HTF during transportation to the facility is insignificant.

15. Tank failures at the GSEP during seismic events are not likely and do not represent a significant risk to the public.

16. Conditions of Certification **HAZ-5** and **HAZ-6** require both construction and operational site security measures.

17. There is little (if any) possibility that vapor plumes will combine to produce an airborne concentration that will present a significant cumulative risk.

18. With implementation of the Conditions of Certification, below, the Genesis Solar Energy Project will comply with all applicable laws, ordinances, regulations, and standards related to hazardous materials management as identified in the evidentiary record and in the pertinent portion of **Appendix A** of this Decision.

CONCLUSION OF LAW

1. The Commission concludes, therefore, that the use of hazardous materials by the Genesis Solar Energy Project will not result in any significant adverse public health and safety impacts.

CONDITIONS OF CERTIFICATION

HAZ-1 The project owner shall not use any hazardous materials not listed in Appendix A, below, or in greater quantities or strengths than those identified by chemical name in Appendix A, below, unless approved in advance by the Compliance Project Manager (CPM).

Verification: The project owner shall provide to the CPM, in the Annual Compliance Report, a list of hazardous materials contained at the facility.

HAZ-2 The project owner shall concurrently provide a Hazardous Materials Business Plan (HMBP), a Spill Prevention, Control, and Countermeasure Plan (SPCC), and, if applicable, 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 shall then be provided to the RCEHD for information and to the CPM for approval.

Verification: At least 60 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, a Spill Prevention, Control, and Countermeasure Plan, and, if applicable, a Process Safety Management Plan to the CPM for approval.

HAZ-3 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.

Verification: At least sixty (60) 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.

HAZ-4 The project owner shall place an adequate number of isolation valves in the Heat transfer Fluid (HTF) pipe system for section and loop isolation in the event of a fluid leak. These valves shall be actuated either manually or remotely depending on location and function. 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.

Verification: At least thirty (30) days (or less if agreed to by the CPM) 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.

HAZ-5 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.

Verification: At least thirty (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.

HAZ-6 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;

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;

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;

6. site access controls for employees, contractors, vendors, and visitors;

7. a statement(s) (refer to sample, **ATTACHMENT C**), signed by the owners or authorized representative of hazardous materials 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;

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 able to pan, tilt, and zoom, have low-light capability, and are able to view the outside entrance to the control room and the front gate; and,

9. additional measures to ensure adequate perimeter security consisting of either:

   A. security guard(s) present 24 hours per day, 7 days per week; **<u>or</u>**

   B. power plant personnel on site 24 hours per day, 7 days per week, and one of the following:

      Perimeter Beach Protectors or

      CCTV able to view both site entrance gates and 100% of the power block area perimeter.

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— transformers, gas lines, and compressors—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.

Verification: At least thirty (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.

HAZARDOUS MATERIALS
APPENDIX A

Hazardous Materials Proposed for Use at the GSEP

Hazardous Materials Appendix A

Hazardous Materials Proposed for Use at the GSEP

Material	CAS No.	Application	Hazardous Characteristics	Maximum Quantity On Site	CERCLA SARA RQ[a]
Acetylene	74-86-2	Welding gas	Health: moderate toxicity Physical: toxic	600 cubic feet	
Argon	7440-37-1	Welding gas	Health: low toxicity Physical: non-flammable gas	600 cubic feet	
Carbon Dioxide			Health: low toxicity Physical: non-flammable gas	15 tons	
Diesel Fuel		Equipment refueling and emergency diesel fire pump	Health: low toxicity Physical: combustible liquid	3,600 gallons	
Fertilizer Monopotassium Phosphate		Treatment of HTF contaminated soil	Health: low toxicity Physical: irritant	250 pounds	
Fertilizer Urea		Treatment of HTF contaminated soil	Health: low toxicity Physical: N/A	250 pounds	
Hydraulic Fluid		High-pressure combustion turbine starting system, turbine control valve actuators	Health: low to moderate toxicity Physical: Class IIIB combustible liquid	500 gallons in equipment, maintenance inventory of 110 gallons in 55-gallon steel drums	
Hydrogen		Steam turbine generator cooling	Health: low toxicity Physical: flammable gas	20,000 SCF	
Lube Oil		Lubricate rotating equipment (e.g., gas turbine and steam-turbine bearings)	Health: low toxicity Physical: N/A	10,000 gallons in equipment and piping, additional maintenance inventory of up to 550 gallons in 55-gallon steel drums	

Material	CAS No.	Application	Hazardous Characteristics	Maximum Quantity On Site	CERCLA SARA RQ[a]
Mineral Insulating Oil		Transformers/switchyard	Health: low toxicity Physical: N/A	32,000	
Natural Gas (Methane)	74-82-8	Auxiliary boiler operation	Health: low toxicity Physical: flammable gas	No on-site storage, up to 140 pounds of natural gas in equipment and piping	
Nitrogen	7727-37-9		Health: low toxicity Physical: flammable gas	7,500 pounds	
Oxygen	7782-44-7	Welding gas	Health: low toxicity Physical: oxidizer	600 cubic feet	
Sodium Hypochlorite (12.5%)		Cooling tower biological control	Health: high toxicity Physical: Poison-B, corrosive	8,500 gallons	100 pounds
Sulfur Hexaflouride		230-kV breaker insulating medium	Health: none Physical: none		
Sulfuric Acid (29.5%) solution			Health: high toxicity Physical: corrosive and water reactive	2,000 gallons	1,000 pounds
Sulfuric Acid (93%) solution			Health: high toxicity Physical: corrosive and water reactive	8,500 gallons	1,000 pounds
Therminol VP-1 Diphenyl Ether (73.5%) Biphenyl (26.5%)		Heat transfer fluid in the solar array	Health: moderate toxicity Physical: irritant; combustible liquid (Class III-B)	2.0 MM gallons	100 pounds
Water Treatment Chemical NALCO Tri-Act 1800 Cyclohexlyamine (5 – 10%) Monoehtanolamine (10 – 30%)			Health: high toxicity Physical: corrosive, class II combustible liquid	800 gallons	

Material	CAS No.	Application	Hazardous Characteristics	Maximum Quantity On Site	CERCLA SARA RQ[a]
Methoxyproplyamine (10 – 30%)					
Water Treatment Chemical NALCO Elimin-Ox Carbohydazide (5 – 10%)			Health: moderate toxicity Physical: corrosive	800 gallons	
Water Treatment Chemical NALCO 3D Trasar 3DT185 Phosphoric Acid (60 – 100%)			Health: high toxicity Physical: corrosive	800 gallons	
Water Treatment Chemical NALCO 3D Trasar 3DT177 Phosphoric Acid (30%)			Health: moderate toxicity Physical: irritant	800 gallons	
Water Treatment Chemical NALCO 3D Trasar 3DT190			Health: low toxicity Physical: irritant	800 gallons	
Water Treatment Chemical NALCO Acti-Brom ® 7342 Sodium Bromide			Health: low toxicity Physical: irritant	800 gallons	
Water Treatment Chemical NALCO pHreedom ® 5200M Sodium salt of phosphonomethylated diamine			Health: low to moderate toxicity Physical: irritant	800 gallons	
Water Treatment Chemical NALCO PCL-1346			Health: low toxicity Physical: irritant	800 gallons	

Material	CAS No.	Application	Hazardous Characteristics	Maximum Quantity On Site	CERCLA SARA RQ[a]
Water Treatment Chemical NALCO Permacare ® PC-7408 Sodium Bisulfite			Health: low toxicity Physical: irritant	800 gallons	
Water Treatment Chemical NALCO BT-3000 Sodium Hydroxide Sodium Tripolyphosphate			Health: high toxicity Physical: corrosive	800 gallons	
Water Treatment Chemical NALCO 8338 Sodium Nitrate Sodium Tolytriazole Sodium Hydroxide			Health: moderate toxicity Physical: toxic	800 gallons	

Source: GSEP 2009a **Table 5.12-1**

a. Reportable quantities for a pure chemical, per the Comprehensive Environmental Response, Compensation, and Liability Act.

SAMPLE CERTIFICATIONS

(Attachments A, B, and C)

SAMPLE CERTIFICATION (Attachment A)

Affidavit of Compliance for Project Owners

I, _____
(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of:

_____
(Company name)

for employment at:

_____
(Project name and location)

have been conducted as required by the California Energy Commission Decision for the above-named project.

_____
(Signature of Officer or Agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

SAMPLE CERTIFICATION (Attachment B)

Affidavit of Compliance for Contractors

I, _____
(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of:

_____
(Company name)

for contract work at:

_____
(Project name and location)

have been conducted as required by the California Energy Commission Decision for the above-named project.

_____
(Signature of Officer or Agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

SAMPLE CERTIFICATION (Attachment C)

Affidavit of Compliance for Hazardous Materials Transport Vendors

I,

_____

(Name of person signing affidavit)(Title)

do hereby certify that the below-named company has prepared and implemented security plans in conformity with 49 CFR 172.880 and has conducted employee background investigations in conformity with 49 CFR 172, subparts A and B:

_____

(Company name)

for hazardous materials delivery to:

_____

(Project name and location)

as required by the California Energy Commission Decision for the above-named project.

_____

(Signature of Officer or Agent)

Dated this _____ day of _____, 20 _____.

THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.

F. WASTE MANAGEMENT

The Genesis Solar Energy Project (GSEP) will generate nonhazardous and hazardous wastes during construction and operation. This section reviews the project's waste management plans for reducing the risks and environmental impacts associated with handling, storage, and disposal of project-related nonhazardous and hazardous wastes.

Nonhazardous wastes are degradable or inert materials, which do not contain concentrations of soluble pollutants that could degrade water quality and are therefore eligible for disposal at Class II or III disposal facilities. (Cal. Code Regs., tit. 14, § 17200 et seq.)

Hazardous waste consists of materials that exceed criteria for toxicity, corrosivity, ignitability, or reactivity as established by the California Department of Toxic Substances Control (DTSC). (See California Health and Safety Code, § 25100 et seq.; Hazardous Waste Control Act of 1972, as amended; and Cal. Code Regs., tit. 22, § 66261.1 et seq.) State law requires hazardous waste generators to obtain U.S. EPA identification numbers and contract with registered hazardous waste transporters to transfer hazardous waste to appropriate Class I disposal facilities. (Cal. Code Regs., tit. 22, § 66262.10 et seq.)

Evidence submitted by Applicant and Staff regarding heat transfer fluid (HTF) was disputed by Intervenor CURE. The Committee took official notice of the transcript of the evidentiary hearing in Beacon Solar Energy Project (08-AFC-2) (BSEP). (Ex. 1, 11, 12, 60, 63, 400, 402, 517, 518, 519, 520, 521, 522; 7/12/10 RT 28:11-14, 33:23-25, 39:10-14, 331:13-389:15; BSEP 3/22/10 RT 424:9–510:20).

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Site Excavation

The GSEP site is approximately 4,640 acres of public land administered by the Bureau of Land Management (BLM). The project site is located in east Riverside County about 25 miles west of Blythe and 27 miles east of Desert Center. The completed site will occupy an estimated 1,800 acres at the main facility located approximately four miles north of Interstate 10 (I-10). An additional 90 acres of right-of-way is required for the linear facilities that extend south and east from the

site to reach I-10; the transmission line will continue south of I-10 to connect with the Blythe Energy Project Transmission Line. (Ex. 400, p. C.13-7.)

The certification process requires a Phase I Environmental Site Assessment (ESA) to provide the history of how the site has been used and a list of hazardous waste releases on or near the site to document the presence of any actual or potential soil or water contamination. If there is reasonable potential that the site contains hazardous substances, a Phase II ESA must be conducted to analyze the contamination and to establish a remediation plan.

A Phase I Environmental Site Assessment (ESA) was completed for the project, including the transmission line and pipeline route. The ESA did not identify any Recognized Environmental Conditions (RECs) in connection with historic or current site operations. The 1,800 acre project site and 90 acres of linear access road consists of undeveloped BLM land only used for recreation. There are no existing roads, structures on the project site or adjoining lands. In addition, the site is not listed on the Environmental First Search (EFS) Site Information Report.

No RECs were identified within the one-mile radius search of offsite areas. However, the project area was within General Patton's World War II (WWII) Desert Training Center, California-Arizona Maneuver Area region (1942 to 1944). The region surrounding the GSEP site was considered a suitable location for training troops that will be deployed in the North Africa Campaign. After two years in operation and the training of one million troops, the desert training camps were closed in 1944. Military trash scatter including ration containers, military-issue utensils, and one 50-caliber cartridge were identified during the Tetra Tech site visits. There is potential for unexploded ordnance (UXO) at the project site and this issue is addressed below. (Ex. 400, p. C.13-11.)

In the event that contamination is identified during any phase of construction, Condition of Certification **WASTE-1** requires that any additional work must be conducted under the oversight of DTSC, with Energy Commission Compliance Project Manager (CPM) involvement. Furthermore, Conditions of Certification **WASTE-2** and **WASTE-3** address any soil contamination contingency that may be encountered during project construction. **WASTE-2** will require that an experienced and qualified Professional Engineer or Professional Geologist be available for consultation in the event contaminated soil is encountered. If contaminated soil is identified, **WASTE-3** will require that the Professional Engineer or Professional Geologist inspect the site, determine what is required to

characterize the nature and extent of contamination, and provide a report to the CPM and DTSC with findings and recommended actions. (Ex. 400, p. C.13-11.)

2. Construction

Site preparation and construction of the GSEP and its associated facilities will last approximately 37 months and generate both non-hazardous and hazardous wastes in solid and liquid forms. Before construction can begin, the project owner will be required to develop and implement a Construction Waste Management Plan under Condition of Certification **WASTE-4** to ensure that the waste will be recycled when possible and properly disposed of at a qualifying landfill when necessary. In addition, the project owner will be required to develop an unexploded ordnance (UXO) identification training and reporting procedures program in Condition of Certification **WASTE-5** to ensure site workers are properly trained to recognize, avoid, and report UXO. The UXO training program will include the identification of trained UXO experts that are available to complete removal of UXO and supplemental geophysical surveys to search for additional or buried ordnance. (Ex. 400, p. C.13-12.)

Intervenor CURE, challenges Condition of Certification **WASTE-5** arguing that it provides insufficient mitigation to reduce impacts from UXO to construction worker safety below significance. (CURE First Op. Brief, p. 19). According to CURE's expert, the Conditions of Certification should include a UXO survey in the project area (Ex. 517, pp. 8-9; 7/12/10 RT 381:2-8). CURE submitted two maps containing unattributed text statements as evidence of "high intensity military maneuvers in the general vicinity of the GSEP" (Ex. 517, p. 9; 221; 222). CURE's brief states that the headquarters for maneuvers was eight miles away from the Genesis site and the "gunnery range" is vaguely in "the vicinity." (CURE's Opening Brief, p. 19.) Applicant argues that there is "no evidence of exercises or weapons used on the actual site." (Ex. 63, p. 5.) Applicant's expert points out that biological and cultural surveys of the area have netted only one spent 0.50 caliber cartridge. (*Id*.)

Staff argues that extensive surveys already conducted on the Genesis site have not identified anything related to UXO other than one spent 50 caliber bullet. (Ex. 400, p. C.13-11, C.14-5.) On behalf of the Applicant, several cultural resource surveys were conducted, including three Class III pedestrian surveys. (Ex. 403, p. C.3-56.) A Class III survey is a continuous, intensive survey of an entire target area, aimed at locating and recording all archaeological properties that have

surface indications, by walking close-interval parallel transects until the area has been thoroughly examined. (Ex. 403, p. C.3-55.)

Biological surveys were also conducted and would require similar attention to the ground surface. (Ex. 403, p., C.2-2.) Bullet blanks were found in areas near the linear corridor. (Ex. 403, p. C.3-119, 120, 122.) Note that personnel conducting the Phase I Environmental Site Assessment indicated that while there may be a potential for unexploded ordnance to exist on the site, none was encountered. (Ex. 400, p., C.13-11.) It is hard to see how another survey will add to existing information in a meaningful way.

We find that the likelihood of encountering UXO at the GSEP site is low but still exists. Condition of Certification **WASTE-5** requires a complete UXO identification, training, reporting and removal plan which includes geophysical surveys to investigate adjacent areas for surface, near surface or buried ordnance in all proposed land disturbance areas. Given the state of the evidence on the possible presence of UXO at the GSEP site, we find that CURE has not met its burden to show the need for additional surveys beyond what is already required in Condition of Certification **WASTE-5** (20 Cal. Code Regs., § 1748(e)). Therefore, we find that Condition of Certification **WASTE-5** mitigates impacts from UXO to construction worker safety below significance.

a. Nonhazardous Wastes

Construction activities will generate an estimated 40 cubic yards per week of non-hazardous solid wastes, consisting of scrap wood, steel, glass, plastic, and paper, and another 1 cubic yard per week of office-related waste. Of these items, recyclable materials will be separated and removed as needed to recycling facilities. Non-recyclable materials (insulation, other plastics, food waste, roofing materials, vinyl flooring and base, carpeting, paint containers, packing materials, etc.) will be disposed at a Class III landfill.

Non-hazardous liquid wastes will be generated during construction, and will include 200 gallons of sanitary waste per day. Sanitary wastes will be pumped to tanker trucks by licensed contractors for transport to a sanitary water treatment plant. Please see the **Soil and Water Resources** section of this Decision for more information on the management of project wastewater. (Ex. 400, p. C.13-12.)

b. Hazardous Wastes

During construction, anticipated hazardous wastes include waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, and waste batteries. Estimated amounts are 1 cubic yard of empty containers (per week), 175 gallons of oils, solvents, paint, and oily rags (every 90 days), and ten batteries (per year). Empty hazardous material containers will be returned to the vendor or disposed at a hazardous waste facility; solvents, used oils, paint, oily rags, and adhesives will be recycled or disposed at a hazardous waste facility; and spent batteries will be disposed at a recycling facility. In addition, a one-time generation of 1,000 gallons of Heat Exchanger cleaning solvent (chelant type solution) will require disposal at a permitted hazardous waste facility. (Ex. 400, p. C.13-12.)

The generation of hazardous waste requires a unique hazardous waste generator identification number. The hazardous waste generator number is determined based on site location and therefore, both the construction contractor and the project owner/operator could be considered the generator of hazardous wastes at the site. Therefore, the project owner will be required to obtain a unique hazardous waste generator identification number for the site prior to starting construction, pursuant to proposed Condition of Certification **WASTE-6**. This will ensure compliance with California Code of Regulation Title 22, Division 4.5. (Ex. 400, pp C.13-12 to C.13-13.)

Hazardous waste will be collected in hazardous waste accumulation containers and stored in a laydown area, warehouse/shop area, or storage tank on equipment skids for less than 90 days. The accumulated wastes will then be properly manifested, transported, and disposed of at a permitted hazardous waste management facility by licensed hazardous waste collection and disposal companies. Staff reviewed the disposal methods and concluded that all wastes will be disposed of in accordance with all applicable LORS. Should any construction waste management-related enforcement action be taken or initiated by a regulatory agency, the project owner will be required by Condition of Certification **WASTE-7** to notify the Compliance Project Manager (CPM) whenever the owner becomes aware of this action.

In the event that construction excavation, grading, or trenching activities for the project encounter potentially contaminated soils, specific waste handling, disposal, or other precautions may be necessary pursuant to hazardous waste management LORS. Conditions of Certification **WASTE-1** through **-3** will be adequate to address any soil contamination contingency that may be

encountered during construction of the project and will further support compliance with LORS. (Ex. 400, p. C.13-13.)

The Integrated Waste Management Act of 1989 [Assembly Bill (AB) 939, Sher, Chapter 1095, Statutes of 1989] set landfill waste diversion goals of 50 percent (by 2000) for local jurisdictions. To meet this goal, many jurisdictions require Applicants for construction and demolition (C&D) projects to submit a reuse/recycling plan for at least 50 percent of C&D materials prior to the issuance of a building or demolition permit. The GSEP project is required to complete the Riverside County Waste Management Department (RCWMD) Construction and Demolition Waste Diversion Program Reporting Form C. RCWMD will require the Applicant to meet the 50 percent waste diversion rate.

3. Operation

Condition **WASTE-9** requires the Project Owner to develop and implement an Operation Waste Management Plan to identify all waste streams and the methods of managing each waste. (Ex. 400, p. C.13-14.)

a. Heat Transfer Fluid Waste

The GSEP will use Therminol VP-1™ (a synthetic oil consisting of diphenyl ether and biphenyl) for the heat transfer fluid (HTF). Approximately 2.0 million gallons of Therminol VP-1™ will be contained within the solar heat transfer system of the two units, including the piping and necessary expansion tanks. No additional HTF will be stored on site. (Ex. 400, p. C.13-14.)

Occasional spills of HTF from either equipment failure or human error can result in the generation of contaminated soil. HTF spills typically spread laterally on the bare ground and soak down to a relatively shallow depth. The contaminated soil is regulated as a hazardous material by the State of California due to the constituent biphenyl. Biphenyl is listed in Title 22, CCR, Chapter 11 Appendix X (list #299) as an extremely hazardous waste. The listing of a chemical in Appendix X creates the regulatory presumption that a waste containing that chemical (i.e. HTF contaminated soil) is hazardous unless determined otherwise, pursuant to specified procedures. The determination is required to be based on criteria and lists in Title 22, California Code of Regulations, Section 66261.1 et seq., which identify hazardous wastes subject to regulation. (Ex. 400, p. C.3-14.)

The record indicates that a DTSC determination of whether a discharge of HTF constituted a hazardous waste is made on a case by case basis. Once a generator establishes a history of managing waste discharges and develops a sufficient data set for characterization of the discharges as hazardous or non-hazardous, DTSC can be petitioned for their concurrence on a standardized waste classification for HTF contaminated soils generated at the facility. Depending on DTSC findings, an operator could modify their operations to standardize treatment and eliminate the need for case by case determinations. Title 22, CCR, section 66260.200(f) places the responsibility of determining whether a waste must be classified as hazardous on the generator of that waste. The GSEP project owner will therefore be required to assess the waste classification for HTF-impacted soils at the GSEP facility in consultation with the CEC, DTSC, and Colorado River Basin Regional Water Quality Control Board (RWQCB). (Ex. 400, p. C.3-14.)

The record shows that GSEP is owned by NextEra which has operated Luz Solar Energy Generating Stations (SEGS) III through IX in San Bernardino County since 1989. The SEGS plants use the same solar technology as will be used in the GSEP. SEGS has a history of using, storing, and treating HTF contaminated soils on-site in bioremediation units and land treatment units LTUs, primarily LTUs. The DTSC determined that a sample of soil contaminated with HTF in concentrations of less than 10,000 mg/kg was classified as a non-hazardous waste. Soils with concentrations below 10,000 mg/kg are placed in the LTU for treatment and are used as back fill material on the project property. Soil with concentrations in excess of 10,000 mg/kg is contained, handled, managed, and disposed of as a hazardous waste at an approved disposal facility. These criteria are currently used as a basis for ongoing operation of the SEGS facility. (BSEP 3/22/10 RT 459:19 -476:66).

Based upon operation data from the SEGS facility, the Applicant estimates generating 750 cubic yards per year of soil contaminated with HTF which will be bioremediated or land farmed and 10 cubic yards that will sent for disposal at a permitted Class I landfill. Each of the two solar fields will share the same Land Treatment Unit (LTU) to bioremediate non-hazardous soil impacted by HTF. The LTU will be constructed with a prepared base consisting of two feet of compacted, low permeability, lime treated material. The compacted and native soil beneath the LTU is designated as the “treatment zone” to a depth of 5 feet. Soil samples will be collected and analyzed for HTF to verify that HTF is not migrating below the 5-foot zone underlying the unit; monitoring will be used to

evaluate liner integrity (see **Soil and Water Resources** section of this Decision). (Ex. 400, p. C.3-14 to C.3-15.)

The GSEP project owner will develop and implement an Operations Waste Management Plan which will include: a discussion of the appropriate frequency for characterizing HTF-contaminated soils; the level of HTF in soil that will be considered hazardous waste; and sampling and testing protocols for HTF-contaminated soils. In addition, the project owner will be required to document the project's actual operational waste stream and obtain approval for the Operations Waste Management Plan prior to the start of construction per Condition of Certification **WASTE-9**. These measures will ensure that HTF-contaminated soils are treated in compliance with all LORS. (Ex. 400, p. C.3-15; 7/12/10 RT 357:11-20.)

Methods of compliance with the Requirements for Waste Discharge established by the Colorado River Basin Regional Water Quality Control Board are presented in **Soil and Water Resources**. Condition of Certification **WASTE-10** addresses the Requirements of Waste Discharge. This will require the Applicant to comply with the requirements for accidental discharges of HTF associated with the operation of the project and ensure that hazardous concentrations of contaminated HTF-soil will not be treated in the LTU. With implementation of Condition of Certification **WASTE-10** there will be no significant adverse impacts under CEQA due to HTF spills during project operation. (Ex. 400, p. C.3-15.)

CURE raised the following issues with respect to HTF waste:

A. ***Whether the projected annual amount of HTF-contaminated soil is underestimated:***

The Committee took official notice of the record in the Beacon Solar Energy Project (BSEP) where the identical parties (NextEra, Staff and CURE) litigated the identical issues regarding HTF. In Beacon, CURE entered Exhibit 615 into the record which was an accumulation of reports of HTF spills at the SEGS facilities (BSEP 3/22/10 RT 76:13-15, 78:2-5, 435:19-23). We note that the majority of spills involved quantities under 100 gallons. The worst spill in the operational history of SEGS amounted to 30,000 gallons of HTF on July 27, 2007. (Exs. 517; p.2; 520.) The second largest spill occurred eight years before that on May 22, 1999 which amounted to 21,000 gallons. (Ex. 520.) The record indicates that these very large spills are the exception, not the rule. (*Id.*)

Staff has assessed the properties of Therminol VP1 and reviewed the record of its use at Solar Electric Generating Stations (SEGS) 8 and 9 at Harper Lake, California. (Ex. 400, p. C. 4-8.) Staff examined past leaks, spills, and fires involving HTF. (*Id*.) Staff accepted Applicant's estimated annual average of 750 cubic yards of HTF contaminated soil. (Ex. 400, pp. C.3-14 through C.3-15.) Staff notes that HTF spills typically spread laterally on the bare ground and soak down to a relatively shallow depth. (Staff Assessment C.13-14) This would make recovery of contaminated soil an easier process limiting the need for extensive excavation. Condition of Certification **WASTE-11** would ensure that all spills or releases of hazardous substances that are in excess of EPA's reportable quantities (RQ's) are reported and cleaned-up in accordance with all applicable federal, state, and local requirements (Staff Assessment C.13-32)

The Applicant is required to recycle and/or dispose hazardous and non-hazardous wastes at facilities licensed or otherwise approved to accept the wastes. Because hazardous wastes would be produced during both project construction and operation, the GSEP project would be required to obtain a hazardous waste generator identification number from U.S. EPA. The GSEP project would also be required to properly store, package, and label all hazardous waste; use only approved transporters; prepare hazardous waste manifests; keep detailed records; and appropriately train employees, in accordance with state and federal hazardous waste management requirements. (Staff Assessment C.13-25 to C.13-26.)

Given the size of prior leaks at older SEGS facilities coupled with required preventive measures for this specific project, we find that Staff's analysis based upon an estimated 750 cubic yards of contaminated soil *per year* is an adequate and reasonable level. We also find that the Conditions of Certification provide for appropriate mitigation in the event a larger HTF release occurs because the Conditions of Certification address the handling of contaminated soil and are not specific to any quantity. (**WASTE-9, WASTE-10, WASTE-11.**)

Further, the record clearly shows that HTF transfer technology has substantially evolved and improved over the last twenty years. (BSEP 3/22/10 RT 459:20-461:13; 462:7-463:1.) GSEP will benefit from these improvements and will pose a lesser risk of HTF spills than the SEGS facility based upon the Applicant's experience at SEGS and their high motivation to prevent HTF leaks. (BSEP 3/22/10 RT 472:2-11.)

As stated in the Hazardous Material section of this Decision, isolation valves will be placed throughout the HTF piping system. Isolation valves are designed to automatically block off sections of the piping where a loss of pressure is detected. The record indicates that the placement of additional isolation valves in the HTF pipe loops throughout the solar array will add significantly to the safety and operational integrity of the entire system by allowing a loop to be closed if a leak develops in a ball joint, flex-hose, or pipe, rather than closing off the entire HTF system and shutting down the plant. Condition of Certification **HAZ-4** requires the installation of a sufficient number of isolation valves that can be activated either manually or remotely. (Ex. 400, pp. C.4-8.) The record indicates that the isolation valves will be designed to limit the maximum HTF leakage in any continuous loop system to 1250 gallons. (7/12/10 RT 365:10-12.)

B. ***Whether Staff failed to analyze HTF waste in both liquid form and solid ("free-standing") form:***

CURE describes a process where spilled HTF "forms wax-like piles of free standing liquids on the ground surface. The piles are scooped up or are vacuumed in cleanup efforts documented at the SEGS facilities." (CURE's Opening Brief, p. 13, citing Exh. 517; p. 3.) The record indicates that HTF spills typically spread laterally on the bare ground and soak down to a relatively shallow depth. (Ex. 400, pp. C.13-14-C.13-15.) Most of the analysis in the record concentrates on liquid spills because the temperature at a solar plant in the desert will most likely be above 54 degrees Fahrenheit, the point at which Therminol VP1 becomes liquid. As explained above, sufficient cleanup and disposal procedures are described in Conditions of Certification **WASTE-9, -10**, and **-11** to prevent significant impacts from HTF spills. However, safety procedures also insure against leaks affecting air quality (Conditions of Certification **AQ-10** through **-13**) as well as groundwater and soil resources (Condition of Certification **SOIL&WATER-6**).

CURE argues for separate analysis of spilled solid "free standing" HTF apart from the analysis of spilled HTF in its liquid state, claiming, without citation to the record, that the two are "different in composition." (CURE Op. Brief, p. 13). We see no evidence of a change in the composition of spilled Therminol VP1 between its liquid and solid state. Logic would dictate that it would be easier to contain spilled HTF in its solid form, thereby posing a lesser risk of impact than liquid HTF. However, in the absence of evidence on point, we can assume that the two forms of HTF are the same composition. We see no reason to separately analyze spilled liquid HTF and spilled solid HTF.

C. ***Whether Staff adequately analyzed impacts from benzene contained in HTF:***

CURE argues that significant impacts to workers' health, soil, and groundwater from benzene as a degradation product of spilled HTF were not analyzed. (CURE Op. Brief, pp. 14-15).

Benzene, a known carcinogen, was analyzed in the Public Health and Safety section of the Revised Staff Assessment (RSA) (Ex. 400, pp. C.5-14-C.5-18). The record indicates that benzene occurs as a decomposition product of HTF in "trace" amounts; less than five percent. Staff used an extremely conservative scenario to analyze potential health impacts from carcinogens. As **Public Health Table 3** shows, both acute and chronic hazard indices are less than the significance level of 1.0, and cancer risk is less than the significance level of 10 in 1,000,000, indicating that no cancer or short- or long-term adverse health effects are expected from exposure to benzene. (Ex. 400, p. C.5-14.)

Staff's expert testified that worker safety conditions will require the Applicant to conduct certain measurements of benzene in the air consistent with CalOSHA regulations. He also testified that there are a number of LORS that would require airborne testing when working around benzene to ensure that exposure remains below permissible limits (7/12/10 RT 366:2-23). (See Conditions of Certification **AQ-10** through **-13**) and groundwater or soil (Condition of Certification **SOIL&WATER-6**). We are satisfied that Staff adequately analyzed impacts from benzene contained in HTF (see **Public Health and Safety** section of this Decision).

D. ***Whether the handling of HTF waste as conditioned in WASTE-10 mitigates impacts and complies with LORS.***

CURE alleges that the handling of HTF contaminated soil in the RSA and Condition of Certification **Waste-10** fails to mitigate significant impacts from HTF spills and violates LORS. Specifically, CURE argues that staging HTF-impacted soil in the facility's land treatment unit (LTU) would cause significant environmental impacts and violates LORS. (CURE Op. Brief, pp. 16-18.) CURE contends that HTF-contaminated soil is a "hazardous waste" that must comply with Heath and Safety Code §§ 25113(a), 25123.3 and 25203. (CURE Op. Brief p. 16.) As explained above, not all HTF impacted soil is a "hazardous waste." The determination is made on a case by case basis. (Ex. 400, p. C.3-14.)

The record establishes that clean up and temporary staging of HTF-contaminated soils must be conducted in accordance with the approved Operation Waste Management Plan required in Condition of Certification of **WASTE-9**. The project owner must 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 must be analyzed in accordance with USEPA Method 8015 or other method to be reviewed and approved by DTSC and the CPM. (Ex. 400, p. C.3-30.)

If DTSC and the CPM determine the HTF-contaminated soil is considered hazardous, it will then be disposed of in accordance with California Health and Safety Code § 25203 and procedures outlined in the approved Operation Waste Management Plan required in Condition of Certification **WASTE-9** and reported to the CPM in accordance with Condition of Certification **WASTE-11**. (Ex. 400, pp. C.3-29 to C.3-31.)

If DTSC and the CPM determine the HTF-contaminated soil is considered non-hazardous, then it will be retained in the LTU and treated on-site in accordance with the Waste Discharge Requirements contained within in the **Soil & Water Resources** section of this Decision. (Ex. 400, p. C.3-30.)

Therefore, in compliance with Heath and Safety Code §§ 25113(a), 25123.3 and 25203, only non-hazardous soils will be treated in the LTU. Soils characterized as hazardous waste will be transported from the site by a licensed hazardous waste hauler for disposal at a Class I landfill. Accordingly, we find that the Conditions of Certification governing the handling of HTF at the GSEP comply with LORS.

b. Nonhazardous Wastes

Non-hazardous solid wastes generated during project operations will consist of paper, wood, plastic, cardboard, deactivated equipment and parts, defective or broken electrical materials, empty non-hazardous containers, and other miscellaneous solid wastes. The GSEP AFC did not contain estimates of the volume of these non-hazardous waste generated by the project; similar solar generating projects estimate approximately ten cubic yards of non-hazardous solid waste per week. GSEP estimates less than ten spent household batteries per month, and approximately 50 spent fluorescent bulbs per year will be recycled. All non-hazardous wastes will be recycled to the greatest extent

possible, and the remainder will be removed on a regular basis for disposal in a Class III landfill. Sanitary wastewater solids will be treated with an onsite septic system, and sludge will be delivered to an off-site disposal facility. (Ex. 400, p. C.3-15.)

Soil may become contaminated with HTF from spills and leaks within the HTF system. HTF concentrations in soil measured at <10,000 mg/Kg will be placed in the on site bioremediation land treatment unit (LTU), pending approval of the DTSC. On-site treatment of contaminated soil may require a permit from DTSC and the project owner will initiate pre-application discussions and determine the permitting process applicable to the facility. (Ex. 400, p. C.3-15.)

An estimated 750 cubic yards per year of contaminated soil will be remediated at the LTU with an irregular frequency. Following treatment and confirmation sampling and laboratory testing documenting acceptable residual concentrations of HTF, the bioremediated soil will be reused as fill on the project site. (Ex. 400, pp. C.3-15 to C.3-16.)

Non-hazardous solid waste will be periodically generated during maintenance of the water treatment filters. Replacement of the spent media (sand, gravel, garnet, anthracite) from the multi-media filters is estimated to produce 2100 cubic feet (78 cubic yards) every five years. Maintenance of the reverse osmosis filters will generate approximately 440 cartridges (2 inch diameter, 20 inch long) every few months and about 160 RO membrane elements (4 inch diameter by 40 inches long) every three to five years. These non-hazardous waste streams will be taken off site for recycling or disposal at a Class III landfill. (Ex. 400, p. C.3-16.)

Approximately 8,000 tons of evaporative residue will be removed from the evaporation ponds every twenty years or approximately 12,000 tons during the 30-year project life. This material is anticipated to be non-hazardous solids, possibly requiring on-site dewatering before transport, consisting primarily of salt (sodium, chloride and sulfate) that will be disposed of at a Class II landfill facility. (Ex. 400, p. C.3-16.)

Non-hazardous liquid wastes will be generated at the pre- and post- water treatment systems consisting of brine or high TDS water. During facility operation these liquid (brackish water) waste streams combine for an average flow of 30 gpm that will be sent to the RWQCB permitted 24-acre double-lined

(three 8-acre cells each) evaporation ponds with a total area of 10 acres (5 acres per plant unit). (Ex. 400, p. C.3-16.)

c. Hazardous Wastes

Condition of Certification **WASTE-6**, which requires the Project Owner to obtain a hazardous waste generator identification number, applies during project operation. Hazardous wastes that may be generated during routine project operation include used hydraulic fluid, oils and grease (50,000 gallons per year) from the HTF system, turbine, and other hydraulic equipment, lead-acid batteries (10 per year), and oily rags, oily absorbent and spent oil filters (five 55-gallon drums per month). Plant washdown areas will generate an estimated 3,000 gallons per year of oily water from the oil-water separation system. (Ex. 400, p. C.13-16.)

Soil contaminated with HTF measured at concentrations >10,000 mg/Kg is anticipated to be approved as Non-RCRA hazardous waste. An estimated 10 cubic yards per year of HTF contaminated soil (>10,000 mg/Kg) will require off site disposal at a Class I landfill. (Ex. 400, p. C.13-16.)

Proper hazardous material handling and good housekeeping practices will help keep spill wastes to a minimum. However, to ensure proper cleanup and management of any contaminated soils or waste materials generated from hazardous materials spills, Condition of Certification **WASTE-11** requires the project owner/operator to report, clean up, and remediate as necessary, any hazardous materials spills or releases in accordance with all applicable federal, state, and local requirements. More information on hazardous material management, spill reporting, containment, and spill control and countermeasures plan provisions for the project are provided in the **Hazardous Materials Management** section of this Decision. (Ex. 400, pp. C.13-16 to C.13-17.)

The hazardous wastes generated during the operation of GSEP will be minor, with source reduction and recycling of wastes implemented whenever possible. The hazardous wastes will be temporarily stored on site, transported off site by licensed hazardous waste haulers, and recycled or disposed at authorized disposal facilities in accordance with established standards applicable to generators of hazardous waste. (Cal. Code Regs., tit. 22, §§ 66262.10 et seq.). Should any operations waste management-related enforcement action be taken or initiated by a regulatory agency, the project owner will be required by

Condition of Certification **WASTE-7** to notify the CPM when advised of any such action. (Ex. 400, pp. C.13-16 to C.13-17.)

4. Potential Impacts on Waste Disposal Facilities

Non-hazardous solid waste will be disposed at the five permitted Class III landfills located in Riverside County. The evidence establishes that the remaining combined capacity of the five landfill facilities that are expected to be operating in 2011 is over 160 million cubic yards. The total amount of non-hazardous solid waste generated from project construction is estimated to be 6,400 cubic yards (40 cubic yards per week for 37 months), and the total amount from lifetime operations is estimated to be 15,600 cubic yards (10 cubic yards per week for 30 years). These quantities include both recyclable and non-recyclable wastes; the non-recyclable component will contribute much less than one percent of the available landfill capacity. The evidence establishes and we find that the disposal of the solid wastes generated by GSEP can occur without significantly impacting the capacity or remaining life of any of the facilities located in Riverside County. (Ex. 400, p. C.13-18.)

Hazardous wastes generated during construction and operation will be recycled to the extent possible and practical. Those wastes that cannot be recycled will be transported off site to a permitted treatment, storage, or disposal facility. Hazardous wastes will be transported to one of two available Class I landfills: Clean Harbors Buttonwillow Landfill in Kern County, and Waste Management's Kettleman Hills Landfill in Kings County. The Kettleman Hills facility accepts Class I waste. In total, there is a combined excess of 15.5 million cubic yards of remaining hazardous waste disposal capacity at these landfills, with at least 28 to 30 years remaining in their operating lifetimes. In addition, the Kettleman Hills facility is in the process of permitting an additional 4.6 to 4.9 million cubic yards of disposal capacity, and the Buttonwillow facility has 40 years to reach its capacity at its current disposal rate. The approximately 1550 cubic yards of recyclable and non-recyclable hazardous waste will be generated over the 37 month construction period. Less than 300 cubic yards of hazardous non-recyclable waste will be generated over the 30-year operating lifetime. Therefore, we find that the disposal of the hazardous wastes generated by GSEP will not significantly impact the capacity or remaining life of any of the Class I landfills. (Ex. 400, p. C.13-18.)

5. Cumulative Impacts

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects [14 Cal. Code Regs., § 15065(A)(3)]. Cumulative impacts can result from actions taking place over time in the same area that are minor when taken individually, but are collectively significant.

Waste management is also expected to be affected by the following reasonably foreseeable future projects as follows: (1) future projects along the I-10 corridor, and (2) future renewable energy projects in the California desert. The evidence shows that the GSEP project waste disposal volumes will combine with the waste volumes from four commercial projects, 15 residential projects, and 16 renewable energy projects along the I-10 Corridor. Although the waste volumes will be greatest during construction, the actual construction schedule of each project will not likely be coincident; therefore, local landfill daily disposal limitations will not be exceeded. Operation waste volumes of transmission line, substation, and solar photovoltaic projects (not solar-thermal) will be far less than the three solar-thermal energy projects (Palen, Blythe, Mojave Solar Park/Desert Lily Project) and the Blythe Energy Project II Power Plant. (Ex. 400, p. C.13-24.)

Routine (operation) waste disposal of all foreseeable commercial, residential, and energy projects along the I-10 Corridor may combine to occasionally exceed the 400 ton per day limit at the Blythe Sanitary Landfill without adversely impacting the 2.2 million cubic yards of remaining capacity. The Blythe Landfill is the nearest Class III disposal site for these I-10 Corridor Projects and will likely be the first choice for disposal. However, several other landfills are located within 100 miles of GSEP with much larger daily disposal limits. The total amount of available solid waste landfill capacity in Riverside County exceeds 160 million cubic yards. Therefore, even if all 35 of these reasonably foreseeable projects along the I-10 Corridor were constructed, the evidence concludes that the waste generated by the GSEP project will not result in significant cumulative waste management impacts. (Ex. 400, p. C.13-24.)

Implementation of the multiple solar and wind projects proposed to be developed in California desert area will result in an increase in generation of hazardous and non-hazardous solid and liquid waste and will add to the total quantity of waste generated in California and Nevada. However, project wastes will be generated

in modest quantities, waste recycling will be employed wherever practical, and sufficient capacity is available at several treatment and disposal facilities to handle the volumes of wastes that will be generated by the project. Therefore, the incremental effect of GSEP project waste disposal impacts, when combined with the effects of waste management impacts created by other reasonably foreseeable regional impacts will be less than significant because the project related waste volumes will not exceed the regional Class I, II, and III waste disposal capacities. (Ex. 400, p. C.13-24.)

6. Public Comment

CURE submitted "comments" which were essentially identical to the arguments made in their briefs. The Decision addresses CURE's arguments, above.

FINDINGS OF FACT

Based on the uncontroverted evidence, the Commission makes the following findings:

1. The project will generate nonhazardous and hazardous wastes during excavation, construction, and operation.

2. A Phase I Environmental Site Assessment (ESA) was completed for the project, including the transmission line and pipeline route.

3. No recognized environmental conditions (REC), or historical RECs were identified on the site, along the transmission or pipeline route.

4. The project area is located within General Patton's World War II (WWII) Desert Training Center, California-Arizona Maneuver Area region (1942 to 1944) and there is potential for unexploded ordnance (UXO) at the project site.

5. Conditions of Certification **WASTE-1** through and **WASTE-3** adequately address any soil contamination contingency that may be encountered during construction of the project and ensure compliance with LORS.

6. The project owner will be required to develop a UXO identification training and reporting procedures program per Condition of Certification **WASTE-5** to ensure site workers are properly trained to recognize, avoid, and report UXO.

7. The construction contractor and the project owner/operator are required to obtain a unique hazardous waste generator identification number for the

site prior to starting construction, pursuant Condition of Certification **WASTE-6**.

8. In the event that contamination is identified during any phase of construction, Condition of Certification **WASTE-7** requires that any additional work must be conducted under the oversight of DTSC, with Energy Commission Compliance Project Manager (CPM) involvement.

9. All non-hazardous wastes will be recycled to the greatest extent possible and non-recyclable wastes will be collected by a licensed hauler and disposed of in a solid waste disposal facility (Class III landfill) or in clean fill sites.

10. All construction wastes will be disposed of in accordance with all applicable LORS.

11. Project compliance with LORS is sufficient to ensure that no significant impacts will occur as a result of project waste management activities during construction.

12. Condition **WASTE-9** requires the project owner to develop and implement an Operation Waste Management Plan to identify all waste streams and the methods of managing each waste.

13. The GSEP will use Therminol VP-1 as a heat transfer fluid (HTF).

14. Occasional spills of HTF from either equipment failure or human error can result in the generation of contaminated soil.

15. The treatment and disposal methods comply with the Requirements of Waste Discharge established by the Colorado River Basin Regional Water Quality Control Board.

16. **WASTE-10** addresses the Requirements of Waste Discharge and the requirements for accidental discharges of HTF and ensures that hazardous concentrations of contaminated HTF-soil will not be treated in the LTU.

17. Condition of Certification **WASTE-10** ensures that there will be no significant impacts due to HTF spills during project operation.

18. Condition of Certification **WASTE-11** requires the project owner/operator to report, clean up, and remediate as necessary, any hazardous materials spills or releases in accordance with all applicable federal, state, and local requirements.

19. The disposal of the solid wastes generated by GSEP can occur without significantly impacting the capacity or remaining life of any of the facilities located in Riverside County.

20. Solid nonhazardous wastes that cannot be recycled will be deposited at Class II and III landfills in the local area.

21. Liquid wastes will be classified for appropriate disposal and managed in accordance with the Conditions of Certification listed in the **Soil and Water Resources** section of this Decision.

22. Disposal of project wastes will not result in any significant direct, indirect, or cumulative impacts on existing waste disposal facilities.

CONCLUSIONS OF LAW

1. Implementation of the Conditions of Certification, below, and the waste management practices described in the evidentiary record will reduce potential impacts to insignificant levels and ensure that project wastes are handled in an environmentally safe manner.

2. The management of project wastes will comply with all applicable laws, ordinances, regulations, and standards related to waste management as identified in the pertinent portions of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

WASTE-1 In the event that contamination is identified during assessment of the project site, during any phase of GSEP construction, any additional work to assess and/or remediate any contamination shall be conducted under the oversight of DTSC, with CPM involvement.

Verification: The project owner shall consult with the Department of Toxic Substances Control, and abide by all federal, state and local requirements for site assessment and remediation if contaminated soil is identified during any phase of GSEP site construction. The project owner shall ensure that the CPM is involved and appraised of all discussions with Department of Toxic Substances Control, and CPM concurrence shall be required for project decisions addressing site remediation.

WASTE-2 The project owner shall provide the resume of an experienced and qualified professional engineer or professional geologist, who shall be available for additional site characterization (if needed), building demolition, soil excavation, and grading activities, to the CPM for review and approval. The resume shall show experience in remedial investigation and feasibility studies.

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.

Verification: 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.

WASTE-3 If potentially contaminated soil is identified during site characterization, demolition, excavation or grading 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 or Regional Water Quality Control Board, and the CPM 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 and representatives of the Department of Toxic Substances Control or Regional Water Quality Control Board for guidance and possible oversight.

Verification: The project owner shall submit any reports filed by the professional engineer or professional geologist to the CPM within 5 days of their receipt. The project owner shall notify the CPM within 24 hours of any orders issued to halt construction.

WASTE-4 The project owner shall prepare a Construction Waste Management Plan for all wastes generated during construction of the facility and shall submit the plan to the CPM for review and approval prior to the start of construction. The plan shall contain, at a minimum, the following:

A description of all construction waste streams, including projections of frequency, amounts generated, and hazard classifications; and

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/source reduction plans.

Verification: 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.

WASTE-5 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 CPM for review and approval prior to the start of construction. The plan shall contain, at a minimum, the following:

A description of the training program outline and materials, and the qualifications of the trainers; and

Identification of available trained experts that will respond to notification of discovery of any ordnance (unexploded or not); and

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.

Verification: The project owner shall submit the UXO Identification, Training and Reporting Plan to the CPM for approval no less than 30 days prior to the initiation of construction activities at the site.

WASTE-6 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.

Verification: 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.

WASTE-7 Upon notification of any impending waste management-related enforcement action related to project site activities by any local, state, or federal authority, the project owner shall notify the 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 for the project, and describe the owner's response to the impending action or if a violation has been found, how the violation will be corrected.

Verification: 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.

WASTE 8 – DELETED

WASTE-9 The project owner shall prepare an Operation Waste Management Plan for all wastes generated during operation of the Genesis Solar Energy facility and shall submit the plan to the CPM for review and approval. The plan shall contain, at a minimum, the following:

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 assure 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 of upon closure of the facility.

Verification: The project owner shall submit the Operation Waste Management Plan to the CPM for approval no less 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.

WASTE-10 The project owner shall submit to the CPM and DTSC for approval an 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). For discharges into the LTU, the project owner shall comply with the Waste Discharge Requirements contained in the Soil & Water Resources section of this document.

The project owner shall document all releases and spills of HTF as described in Condition of Certification WASTE-11 and report only those that are 42 gallons or more, the CERCLA reportable quantity. 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-9. 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.

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 (HSC) Section 25203 and procedures outlined in the approved Operation Waste Management Plan required in Condition of Certification **WASTE-9** and reported to the CPM in accordance with Condition of Certification **WASTE-11**. If DTSC and the CPM determine the HTF-contaminated soil is considered non-hazardous it shall be retained in the LTU and treated on-site in accordance with the Waste Discharge Requirements contained within in the Soil & Water Resources section of this document.

Verification: Within 28 days of an HTF spill that is 42 gallons or more, the CERCLA reportable quantity, the project owner shall notify the DTSC and CPM of the spill and provide the results of the analyses and their assessment of

whether the spill is hazardous or non-hazardous in accordance with the criteria established and approved by the DTSC and the CPM per **WASTE-10**.

WASTE-11 The project owner shall ensure that all spills or releases of hazardous substances, hazardous materials, or hazardous waste that are in excess of EPA's portable quantities (RQ) that occur on the project property or related facilities during construction and on the property during operation, are documented and cleaned up and that wastes generated from the release/spill are properly managed and disposed of, in accordance with all applicable federal, state, and local requirements. The project owner shall document management of all accidental spills and unauthorized releases of hazardous substances, hazardous materials, and hazardous wastes that are in excess of EPA's reportable quantities (RQ), that occur on the project property or related linear facilities during construction and on the property during operation.

Verification: A copy of the unauthorized release/spill documentation shall be provided to the CPM within 30 days of the date the release was discovered. 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.

VI. ENVIRONMENTAL ASSESSMENT

A. BIOLOGICAL RESOURCES

The Commission must consider the potential impacts of project-related activities on biological resources, including state and federally listed species, species of special concern, wetlands, and other resources of critical biological interest such as unique habitats. The evidence is contained in exhibits and testimony which describes the biological resources in the vicinity of the project site and linear alignments, assesses the potential for adverse impacts, and determines whether mitigation measures are necessary to ensure compliance with applicable laws, ordinances, regulations, and standards (LORS). (Ex. 1; 3; 11; 16; 17; 19; 20; 23; 24; 26; 30; 31; 34; 35; 36; 39; 40; 42; 44; 45; 46; 47; 50; 56; 57; 58; 59; 60; 62; 63; 65; 68; 400; 402; 403; 406; 407 – 415, 423 – 428; 435; 438; 439; 445, 500 – 511; 800-820; 830; 7/12/10 RT 28:11-14, 29:18-20, 33:23-25, 37:2-4, 39:10-14, 42:12-17, 46:18-20; 7/21/10 RT 11:10-12, 126:18-19, 130:16-18, 131:24-25).

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Description

Genesis Solar, LLC (Genesis Solar) is proposing development of a 250-megawatt (MW) solar generating facility within a 4,640-acre right-of-way (ROW) grant application from the Bureau of Land Management (BLM). Interstate 10 (I-10) is located approximately 2 miles south of the southernmost boundary of the ROW. The Genesis Solar Energy Project (GSEP) site occurs at elevations ranging from approximately 350 to 450 feet above mean sea level, approximately 25 miles west of the community of Blythe and 27 miles east of Desert Center, California in eastern Riverside County. The GSEP will be located on the alluvial fan on the southern flank of the Palen Mountains in the eastern portion of the Chuckwalla Valley. The GSEP will be located within the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) area. (Ex. 400, pp. C.2-13 to C.2-14.)

Approximately 1,727 acres within the proposed ROW will be used for the solar power plant facility and 84 acres will be used for the linear facilities, collectively referred to as the Project Disturbance Area throughout the remainder of this Biological Resources section. The Project Disturbance Area encompasses all areas to be temporarily and permanently disturbed including the following:

- “plant site” described by the applicant as the solar arrays, power blocks, power equipment, support facilities and evaporation ponds;
- “linear facilities” including the access road, transmission line, natural gas pipeline; and
- All areas disturbed by temporary access roads, fence installation, construction work lay-down and staging areas or by any other activities resulting in disturbance to soil or vegetation. (Ex. 400, pp. C.2-12 to C.2-13.)

The evidence shows that the Applicant recently proposed some minor modifications to the GSEP that were not discussed in their Application for Certification (AFC).. These modifications include a six-pole transmission line extension at the Colorado River Substation and an electrical distribution/telecommunications line. Construction of six additional poles will result in disturbance to 6.5 acres from construction and laydown areas, conductor pulling areas, and the transmission access. Within this temporary 6.5 -acre impact area 1.2 acres will be permanently affected due to the 6-foot by 6-foot pole construction pad and the 3,700-foot long, 14-foot wide transmission maintenance road. (Ex. 403, pp. C.2-5 through C.2-8.)

2. Environmental Baseline for the GSEP

The Revised Staff Assessment (RSA or Exhibit 400) and Revised Staff Assessment Supplement (SSA or Exhibit 403) describe the vegetation and wildlife that occur within the plant site and along linear facilities. (Ex. 400, pp. C.2-14 to C.2-62.) **Biological Resources Table 1**, below, lists all special-status species evaluated during the analysis that are known to occur or could potentially occur in the GSEP area and vicinity. Special-status species (or their sign) observed during the 2009 field surveys are indicated by **bold-face type**. Special-status species listed in **Biological Resources Table 1** that were detected or considered likely to occur based on known occurrences in the vicinity and suitable habitat present within the GSEP area are discussed in more detail below. The rest of these species have no or low-to-moderate potential to occur in the Project area. (Ex. 400, pp. C.2-49 to C.2-62.)

Biological Resources Table 1
Special-Status Species Known or Potentially Occurring in the GSEP Study Area

PLANTS		
Common Name	**Scientific Name**	**Status State/Fed/CNPS/BLM/ Global Rank/State Rank**
Chaparral sand verbena	*Abronia villosa* var. *aurita*	__/__/1B.1/__/G5T3T4/S2.1
Angel trumpets	*Acleisanthes longiflora*	__/__/2.3/__/G5/S1.3
Desert sand parsley	*Ammoselinum giganteum*	__/__/2.3/__/G2G3/SH
Small-flowered androstephium	*Androstephium breviflorum*	__/__/2.2/__/G5/S2
Harwood's milk-vetch	***Astragalus insularis* var. *harwoodii***	**__/__/2.2/__/G5T3/S2.2?**
Coachella Valley milk-vetch	*Astragalus lentiginosus* var. *coachellae*	__/FE/1B.2./S/G5T2/S2.1
California ayenia	*Ayenia compacta*	E/__/2.3/__/G4/S3.3
Pink fairy duster	*Calliandra eriophylla*	__/__/2.3/__/G5/S2.3
Sand evening-primrose	*Camissonia arenaria*	__/__/2.2/__/G4?/S2
Crucifixion thorn	*Castela emoryi*	__/__/2.3/__/G3/S2.2
Abram's spurge	*Chamaesyce abramsiana*	__/__/2.2/__/G4/S1.2
Arizona spurge	*Chamaesyce arizonica*	SR/__/2.3/__/G5/S1.3
Flat-seeded spurge	*Chamaesyce platysperma*	__/__/1B.2/S/G3/S1.2?
Las Animas colubrina	***Colubrina californica***	**__/__/2.3/__/G4/S2S3.3**
Spiny abrojo/Bitter snakeweed	*Condalia globosa* var. *pubescens*	__/__/4.2/__/G5T3T4/S3.2
Foxtail cactus	*Coryphantha alversonii*	__/__/4.3/__/G3/S3.2
Ribbed cryptantha	***Cryptantha costata***	**__/__/4.3/__/G4G5/S3.3**
Winged cryptantha	*Cryptantha holoptera*	__/__/4.3/__/G3G4/S3?
Wiggins' cholla	*Cylindropuntia wigginsii (syn=Opuntia wigginsii)*	__/__/3.3/__/G3?Q/S1.2?
Utah vining milkvine	*Cynanchum utahense*	__/__/4.2/__/G4/S3.2
Glandular ditaxis	*Ditaxis claryana*	__/__/2.2/__/G4G5/S1S2
California ditaxis	*Ditaxis serrata* var. *californica*	__/__/3.2/__/G5T2T3/S2.2
Harwood's eriastrum	***Eriastrum harwoodii***	**__/__/1B.2/__/G2/S2**
California satintail	*Imperata brevifolia*	__/__/2.1__/G2/S2.1
Pink velvet mallow	*Horsfordia alata*	__/__/4.3/__/G4/S3.3
Bitter hymenoxys	*Hymenoxys odorata*	__/__/2/__/G5/S2
Spearleaf	*Matelea parvifolia*	__/__/2.3/__/G5?/S2.2
Argus blazing star	*Mentzelia puberula*	__/__/__/__/__/__
Slender woolly-heads	*Nemacaulis denudata* var. *gracilis*	__/__/2.2/__/G3G4T3?/S2S3
White-margined penstemon	*Penstemon albomarginatus*	__/_ /1B.1/S/G2/S1

PLANTS		
Common Name	**Scientific Name**	**Status State/Fed/CNPS/BLM/ Global Rank/State Rank**
Lobed cherry	*Physalis lobata*	__/__/2.3/__/G5/S1.3
Desert portulaca	*Portulaca halimoides*	__/__/4.2/__/G5/S3
Desert unicorn plant	***Proboscidea althaeifolia***	**__/__/4.3/__/G5/S3.3**
Orocopia sage	*Salvia greatae*	__/__/1B.3./S/G2/S2.2
Desert spikemoss	*Selaginella eremophila*	__/__/2.2./__/G4/S2.2?
Cove's cassia	*Senna covesii*	__/__/2.2/__/G5?/S2.2
Mesquite nest straw	*Stylocline sonorensis*	__/__/1A/__/G3G5/SX
Dwarf germander	*Teucrium cubense* ssp. *depressum*	__/__/2.2/__/G4G5T3T4/ S2
Jackass clover	*Wislizenia refracta* ssp. *refracta*	__/__/2.2/__/G5T5?/S1.2 ?
Palmer's jackass clover	*Wislizenia refracta* ssp. *palmeri*	__/__/?/__/__/__
WILDLIFE		
Common Name	**Scientific Name**	**Status State/Federal**
Reptiles/Amphibians		
Desert tortoise	***Gopherus agassizii***	**ST/FT**
Couch's spadefoot toad	*Scaphiopus couchii*	CSC/__/BLM Sensitive
Mojave fringe-toed lizard	***Uma scoparia***	**CSC/BLM Sensitive**
Desert rosy boa	*Charina (Lichanura) trivirgata*	__/__
Birds		
Western burrowing owl	***Athene cunicularia hypugaea***	**CSC/BCC/BLM Sensitive**
Golden eagle	*Aquila chrysaetos*	CFP/__/BLM Sensitive
Short-eared owl	***Asio flammeus***	**CSC**
Ferruginous hawk	***Buteo regalis***	**WL/BLM Sensitive**
Swainson's hawk	***Buteo swainsoni***	**ST**
Prairie falcon	***Falco mexicanus***	**WL**
American peregrine falcon	*Falco peregrinus anatum*	SFP
Vaux's swift	*Chaetura vauxi*	CSC
Mountain plover	*Charadrius montanus*	CSC/__/BLM Sensitive
Northern harrier	***Circus cyaneus***	**CSC**
Gilded flicker	*Colaptes chrysoides*	SE
Yellow warbler	*Dendroica petechia sonorana*	CSC
California horned lark	***Eremophila alpestris actia***	**WL**
Yellow-breasted chat	*Icteria virens*	CSC
Loggerhead shrike	***Lanius ludovicianus***	**CSC/BCC**
Gila woodpecker	*Melanerpes uropygialis*	SE
Black-tailed gnatcatcher	*Polioptila melanura*	__/__
Purple martin	*Progne subis*	CSC
Vermilion flycatcher	*Pyrocephalus rubinus*	CSC

PLANTS		
Common Name	**Scientific Name**	**Status State/Fed/CNPS/BLM/ Global Rank/State Rank**
Brewer's sparrow	***Spizella breweri***	**BCC**
Bendire's thrasher	*Toxostoma bendirei*	CSC/__/BLM Sensitive
Crissal thrasher	*Toxostoma crissale*	CSC
Le Conte's thrasher	***Toxostoma lecontei***	**WL/BCC/Sensitive**
Mammals		
Pallid bat	*Antrozous pallidus*	CSC/__ /BLM Sensitive
Townsend's big-eared bat	*Corynorhinus townsendii*	CSC/__/BLM Sensitive
Spotted bat	*Euderma maculatum*	CSC/__/ BLM Sensitive
Western mastiff bat	*Eumops perotis californicus*	CSC/__/ BLM Sensitive
Hoary bat	*Lasiurus cinereus*	__/__
California leaf-nosed bat	*Macrotus californicus*	CSC/__/ BLM Sensitive
Arizona myotis	*Myotis occultus*	CSC
Cave myotis	*Myotis velifer*	CSC/__/ BLM Sensitive
Yuma myotis	*Myotis yumanensis*	__/__/BLM Sensitive
Colorado Valley woodrat	*Neotoma albigula venusta*	__/__
Pocket free-tailed bat	*Nyctinomops femorosaccus*	CSC
Big free-tailed bat	*Nyctinomops macrotis*	CSC
Burro deer	***Odocoileus hemionus eremicus***	**__/__/__**
Nelson's bighorn sheep	*Ovis canadensis nelson*	__/BLM Sensitive
Yuma mountain lion	*Puma concolor browni*	CSC
American badger	***Taxidea taxus***	**CSC**
Desert kit fox	***Vulpes macrotis arsipus***	**__/__**

Source: (Ex. 400, pp. C.2-23 to C.2-25.)

Status Codes:

Federal FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range
FT = Federally listed, threatened: species likely to become endangered within the foreseeable future
BCC: Fish and Wildlife Service: Birds of Conservation Concern: Identifies migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent highest conservation priorities <www.fws.gov/migratorybirds/reports/BCC2002.pdf>

State CSC = California Species of Special Concern Species of concern to CDFG because of declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.
SE = State listed as endangered
ST = State listed as threatened
CFP = California Fully Protected
WL = State watch list
SR = State-listed rare; Plant species listed as rare under the California Native Plant Protection Act (Fish and Game Code §1900 et seq.). A plant is rare when, although not presently threatened with extinction, the species, subspecies, or variety
is found in such small numbers throughout its range that it may be endangered if its environment worsens (Fish and Game Code §1901)

California Native Plant Society
List 1B = Rare, threatened, or endangered in California and elsewhere
List 2 = Rare, threatened, or endangered in California but more common elsewhere

List 3 = Plants which need more information
List 4 = Limited distribution – a watch list
0.1 = Seriously threatened in California (high degree/immediacy of threat)
0.2 = Fairly threatened in California (moderate degree/immediacy of threat)
0.3 = Not very threatened in California (low degree/immediacy of threats or no current threats known)

Bureau of Land Management

BLM Sensitive = Species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA. BLM Sensitive species also include all Federal Candidate species and Federal Delisted species which were so designated within the last 5 years and CNPS List 1B plant species that occur on BLM lands. http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.43545.File.dat/6840.pdf.

Global Rank/State Rank

Global rank (G-rank) and State rank (S-rank) is a reflection of the overall condition of an element throughout its global or State) range. Subspecies are denoted by a T-Rank; multiple rankings indicate a range of values. State rank (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank. An H-rank indicates that all sites are historical

G1 or S1 = Critically imperiled; Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals
G2 or S2 = Imperiled; 6-20 EOs OR 1,000-3,000 individuals
G3 or S3 = Rare, uncommon or threatened, but not immediately imperiled; 21-100 EOs OR 3,000-10,000 individuals
G4 or S4 = Not rare and apparently secure, but with cause for long-term concern; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat.
G5 or S5= Demonstrably widespread, abundant, and secure.

Threat Rank

.1 = very threatened
.2 = threatened
.3 = no current threats known

Intervenors, California Unions for Reliable Energy (CURE) and Center for Biological Diversity (CBD) challenged the adequacy of the baseline surveys from the Applicant and Staff's assessments. First, we will consider the surveys and Intervenors' claims, and then we address construction impacts, operational impacts, and cumulative impacts.

Desert Tortoise Surveys

Protocol-level surveys of most of the Study area for the desert tortoise were conducted between March 17 – 25 and April 6 – 13, 2009 (Study area except south of I-10) and October 30, 2009 (transmission line south of I-10). The transmission line route changed after spring surveys; surveys for the northern alignment were conducted in Spring 2010. (Ex. 58). Survey results of the Project Disturbance Area include 19 mineralized and 9 non-mineralized carcass fragments. Preliminary spring 2010 surveys identified approximately 30 tortoise bone fragments (>> 4 years age) along the transmission line and buffer area. (Ex. 400, pp. C.2-36 to C.2-37.)

The evidence shows that the Project Disturbance Area is currently unoccupied by desert tortoise and the northwestern portion of the GSEP site is suitable or marginally suitable habitat, while the remainder of the site is not habitat for desert tortoise. The Sonoran creosote bush scrub and wash habitat north and west of the GSEP site is higher quality habitat. Energy Commission, BLM, CDFG and USFWS staff agree that the habitat within the Project Disturbance Area is of lower quality closer to the Ford playa and is higher quality toward the upper bajadas, but consider the entire GSEP site to contain suitable habitat for desert tortoise (e.g., Sonoran creosote bush scrub with friable soils for burrowing and appropriate forage plants) and could potentially be occupied by this species in the future. (Ex. 400, p. C.2-37.)

Mojave Fringe-Toed Lizard Surveys

Thirty-nine Mojave fringe-toed lizards were observed during spring 2009 Project surveys. Approximately 60+ Mojave fringe-toed lizards including juvenile, sub-adult, and adults were found during spring 2010 field surveys within the transmission line and buffer area. Several Mojave fringe-toed lizards were observed within the proposed six-pole extension area for the gen-tie transmission line at the SCE Colorado River Substation site. The evidence indicates that the Project Disturbance Area contains suitable Mojave fringe-toed lizard habitat wherever stabilized and partially stabilized sand dune habitat (7.5 acres) and playa/sand drift over playa habitat (38 acres) occur. Mojave fringe-toed lizard habitat preferences are more closely tied to the landform than to the vegetation community, and Sonoran creosote bush scrub habitat with an active sand layer can also support this species. This species was detected south of I-10 in Sonoran creosote bush scrub because this area supports a layer of wind-blown sand from the adjacent dunes. (Ex. 400, p. C.2-38.)

Couch's Spadefoot Toad Surveys

No Couch's spadefoot toads were observed during spring 2009 surveys; however, because of the short time this species is above ground, and because the surveys were not conducted during the proper season (i.e., after summer rains), the lack of observations does not suggest the species is absent from the GSEP site. Based on the evidence, the closest known record for this species is from a breeding pond near the intersection of I-10 and Wiley Well Road. A large ponded area (an old borrow pit) is visible in aerial photos in the same general area. Aerial photos and a site visit by BLM staff indicate the borrow pit can sustain ponded water. This area is within the GSEP transmission line route. (Ex. 400, p. C.2-39.)

Intervenor, CURE argues that the RSA's baseline method for Couch's spadefoot toads violates the requirements of CEQA because the RSA could not establish an accurate environmental setting for determining impacts to Couch's spadefoot toad. CURE notes that, as a Condition of Certification, the RSA requires surveys to identify potential spadefoot toad breeding habitat (Ex. 400, p. C.2-276.) The surveys related to Couch's spadefoot toad have been scheduled for summer or early fall 2010. (Ex. 58, p. 17.) Cure claims that by deferring establishment of the baseline environmental setting for Couch's spadefoot toad until after Project approval, the RSA failed to satisfy CEQA's requirement that the baseline be determined as the first step in the environmental review process. (CURE, 1st Op. Brief, p. 5.)

Staff counters that an adequate baseline survey was provided for Couch's spadefoot toad breeding habitat at the Genesis project site, with on-the-ground field surveys conducted by the Applicant and by Staff, and with verification by review of aerial photography. As Staff described (RSA, C.2-38-C.2-39) and as the Applicant's expert testified at the Evidentiary Hearing (7/12/10 RT 78:13-81:14), presence/absence surveys for spadefoot toads are not a prerequisite for an adequate impact analysis or for development of mitigation measures. Staff made the conservative assumption that this species could occur at the GSEP site without surveys confirming their presence because they are such a difficult species to detect. (Staff's Reply Brief 8/2/10, p. 5-6.) Applicant stipulated to the assumed presence based upon Staff's conservative estimate. We find that the assumed presence of Couch's spadefoot toad provides an adequate basis upon which to fashion conditions to mitigate potential impacts, especially where, as here, the applicant will provide further refinement of the data to the CPM after subsequent surveys are complete.

A Lead Agency is not required to obtain every last bit of information to conduct its analysis. An EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project. (*Laurel Heights Improvement Association v Regents of University of California* (1988) 47 Cal.3d 376, 404-405)) but CEQA does not require agencies to "conduct every test and perform all research, study, and experimentation recommended to it by interested parties." (*Society for California Archaeology v. County of Butte* (1977) 65 Cal.App.3d 832, 838.) "Indeed, a project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information," but "[i]t is not for them to design the EIR." (*Laurel Heights Improvement Ass. v. Regents of the Univ. of Calif.* (1988) 47 Cal.3d 376, 415).

Western Burrowing Owl Surveys

Protocol-level surveys for the western burrowing owl of part of the Project Disturbance Area (except for part of the Study area associated with the newest transmission line route south of I-10) were conducted in winter of 2007 (Phase I) and spring of 2009. One burrowing owl was observed during 2007 surveys and two owls and burrowing owl sign (burrows, whitewash, feathers and pellets) were observed throughout the study area during 2009 field surveys although outside of the Project Disturbance Area. One burrowing owl was observed during spring 2010 field surveys within the transmission line study area. The entire Project Disturbance Area (1,811acres) is considered burrowing owl habitat. (Ex. 400, p. C.2-41.)

Other Mammals Surveyed

American badger sign was found during spring 2009 field surveys; burrow predation evidence by badgers was found in the buffer area west of the GSEP Project Disturbance Area. Therefore, the entire Study area is considered suitable habitat for American badger. (Ex. 400, p. C.2-41.)

Desert kit fox burrows, complexes and scat were observed throughout the Study area within desert wash and upland scrub habitats during 2009 field surveys; desert kit fox complexes, kit fox scat and burrows were observed south of I-10 during spring 2010 surveys. Over 65 kit fox burrow complexes, both active burrows with fresh scat present and inactive burrow complexes were observed throughout the Project Disturbance Area and linear Disturbance. The entire Study area is suitable habitat for desert kit fox. (Ex. 400, p. C.2-46.)

No sign or evidence of **Nelson's bighorn sheep** were found during field surveys and bighorn sheep are not expected to occur in the Project area. The Project Area is not within a known bighorn sheep corridor as identified in the NECO Plan. (Ex. 400, p. C.2-47.)

During spring 2009 field surveys, tracks of **burro deer** were found in one location south of I-10 along the southern transmission line route. Burro deer sign (tracks) were found along the transmission line and buffer area during spring 2010 surveys. This species is expected to occur north of I-10 and within the Study area especially along desert washes and areas of dry desert wash woodland and other microphyllous riparian vegetated washes. Therefore, these habitat areas are considered suitable for burro deer within the Study area. (Ex. 400, p. C.2-47.)

Golden Eagle and Bird Surveys

CBD claims that the RSA fails to provide “adequate information regarding the biological baseline” for golden eagles. (CBD Op. Brief, p. 4).

Wildlife Research Institute (WRI) conducted golden eagle surveys by helicopter in accordance with USFWS protocols and prepared the *Golden Eagle Risk Assessment for the Genesis Solar Energy Project*, dated June 2010. The initial surveys were performed on March 25-26, 2010, and April 2-3, 2010 and three golden eagle nests were found within the 10-mile survey buffer of the GSEP area. One of these nests was an inactive nest in the McCoy Mountains approximately 8.26 miles east of the GSEP site boundary, and 5.2 miles form the closest point of the transmission line. The other two nests were within the Palen Mountains, both approximately 9.8 miles northwest of the GSEP site boundary. One of these was inactive, but the other showed evidence that new material may have been recently added; no eagles were observed using this nest. The two nests found in the Palen Mountains likely represent alternate nest sites for one eagle pair given the close proximity of the nests. The three observed nests likely represent two eagle territories, one in the Palen Mountains and one in the McCoy Mountains. (Ex. 403, p. C.2-1.)

Per the USFWS protocol, a follow-up survey was performed on May 14, 2010 to revisit active or possibly active territories and no new eagle nesting activity was observed. No eagles were observed during any March, April, or May 2010 helicopter surveys in either mountain range. (Ex. 403, p. C.2-1.)

The evidence concluded, and we find, that disturbance to nesting golden eagles was unlikely due to the distance of the solar facility from nests, the lack of view of the Project from the nests and the lack of known prey concentration in the area. (Ex. 403, pp. C.2-1 to C.2-2.) CBD provided no evidence to contradict these surveys.

In addition, the following migratory/special-status bird species were observed during project surveys: Loggerhead shrikes, Le Conte’s thrasher, California horned lark, Brewer’s sparrow, prairie falcon, short-eared owl, Swainson’s hawk, ferruginous hawk, and northern harrier. (Ex. 400, pp. C.2-42 to C.2-45.)

Plant Surveys

As shown in **Biological Resources Table 1**, several special-status plant species have the potential to occur within the study area. Thirteen of these species were

either observed during botanical and wildlife field surveys performed during spring 2009 and 2010 and/or are considered to have moderate to high potential for occurrence, based on suitable habitat and/or known occurrences in the region including: Harwood's eriastrum, Harwood's milk-vetch, Ribbed cryptantha, Desert unicorn plant, Abram's spurge, Las Animas colubrine, Flat-seeded spurge, Glandular diaxis, California diaxis, Lobed ground cherry, Dwarf germander, Palmer's jackass clover, Jackass clover, Winged cryptantha, Utah vining milkweed, and a new undescribed taxon of saltbush (*Atriplex sd*. Nov.). (Ex. 400, pp. C.2-25 to C.2-26.)

There are 50 pages in the RSA establishing a comprehensive baseline description of the environmental setting, plant communities, and stream resources found on the GSEP site and in the GSEP vicinity (Ex. 400, pp. C.2-12 through C.2-62). An additional 23 page impact analysis dedicated specifically to the subject of special-status plants (Ex. 400, pp. C.2-17 through C.2-34), includes an analysis and detailed description of all early and late-season plants known to occur within 50 or more miles of the GSEP site. A comprehensive list of potentially occurring plant species is found in the RSA at page (Ex. 400, p. C.2-22). We find that the surveys contained in the record provide an adequate environmental baseline.

3. Construction Impacts and Mitigation

Biological Resources Table 2 summarizes the direct, indirect and cumulative impacts to biological resources resulting from GSEP construction and operation and includes the condition of certification that will mitigate these impacts. **Biological Resources Table 3** provides a summary of acreage impacts and recommended mitigation.

Biological Resources Table 2
Summary of Impacts and Mitigation

Biological Resource	Impact/Mitigation
Sonoran Creosote Bush Scrub & Associated Wildlife	**Direct Impacts**: Permanent loss of 1,774 acres; fragmentation of adjacent wildlife habitat and native plant communities **Indirect Impacts**: Disturbance (noise, lights, dust) to surrounding plant and animal communities; spread of non-native invasive weeds; changes in drainage patterns downslope of Project; erosion and sedimentation of disturbed soils. **Cumulative Impacts**: Contributes 0.8% to cumulative loss from probable future projects within the NECO planning area **Mitigation**: Off-site habitat acquisition and enhancement (**BIO-12**); implement impact avoidance and minimization measures (**BIO-8)** and Weed Control Plan (**BIO-14**)
Waters of the State & Associated Sensitive Plant Communities	**Direct Impacts**: Permanent loss of 69 acres of state waters, including 16 acres of microphyll woodland. Temporary direct impacts to 18 acres. Loss of important wildlife habitat function and values, and impaired or lost hydrologic and geomorphic functions necessary to sustain the habitat **Indirect Impacts**: Permanent loss of hydrological connectivity downstream of the Project, including 21[c] acres unvegetated ephemeral wash; head-cutting on drainages upslope and erosion/sedimentation downslope; * **Cumulative Impacts**: Contributes 2.9% to cumulative loss from future projects within the NECO planning area; contributes 4.6% to cumulative loss from future projects within the Chuckwalla- Ford Dry Lake watershed. **Mitigation**: Acquisition and enhancement of 111 acres ephemeral desert washes, implementation of avoidance and minimization measures to protect state waters (**BIO-22**); implement Weed Management Plan (**BIO-14**)
Desert Tortoise	**Direct Impacts**: Potential take of individuals during operation and construction; permanent loss of 1,774 acres (including 24 acres of critical habitat) of desert tortoise habitat and fragmentation of surrounding habitat. **Indirect Impacts**: Increased risk of predation from ravens, coyotes, feral dogs; disturbance from increased noise and lighting; introduction and spread of weeds; increased road kill hazard. **Cumulative Impacts**: Contributes to cumulative loss of low to moderate value desert tortoise habitat (2.0% to 0.1 habitat value, 2.9% to 0.2 habitat value, 0.1% to 0.3 habitat value) from future projects in the NECO planning area; **Mitigation**: Implement avoidance and minimization measures (**BIO-6** through **BIO-11**) and acquire 1,870 acres of desert tortoise habitat (**BIO-12**).

Biological Resource	Impact/Mitigation
Mojave Fringe-Toed Lizard	**Direct impacts**: Mortality to individuals during construction and permanent loss of **7.5** [a,f] acres of sand dune habitat and **38** acres of sand drift over playa; increased road kill hazard from construction traffic; potential accidental direct impacts to adjacent preserved habitat during construction and operation. **Indirect impacts**: introduction and spread of invasive plants; erosion and sedimentation of disturbed soils; fragmentation and degradation of remaining habitat; increased road kill hazard from construction and operations traffic; harm from accidental spraying/drift of herbicides and dust suppression chemicals. **Cumulative Impacts**: Contributes 0.2% to cumulative loss from future projects within the NECO planning area; contributes 1.7% to cumulative loss from future projects within the range of the Chuckwalla Valley population. **Mitigation**: Implement **BIO-20**, Mojave fringe-toed lizard compensation, and **BIO-8**, impact avoidance and minimization measures
Couch's Spadefoot Toad	**Direct Impacts:** loss of breeding and upland habitat, mortality of individuals; disturbance to breeding ponds, **Indirect Impacts:** reduced flow to breeding areas, increased flow to upland habitat, construction noise could trigger emergence when conditions are not favorable. **Cumulative Impacts**: Contributes 1.6% to cumulative loss of habitat from future projects within the NECO planning area. **Mitigation**: Conduct surveys and implement impact avoidance and minimization measures, avoidance and protection of breeding habitat **BIO-27** (Couch's spadefoot toad impact avoidance and minimization measures).
Western Burrowing Owl	**Direct Impacts**: Permanent loss of foraging habitat; potential loss of eggs and young; degradation and fragmentation of remaining adjacent habitat from edge effects; disturbance of nesting and foraging activities for nesting pairs near the plant site and linear facilities; **Indirect Impacts**: increased road kill hazard from operations traffic; potential collision with mirrors; increased predation from ravens; disturbance of nesting activities from operations. **Cumulative Impacts**: Contributes 0.5% to cumulative loss from future projects within the NECO planning area. **Mitigation:** Implement burrowing owl impact avoidance and mitigation measures, including habitat acquisition if owls are displaced by the Project (**BIO 18**, Burrowing owl impact avoidance, minimization, and compensation measures)

Biological Resource	Impact/Mitigation
Golden Eagle	**Direct/Indirect Impact**: Loss of foraging habitat; potential disturbance to nesting golden eagles during construction if active nests occur within one_ miles of Project boundaries **Cumulative Impacts**: Contributes 7.4% to cumulative loss of Sonoran creosote bush scrub and 0.2% to loss of dry desert wash woodland, and 0.6% to loss of sand dune foraging habitat from future projects within the NECO planning area within 10 miles of the Project. Contributes 0.8% to cumulative loss of Sonoran creosote bush scrub and 0.03% to loss of dry desert wash woodland, and 0.6% to loss of sand dune foraging habitat from future projects within 10 miles of the nearest mountains. **Mitigation**: Implementation of Golden Eagle Nest Inventory and Monitoring (**BIO-28**) and off-site habitat acquisition and enhancement for desert tortoise will protect eagle foraging habitat (**BIO-12**); additional mitigation may be required pending USFWS guidance.
Special-Status Birds & Migratory Birds	**Direct Impacts**: Permanent loss of breeding and foraging habitat, including loss of 1,774 acres of Sonoran creosote bush scrub and 16[b] acres of microphyll woodland; potential loss of eggs and young; disturbance of nesting and foraging activities for populations on and near the plant site and linear facilities; degradation and fragmentation of remaining adjacent habitat from edge effects. **Indirect Impacts**: increased road kill hazard from operations traffic and collision with mirrors; increased predation from ravens; disturbance from operations. **Cumulative Impacts**: Contributes 0.6% to cumulative loss of habitat from future projects within NECO planning area. **Mitigation**: Implement impact avoidance and minimization measures (**BIO-8**); pre-construction nest surveys (**BIO-15**); avian protection plan (**BIO-16**) off-site habitat acquisition and enhancement (**BIO-12** and **BIO-22**)
Desert Kit Fox & American Badger	**Direct Impacts**: Permanent loss of 1,811 [a,f] acres of foraging and denning habitat; fragmentation and degradation of remaining habitat, loss of foraging grounds, crushing or entombing of animals during construction; increased risk of road kill hazard from construction traffic. **Indirect Impacts**: Disturbance from increased noise and lighting; introduction and spread of weeds; increased risk of road kill from operations traffic. **Cumulative Impacts**: Contributes 0.5% to cumulative loss of habitat from future projects within the NECO planning area. **Mitigation:** Implementation of impact avoidance and minimization measures (**BIO-8**), conduct pre-construction clearance surveys (**BIO-17**); off-site habitat acquisition and enhancement (**BIO-12** and **BIO-22**)
Nelson's bighorn sheep	**Direct Impacts:** None **Indirect Impacts:** harassment from elevated construction noise **Cumulative Impacts**: None **Mitigation:** Implementation of noise-related avoidance and minimization measures (**BIO-8**).
Bats	**Direct/Indirect/Cumulative Impacts**: Loss of foraging habitat. **Mitigation:** off-site habitat acquisition and enhancement (**BIO-12** and **BIO-22**)

Biological Resource	Impact/Mitigation
Special Wildlife Management Areas	**Chuckwalla DWMA/Desert Tortoise Critical Habitat:** Impacts to 24 acres **ACEC**: None **WHMA:** Impacts to1,811[a,f] acres **Mitigation**: Mitigate loss of critical habitat with acquisition and preservation of suitable desert tortoise at a 5:1 ratio (**BIO-12**).
Special-status Plants ▪ Harwood's eriastrum ▪ Harwood's milk-vetch ▪ Ribbed cryptantha ▪ Desert unicorn plant ▪ Late-season special-status plants •	**Direct Impacts:** Potential impacts to BLM Sensitive Harwood's eriastrum (CNPS 1B) from gen-tie construction near substation; Harwood's milk-vetch (CNPS 2) on linears and solar plant site; desert unicorn plant (CNPS 4) at solar plant site; ribbed cryptantha (CNPS 4) on linears and solar plant site. Potential direct impacts to CNPS 1B, 2, 4 and new taxa detected during late season surveys. **Indirect impacts:** Fragmentation/isolation and reduced gene flow between isolated fragments of area population; introduction and spread of invasive plants; erosion and sedimentation of disturbed soils; potential disruption of sand transport systems that maintain habitat below the Project; alteration of drainage patterns; herbicide drift; disruption of photosynthesis and other metabolic processes from dust. Construction of SCE substation could cause loss of over 1000 individuals of Harwood's eriastrum. **Cumulative Impacts:** Contributes to cumulative loss of plants and habitat, and indirect effects to Harwood's eriastrum, Harwood's milk-vetch, desert unicorn plant and ribbed cryptantha from other I-10 corridor projects and throughout range. Contributes 0.7% to cumulative loss of Harwood's milk-vetch habitat from future projects within the NECO Planning Area. Contributes cumulative loss of dune-, playa-, and wash habitat for other special-status species in Chuckwalla Valley: 4.6% desert washes in Chuckwalla Valley; 1.7% dunes and sand fields; 0.2% playa. **Mitigation:** Implement **BIO-19** - avoidance requirements for Harwood's eriastrum; off-site compensation or restoration mitigation for Harwood's milk-vetch; general avoidance and minimization measures for all special-status plants. Implement late-season surveys and mitigate according to triggers and performance standards in **BIO-19**. Indirect effects and impacts to habitat also addressed in Weed Management Plan (**BIO-14**); Best Management Practices (**BIO-8**); special-status plant impact avoidance and minimization measures and potential habitat compensation (**BIO-19**), acquisition of sand dune habitat (**BIO-20**).
Groundwater-Dependent Plant Communities	**Direct:** None **Indirect/Cumulative:** None; with dry cooling, impacts to groundwater plant communities would be less than significant **Mitigation:** None

Source: (Ex .400, Table 5, pp. C.2-64 to C.2-67.)

Biological Resources Table 3
Acreage of Direct and Indirect Impacts to Biological Resources and Recommended Mitigation

Resource	Acres Impacted	Mitigation Ratio	Recommended Mitigation Acreage
Desert Tortoise Habitat – Direct Impacts			
Within DWMA/Critical Habitat	24	5:1	120
Outside Critical Habitat	1,750	1:1	1,750
Total Desert Tortoise Mitigation			**1,870**
Stabilized/Partially Stabilized Sand Dunes – Direct Impacts			
Direct Impacts	7.5	3:1	22
Playa and Sand Drifts Over Playa			
Direct Impacts	38	3:1	114
Total Mojave Fringe-toed Lizard Mitigation			**136**
State Waters* - Direct Impacts			
Microphyllous Riparian Vegetation	16	3:1	48
Unvegetated Ephemeral Dry Wash	53	1:1	53
State Waters- Indirect Impacts			
Unvegetated Ephemeral Dry Wash	21	0.5:1	10
Total State Waters Mitigation			**111**

Source: Ex. 403, Table 6, p. C.2-8.

Impacts to Waters of the State

Grading within the Project Disturbance Area and its ephemeral drainages will directly impact 69 acres of state jurisdictional waters, and for 53 of these acres it will permanently eliminate their hydrological, biogeochemical, vegetation and wildlife functions. Eighteen acres of drainages will be temporarily impacted by construction of linear facilities and access roads associated with those facilities. (Ex. 400, p. C.2-71; 403, p. C.2-7.)

Desert washes downstream from the Project area, comprising approximately 21 acres of state waters, will also be indirectly impacted as a result of changes to upstream hydrology, with downstream vegetation in washes deprived of flows or receiving lower or higher volumes and velocities of water than current conditions at discharge points along the stormwater conveyance channel. Diversions could

significantly alter the hydrology and wash-dependent vegetation of any features that may occur downstream of the Project area, an effect that is quite apparent below I-10 near the Corn Springs Exit. On the northern side of I-10 broad expanses of desert wash trees and shrubs have died in response to the construction of I-10 and the diversion of smaller channels into collector ditches on the southern side of I-10. (Ex. 400, pp. C.2-71 to C.2-72.)

The evidence shows that direct impacts of the GSEP to 69 acres of state jurisdictional waters and indirect impacts to as many as 21 acres to be significant. The extensive ephemeral drainage network at the GSEP site currently provides many functions and values, including landscape hydrologic connections, stream energy dissipation during high-water flows that reduces erosion and improves water quality, water supply and water-quality filtering functions, surface and subsurface water storage, groundwater recharge, sediment transport, storage, and deposition aiding in floodplain maintenance and development, nutrient cycling, wildlife habitat and movement/migration; and support for vegetation communities that help stabilize stream banks and provide wildlife habitat. The GSEP will eliminate all of these functions and values on at least 53 acres of ephemeral washes, and will temporarily impact these functions on another 18 acres. (Ex. 400, p. C.2-72.)

Off-site acquisition and enhancement of off-site state waters will mitigate GSEP impacts to state waters. Staff and CDFG have proposed mitigation at a 1:1 ratio for unvegetated ephemeral drainages, and at a 3:1 mitigation ratio for microphyll woodlands, the higher ratio reflecting the high wildlife values and scarcity of this habitat type. Indirect impacts to state waters will be mitigated at half the ratio of direct impacts, as detailed in **Biological Resources Table 3**. The lesser mitigation ratio for indirect impacts to drainages downgradient of the GSEP site reflects the expectation that while the wash-dependent vegetation down slope of altered drainages will eventually be lost, that loss will be slow and gradual. It is anticipated that the wash-dependent vegetation downstream of the GSEP deprived of flows will continue to provide habitat for years and possibly decades after the Project is constructed, although eventually it will die (if deprived of flows) or be indirectly affected by erosion and sedimentation along reaches below the stormwater channel discharge points. (Ex. 400, pp. C.2-72 to C.2-73; 403 p. C.2-8.)

Condition of Certification **BIO-22** includes the off site acquisition of 111 acres of waters of the state within the Chuckwalla Valley watershed, with at least 48 acres of that consisting of microphyllous riparian vegetation. This condition also provides the specifics of avoidance and mitigation measures for impacts to

ephemeral drainages within and downslope of the Project Disturbance Area. Implementation of Condition of Certification **BIO-22** will reduce GSEP impacts to state waters to less than significant levels, and will satisfy CDFG codes relating to protection of state waters. (Ex. 400, p. C.2-73; 403 p. C.2-8.)

Impacts to Special-status Species

Mojave Fringe-toed Lizard. The GSEP will directly impact 45.5 acres of Mojave fringe-toed lizard habitat (comprised of 7.5 acres of dunes and 38 acres of playa with sand drifts) The Mojave fringe-toed lizards in the Chuckwalla Valley are at the southernmost portion of the species range, and the GSEP could increase the risks of local extirpation of an already fragmented and isolated population. Condition of Certification **BIO-20** requires acquisition and protection of habitat supporting core populations of Mojave fringe-toed lizard habitat in the Chuckwalla Valley, which will reduce GSEP impacts to less than significant levels. (Ex. 400, pp. C.2.1 to C.2-2 and pp. C.2-74 to C.2-76.)

A number of sensitive species were observed in the vicinity of the proposed substation during the 2010 surveys, including many Mojave fringe-toed lizards. The transmission line extension construction could therefore result in direct and indirect impacts to Mojave fringe-toed lizards and to their habitat. Condition of Certification **BIO-20** requires acquisition and protection of habitat supporting core populations of Mojave fringe-toed lizard habitat in the vicinity of the proposed substation. This impact will be mitigated to less than significant levels with Condition of Certification **BIO-20**. (Ex. 400, pp. C.2-74 to C.2-76.)

CBD argues that the RSA fails to identify habitat fragmentation as a significant impact of the facility site, the access road, and the transmission line. (CBD Op. Brief, p. 6). However, the record shows that habitat fragmentation is identified as a significant impact to the Mojave fringe-toed lizard in the RSA (Ex. 400) at pages C.2-74 through C.2-75, as well as C.2-147. Fragmentation of the habitat and the accompanying isolation and reduced population viability was deemed to be significant. (Ex. 400, pp. C.2-75; C.2-147). The access road and transmission lines were included in the biological analysis in the RSA as part of the total disturbance area of the project (Ex. 400, pp. C.2-12 through C.2-13). We find that the evidence identifies habitat fragmentation as a significant impact of the facility site, the access road, and the transmission line, and we further find that these impacts will be mitigated to less than significant levels with Condition of Certification **BIO-20**.

Desert Tortoise. During construction of the GSEP desert tortoises may be harmed during clearing, grading, and trenching activities or may become entrapped within open trenches and pipes. Construction activities could also result in direct mortality, injury, or harassment of individuals as a result of encounters with vehicles or heavy equipment. Other direct effects could include individual tortoises being crushed or entombed in their burrows, collection or vandalism, disruption of tortoise behavior during construction or operation of facilities, disturbance by noise or vibrations from the heavy equipment, and injury or mortality from encounters with worker's or visitor's pets. Desert tortoises may also be attracted to the construction area by application of water to control dust, placing them at higher risk of injury or mortality. Increased human activity and vehicle travel will occur from the construction and improvement of access roads, which could disturb, injure, or kill individual tortoises. Also, tortoises may seek shade by taking shelter under parked vehicles and be killed, injured, or harassed when the vehicle is moved. (Ex. 400, pp. C.2-76 to C.2-77.)

The Applicant has recommended impact avoidance and minimization measures to reduce these direct impacts to desert tortoise, including installation of exclusion fencing to keep desert tortoise out of construction areas, relocating/translocating the resident desert tortoise from the GSEP site, reducing construction traffic and speed limits to reduce the incidence of road kills and worker environmental awareness training programs. (Ex. 400, p. C.2-77.)

We have incorporated these recommendations into conditions of certification. These include Conditions of Certification **BIO-1** through **BIO-5,** which requires qualified biologists, with authority to implement mitigation measures necessary to prevent impacts to biological resources, be on site during all construction activities. Condition of Certification **BIO-6** requires the development and implementation of a Worker Environmental Awareness Program to train all workers to avoid impacts to sensitive species and their habitats. Condition of Certification **BIO-7** requires the project owner to prepare and implement a Biological Resources Mitigation Implementation and Monitoring Plan that incorporates the mitigation and compliance measures required by local, state, and federal LORS regarding biological resources. Condition of Certification **BIO-8** describes Best Management Practices requirements and other impact avoidance and minimization measures. (Ex. 400, p. C.2-77.)

Conditions of Certification **BIO-9** through **BIO-11** are specific to desert tortoise; Condition of Certification **BIO-9** will require installation of security and desert tortoise exclusionary fencing around the entire Project Disturbance Area

(including access roads), and **BIO-10** recommends the development and implementation of a desert tortoise translocation plan to move the tortoises currently living in the Project Disturbance Area to identified translocation sites. **BIO-11** requires verification that all desert tortoise impact avoidance, minimization, and compensation measures have been implemented. (Ex. 400, p. C.2-77.)

To offset the loss of 1,774 acres of desert tortoise habitat, Condition of Certification **BIO-12** recommends habitat compensation at a 1:1 ratio for desert tortoise (i.e., acquisition and preservation of one acre of compensation lands for every acre lost). For Project impacts to 24 acres of Chuckwalla Desert Critical Habitat Unit, the mitigation ratio will be 5:1. The acquisition of compensatory mitigation lands offsets Project impacts to desert tortoise and other sensitive species by protection of those lands, and by enhancement actions such as fencing, road closure, weed control, and habitat restoration. The protection and enhancement actions increase the carrying capacity of the acquired lands for desert tortoise, which increases their population numbers by enhancing survivorship and reproduction. (Ex. 400, p.C.2-81). This compensatory mitigation is consistent with recommendations from the California This compensatory mitigation is consistent with recommendations from the California Department of Fish and Game (CDFG), the U.S. Fish and Wildlife Service (USFWS), and BLM guidance in the NECO. Condition of Certification **BIO-12** also requires that the land acquisitions be within the Colorado Desert Recovery Unit, and have potential to contribute to desert tortoise habitat connectivity and build linkages between desert tortoise populations and designated critical habitat. These conditions satisfy the CDFG's requirements under Section 2081 of the California Fish and Game Code. (Ex. SA, pp. C.2-79 to C.2-82.)

No desert tortoise were detected in or within the one-mile buffer around the proposed substation during the 2010 surveys, but given the proximity of good habitat in the immediate vicinity of the proposed substation desert tortoise could occur in or near transmission line construction areas and could be directly or indirectly impacted. Implementation of conditions of certification **BIO-9** through **BIO-12** will reduce potential impacts to desert tortoise to less than significant levels. Construction activities and addition of new perching structures such as poles could result in increased ravens, and hence an increase in desert tortoise predation. This impact will be mitigated with implementation of Condition of Certification **BIO-13**, the Raven Management Plan. (Ex. 400, p. C.2-70.)

<u>Couch's Spadefoot Toad</u>. The GSEP is located at the western border of the Couch's spadefoot toad range. The evidence shows that the impacts to one of

the few known breeding ponds for this species at the western boundary of its range to be a significant impact. Condition of Certification **BIO-27** requires development and implementation of a Couch's Spadefoot Toad Protection and Mitigation Plan, which requires avoiding impacts to all spadefoot toad breeding habitat along the Project linear corridors, or requires construction of replacement habitat if impacts are unavoidable. In order to complete this plan, habitat surveys in 2010 will be required to identify potential spadefoot toad breeding habitat along the linear alignment. (Ex. 400, p. C.2-86.)

The evidence suggests that construction activities can avoid the known breeding pond south of I-10 near Wiley Well Road (7/12/10 RT 78:12 – 81:14). The Protection and Mitigation Plan will provide detailed guidance to implement the protection of the I-10 pond during Project construction and operation, and will extend that protection to any other ponds detected during habitat surveys conducted north of I-10 along the linear corridor. Condition of Certification **BIO-27** also requires that the new breeding pond habitat be created if ponds are impacted during construction. The avoidance, minimization and compensatory mitigation described in **BIO-27** will reduce impacts to Couch's spadefoot toad to less than significant levels. (Ex. 400, p. C.2-87.)

Western Burrowing Owl. The evidence indicates that while no burrowing owls were detected in the Project Disturbance Area during the 2009 surveys, they could be found there when construction occurs because they have been recorded nearby. Condition of Certification **BIO-18** (Burrowing Owl Impact Avoidance and Minimization Measures) requires a pre-construction survey to determine the current number of owls occupying the Project Disturbance Area and surrounding buffer area. **BIO-18** recommends avoidance and minimization measures to protect owls nesting near but not within the Project Disturbance Area. In addition, Staff has conservatively assumed that one burrowing owl pair might occur within the Project, and acquisition of up to 19.5 acres per owl of compensatory mitigation will be required to offset the loss of habitat if pre-construction surveys indicate that owls are using the GSEP site for breeding. If no burrowing owls are detected nesting within the Project Disturbance Area during pre-construction surveys, then the acquisition of 19.5 acres per owl of burrowing owl habitat will not be required. With implementation of **BIO-18,** direct and indirect impacts to burrowing owls resulting from construction of the Project will be mitigated to less than significant levels through pre-construction surveys and acquisition of compensatory habitat if it is determined that owls will be displaced as a result of construction following surveys. (Ex. 400, p. C.2-89.)

Golden Eagle. While golden eagles are known to occur in the region, there are no known nests within 14 miles of the GSEP site and this species was not incidentally observed during avian point count surveys or field surveys conducted for other plant and wildlife species. Golden eagle inventories were conducted using methods recommended by USFWS and covered all potential nesting habitat within 10 miles of the GSEP boundaries. (Ex. 400, p. C.2-89; Ex. 59; Ex. 65.) Staff made a general evaluation of the potential for the GSEP to injure or disturb breeding or wintering golden eagles with the assumption that an active golden eagle territory might occur within 10 miles of the GSEP boundaries. Based on guidance provided by the USFWS staff defined disturbance as an activity that will result in injury to an eagle or which would substantially interfere with normal breeding, feeding, or sheltering behavior. (Ex. 400, p. C.2-89.)

The evidence indicates that GSEP construction activities could potentially injure or disturb golden eagles if nests were established sufficiently close to the GSEP boundaries to be affected by the sights and sounds of construction. Because these potential impacts are unlikely disturbance to nesting activities will be avoided with implementation of Condition of Certification **BIO-28** (Golden Eagle Inventory and Monitoring)for those nests found within one (1) mile of construction activities. This condition requires that during construction, golden eagle nest surveys be conducted in accordance with USFWS guidelines to verify the status of golden eagle nesting territories within one (1) mile of the project boundaries. If active nests are detected, **BIO-28** requires monitoring guidelines, performance standards, and adaptive management measures to avoid adverse impacts to golden eagles from GSEP construction. Implementation of **BIO-28** will reduce potential impacts of GSEP construction on nesting golden eagles to less than significant levels. (Ex. 400, p. C.2-89.)

Staff also assessed the impacts of the GSEP to golden eagle foraging habitat, and concluded that the GSEP would contribute to the cumulative loss of golden eagle foraging habitat within the NECO planning area. The GSEP will reduce the availability of foraging habitat in the Project area and could degrade foraging habitat by the introduction and spread of noxious weeds and an increase in human activity in the area. The potential for impacts to golden eagle foraging habitat can be minimized by the implementation of Conditions of Certification **BIO-12** (acquisition of desert tortoise compensatory mitigation lands), **BIO-22** (acquisition of state waters compensatory mitigation lands) **BIO-14** (implementation of Weed Management Plan). As described in **BIO-12**, the acquisition of desert tortoise mitigation lands would be targeted for areas within and near the Chuckwalla Bench and the Chuckwalla DWMA. Because these

targeted areas are also within 10 miles of potential nesting sites for golden eagles, acquisition of these desert tortoise mitigation lands will also provide protected golden eagle foraging grounds. (Ex. 400, p. C.2-90.)

Migratory/Special-status Bird Species. Several special-status species, such as black-tailed gnatcatchers, yellow warblers, and crissal thrashers, breed in the region, but will not breed on the site due to lack of suitable habitat. This region does not provide breeding habitat for Swainson's hawks, northern harriers, short-eared owls, ferruginous hawks, or Brewer's sparrows but may provide overwintering habitat or the species may be present during migration. The GSEP impacts to Sonoran creosote bush scrub and microphyll woodland will contribute to loss of foraging habitat, cover, and roost sites for these species on their migratory or wintering grounds, but will not contribute to loss of breeding habitat. The GSEP will have more substantial adverse effects to the resident breeding birds at the site, which include loggerhead shrike, California horned lark, and Le Conte's thrasher among others. These species will be adversely affected by the loss of 16 acres of microphyll woodland and 1,774 acres of Sonoran creosote bush scrub. Le Conte's thrasher, loggerhead shrikes and other wash-dependent species will in particular be affected by the loss of the cover, foraging and nesting opportunities provided by the structurally diverse and relatively lush dry washes and microphyll woodland. Dry washes contain less than five percent of the Sonoran Desert's area, but are estimated to support ninety percent of Sonoran Desert birdlife. As discussed in the cumulative impact subsection, the evidence shows that the GSEP will be a substantial contributor to the cumulative loss of the NECO Planning Area's biological resources, including habitat for these special-status birds. Condition of Certification **BIO-12**, the desert tortoise compensatory mitigation plan and **BIO-22**, mitigation for impacts to state waters, will offset the cumulative loss of habitat for these species. (Ex. 400, pp. C.2-90 to C.2-91.)

The loss of active bird nests or young is regulated by the federal Migratory Bird Treaty Act and Fish and Game Code section 3503, which protects active nests or eggs of California birds. Mitigation measures to avoid and minimize impacts to nesting birds have been incorporated into Conditions of Certification including: **BIO-8** (Impact Avoidance and Minimization Measures); **BIO-15** (Pre-construction Nest Surveys); which describes guidelines for performing pre-construction surveys and **BIO-16** (Avian Protection Plan) which provides a mechanism to monitor for bird collisions and implement adaptive management measures to minimize impacts. Implementation of conditions of certification will avoid direct impacts to nests, eggs, or young of migratory birds, and will minimize the impacts

to less significant levels for construction disturbance to resident and migratory birds. (Ex. 400, p. C.2-91.)

Other Mammals. The GSEP site supports foraging and roosting habitat for several special-status bat species. Roosting opportunities for bats are available in tree cavities, soil crevices and rock outcroppings primarily within dry desert wash woodland habitats. Bats likely utilize habitats throughout the study area for foraging but forage more commonly when water is present within the desert washes when insects are more abundant. Implementation of the Project will result in loss of these foraging and roosting habitat opportunities for special-status bats that might occur in the Project area. Condition of Certification **BIO-12**, the desert tortoise compensatory mitigation plan and **BIO-22**, mitigation for impacts to state waters, will offset the cumulative loss of habitat for these species. (Ex. 400, p. C.2-91.)

Construction of the Project could kill or injure American badgers by crushing with heavy equipment or could entomb them within a den. Construction activities could also result in disturbance or harassment of individuals. Like badgers, desert kit fox are burrow dwellers and are similarly at risk of death or injury from construction activities. The desert kit fox is not a special-status species, but it is protected under Title 14, California Code of Regulations (section 460), and potential impacts to individuals of this species must be avoided. Badger burrows and kit fox burrow complexes were detected within the Project Disturbance Area, and the site includes suitable foraging and denning habitat for these species. Construction activities could also result in disturbance or harassment of individuals. Condition of Certification **BIO-17** requires that concurrent with the desert tortoise clearance survey, a qualified biologist perform a preconstruction survey for kit fox dens and American badgers in the Project area, including areas within 250 feet of all Project facilities, utility corridors, and access roads. (Ex. 400, p. C.2-91.)

The GSEP will permanently remove approximately 1,811 acres of foraging and denning habitat for American badgers and kit foxes and will fragment and reduce the value of foraging and denning habitat adjacent to the Project site. This habitat loss and degradation could adversely affect American badger and kit fox populations within the NECO Planning Area. As discussed in the cumulative impact subsection, the GSEP will be a substantial contributor to the cumulative loss of the NECO Planning Area biological resources, including American badgers and kit fox. Condition of Certification **BIO-12**, the desert tortoise compensatory mitigation plan, and **BIO-22**, compensatory mitigation for state

waters, will offset the loss of habitat for this species and reduce the impact to less-than-significant. (Ex. 400, p. C.2-92.) We find the combination of these conditions along with Condition of Certification **BIO-17** mitigates impacts to American badgers and kit fox below significance.

The GSEP site is south of a bighorn sheep connectivity corridor between the Palen and McCoy Mountains, identified in the NECO. The evidence indicates that the GSEP site is not an important movement corridor for this species given the distance from the mountain ranges and the width of the valley at the GSEP site. The Society for Conservation of Bighorn Sheep has recommended a one mile buffer from the upper edge of any solar development to the base of the mountains to protect spring foraging habitat. The GSEP site is over one mile from the base of either the McCoy Mountains or Palen Mountains, and is not expected to provide spring foraging habitat for the bighorn sheep. Therefore the GSEP will have no significant impact on bighorn sheep. (Ex. 400, p. C.2-92.)

Special-status Plant Species

No federal or state-listed plant species occur within the Project Disturbance Area but four species of special-status plants were detected within the Study area during spring 2009 and 2010 surveys, including Harwood's milk-vetch, desert unicorn, and ribbed cryptantha. Harwood's eriastrum, a California endemic and BLM Sensitive species, was detected at the Colorado River Substation site and Project linears east of the site during the 2010 spring surveys. Harwood's eriastrum has a global distribution restricted to the southeast corner of California, and it is known from only 14 documented locations, several of which are historic records that have not been verified. The evidence concludes that the Project's direct, indirect, and cumulative impacts to Harwood's eriastrum and Harwood's milk-vetch are significant, but impacts to ribbed cryptantha are not. While the direct effects of the Project on desert unicorn are minor, the impacts of all future projects in the NECO planning area are cumulatively considerable. The avoidance, minimization and compensation measures described in Condition of Certification **BIO-19** (Special-Status Plant Mitigation) will minimize the impacts to Harwood's eriastrum and Harwood's milk-vetch to a level less than significant, and will reduce the Project's contribution to cumulative effects to special-status plants to a level less than considerable. (Ex. 400, p. C.2-2.)

The special-status plant surveys at the project site were extensive, highly professional, covered multiple years, and are legally sufficient for a CEQA analysis. With this survey data, as well as expert opinion, multiple site visits by staff, an exhaustive review of databases and literature, and a review of GIS data on ownership and threats to occurrences from other projects, staff conducted a

thorough analysis of impacts to late season plants potentially occurring in the Project area. The information was adequate for staff to conclude that the Genesis Project's impacts to late season special-status plants, if present, *are* significant, and that avoidance, minimization, and compensation measures—with detailed and measurable performance standards—are required. Staff commits the Project to conducting the late season surveys prior to construction, and provides thresholds for significance and triggers for mitigation for any such plants detected, based on status, rarity, extinction risk, and the portion of the local population affected. (Staff Assessment C.2-2, C.2-3, C.2-7.)

Abram's spurge, flat-seeded spurge, lobed ground cherry have moderate to high potential to occur within the GSEP site. They were not detected during spring 2009 and 2010 botanical surveys but may have been missed because they are late season plants that cannot be detected during routine spring surveys. Project construction and operation could result in direct and indirect impacts to late season special-status plants, if present, and impacts to these and other species may be significant. **BIO-19** includes a requirement to conduct late-season surveys in summer-fall 2010. Specific triggers and detailed performance standards for mitigation of impacts are included in **BIO-19** to ensure that impacts to any special-status plants found during the late season surveys are mitigated to a level less than significant. (Ex. 400, pp. C.2-2 to C.2-3.)

CBD contends that the RSA provides inadequate information on late summer and fall blooming plants at the project site (CBD Op. Brief, p. 9). CBD points out that Staff concluded that potentially significant impacts to special-status plants could be missed unless additional late season surveys are conducted." (Ex. 400 at C.2-207). CBD argues that "this statement simply assumes that any such significant impacts that may be found can be mitigated. (CBD Op. Brief, p. 9).
The RSA analyzes GSEP impacts to the special-status plant species found during two years of spring surveys, and analyzed the impacts of the project to late-season plants with potential to occur (if present) based on known occurrences within a 50-mile region and the presence of suitable habitat. (Ex. 400, pp C.2-99 to 116.)

We again point out that the presence of a species on a project site may be assumed. Assuming the presence of a species obviates the need for surveys and allows the creation of performance conditions that provide maximal protection to the species presumed to be present at the site. We see nothing wrong with Staff's conservative approach of assuming the worst case scenario for impacts analysis and mitigation, then verifying the results in subsequent surveys. Condition of Certification **BIO-19** contains performance standards that will ensure

that any species found, including new, undescribed species or plants with local or regional significance, will be mitigated to a level less than significant.

A number of additional conditions of certification are required that will minimize direct and indirect impacts to special-status plants. **BIO-14** requires finalizing and implementing the detailed Weed Management Plan, the guidance for which was based on a hybrid of BLM, The Nature Conservancy, USFS, and NatureServe guidelines for management of invasive plants. The avoidance and minimization measures contained in **BIO-1** through **BIO-8** will also benefit special-status plants by protecting the avoided occurrences of Harwood's milk-vetch, Harwood's eriastrum, ribbed cryptantha, desert unicorn plant, and other avoided special-status plants from accidental effects during construction. **BIO-20** requires compensation for impacts to Mojave fringe-toed lizard habitat; the dunes and sand fields that support this species also support several special-status plants. **BIO-22** (Mitigation for Impacts to State Waters) requires acquisition of desert washes and desert wash woodland and permanent protection of the acquired habitat from future development. Desert washes provide essential habitat for a number of late-season special-status plants. **BIO-7** (preparation of BRMIMP) will ensure implementation of all mitigation measures under a mitigation monitoring plan and enforced under the authority of the CPM. (Ex. 400, p. C.2-115.)

Condition of Certification **BIO-24** requires the Applicant prepare a Revegetation Plan to restore all areas subject to temporary disturbance to pre-Project grade and conditions. To the extent practical and as part of this Revegetation Plan, the Applicant will salvage native desert plants during construction of the Project and will use the salvaged plants for revegetation of temporarily disturbed areas. The Revegetation Plan will address the salvaging of cacti, native trees, and topsoil during initial vegetation grubbing of the Project site, as well as proper storage of salvaged plant material and seed collection, replanting of salvaged materials, and monitoring parameters including revegetation success criteria and performance standards for salvaged materials. (Ex. 400, p. C.2-115.)

The 2009 and 2010 surveys also included an inventory of native cacti, succulents and native trees that are not considered rare (e.g., they are not tracked by CNDDB or included on the CNPS special-status plant lists) but the harvesting of these native plants is regulated under the California Native Plant Protection Act (Fish and Game Codes 1900-1913) and the California Desert Native Plant Act of 1981 (i.e. Food and Agricultural Code 80001, et . seq. and Fish and Game Codes 1925-1926), and prevent unlawful harvesting of non-listed native desert plants of the state. (Ex. 400, p. C.2-116.)

The Applicant conducted stratified sampling plots for cacti, yucca, and native trees in the Study area and found that two cacti species (beavertail cholla and Wiggins cholla, although the latter is no longer believed to be a valid taxon) and three tree species (palo verde, cat-claw acacia, and ironwood) occur within the Project area. Other cacti and native trees identified during field surveys include buckhorn cholla (*Cylindropuntia acanthocarpa*), silver cholla (*C.=Opuntia echinocarpa*), pencil cholla (*C.=Opuntia ramosissima*), ocotillo (*Fouquieria splendens*), fish-hook cactus (*Mammillaria tetrancistra*), honey mesquite (*Prosopis glandulosa*), and smoke tree (*Psorothamnus spinosus*). To the extent practical, the Applicant will salvage native desert plants during construction of the Project and will use the salvaged plants for revegetation of temporarily disturbed areas. The Applicant has prepared a draft Revegetation Plan that addresses the salvaging of cacti and native trees during initial vegetation grubbing of the Project site, as well as proper storage of salvaged plant material and seed collection, replanting of salvaged materials, and monitoring parameters including revegetation success criteria and performance standards for salvaged materials. Condition of Certification **BIO-24,** entitled "Revegetation of Temporarily Disturbed Areas," requires the applicant to prepare and implement a Revegetation Plan which will address the salvaging of topsoil and native desert plants to aid in the revegetation of temporarily disturbed areas following Project construction. (Ex. 400, p. C.2-116.)

CBD argues that "in order to assure that the ambitious goals of this revegetation effort is met post project closure, it will be necessary to bond the project, so that all revegetation obligations will met [sic] and assured." (CBD Op. Brief, p. 10 citing Ex. 830 p. 7). CBD further contends that the Revegetation Plan appears to only address the 59.8 acres of temporary construction impacts due to project and transmission line construction. Clearly a more comprehensive revegetation strategy needs to be developed for the entire site of approximately 1800 acres." (*Id*). Clearly, CBD misread the condition, because the Revegetation Plan contemplated in Condition of Certification **BIO-24** only applies to revegetation of *temporarily disturbed* impact areas following project construction. It does not address permanently disturbed impact areas. The mitigation for the permanently disturbed plant site is contained in other conditions, such as Condition of Certification **BIO-19.**

Construction Noise Impacts

Construction activities will result in a temporary, although relatively long-term (37 months) increase in the ambient noise level. Animals rely on hearing to avoid predators, obtain food, and communicate. Excessive construction noise could

interfere with normal communication, potentially interfering with maintenance of contact between mated birds, obscuring warning and distress calls that signify predators and other threats, and affecting feeding behavior and protection of the young. High noise levels may also render an otherwise suitable nesting area unsuitable. Behavioral and physiological responses to noise and vibration have the potential to cause injury, energy loss (from movement away from noise source), a decrease in food intake, habitat avoidance and abandonment, and reproductive losses. (Ex. 400, p. C.2-92.)

Assuming an average construction noise of 93 dBA at 50 feet from the noise center (the upper range of noise levels for construction equipment), project construction noise will attenuate to 30 dBA at a distance of five miles from the noise center. Using sound extrapolation, project construction noise should attenuate to 60 dBA at approximately 2,300 feet (0.43 mile) from the noise center of construction activities. The loudest proposed construction activity will be the steam blows required to prepare a steam turbine for startup during the final phase before operation. This process cleans the piping and tubing which carry steam to the turbines; starting the turbines without cleaning these systems will destroy the turbine. A continuous low-pressure technique will be used for steam blows, which will release steam over a continuous period of about 36 hours and will result in noise levels of about 80 dBA at 100 feet. Another relatively loud and short-term construction activity is pile driving. If required, noise from this activity could be expected to reach 101 dBA at a distance of 50 feet and attenuate to 47 dBA at distance of five miles from the project site. (Ex. 400, p. C.2-92.)

The majority of the construction activities will occur within the power blocks located approximately 3,200 feet (0.6 mile) from the GSEP boundary. Therefore, it is anticipated that construction noise levels will typically be less than 65 dBA in the Palen/McCoy Wilderness Area and surrounding the GSEP site. The infrequent occasions when construction activities will occur near the project boundary and resultant noise levels will be temporarily elevated beyond 65 dBA surrounding the GSEP will not significantly impact sensitive wildlife. For a complete analysis of construction noise impacts, refer to the **Noise** section of this Decision. (Ex. 400, p. C.2-92.)

Noxious Weeds Impacts

Construction activities and soil disturbance could introduce new noxious weeds to lands adjacent to the GSEP plant site and its linear facilities, and could further spread weeds already present in the Project vicinity. The spread of invasive

plants is a major threat to biological resources in the Colorado Desert because non-native plants can displace native plants, increase the threat of wildfire, and supplant wildlife foods that are important to herbivorous species. To avoid and minimize the spread of existing weeds and the introduction of new ones, an active weed management strategy and control methods must be implemented. The Applicant has submitted a draft Weed Management Plan to avoid and minimize the spread of noxious weeds. We have incorporated recommendations from the Applicant into Condition of Certification **BIO-14** (Weed Management Plan). The Weed Management Plan includes a discussion of weeds targeted for eradication or control and a variety of weed prevention measures such as establishing weed wash stations for construction vehicles and revegetation of disturbed areas with native seed mix. Implementation of this condition/weed management plan will reduce potential impacts from introduction and spread of noxious weeds to less than significant levels. (Ex. 400, p. C.2-94.)

Dust Impacts

Disturbance of the soil's surface caused by construction traffic and other activities will result in increased wind erosion of the soil. Aeolian transport of dust and sand can result in the degradation of soil and vegetation over a widening area. Dust can have deleterious physiological effects on plants and may affect their productivity and nutritional qualities. The destruction of plants and soil crusts by windblown sand and dust exacerbates the erosion of the soil and accelerates the loss of nutrients. Soil erosion from construction activities and vehicle activity, which affects vegetation and soil properties, could have an adverse effect on both foraging and burrowing potential for Mojave fringe-toed lizards. The impacts of increased dust and other construction impacts will be minimized below significance with implementation of Condition of Certification **BIO-8** (Impact Avoidance and Minimization Measures). This condition includes measures to limit areas subject to disturbance, erosion control measures, and vehicular speed limits, all of which will help minimize dust associated with construction and operation of the GSEP. (Ex. 400, pp. C.2-95 to C.2-96.)

4. Operational Impacts and Mitigation

Potential operational impacts to biological resources include increased risk of predation on desert tortoise and wildlife, lighting, potential collisions with structures, increased noise levels, and impacts to birds due to hazardous conditions at the evaporation ponds.

Operational Impacts to Biological Resources

Construction and operation of the GSEP project area could provide new sources of food, water, and nesting sites that might draw unnaturally high numbers of tortoise predators such as the common raven, kit fox, and coyote to the Project area. Project structures will also provide new nesting and perching sites for ravens such as new transmission line towers and perimeter fencing. Development of new elevated perching sites as a result of GSEP construction could increase raven numbers locally, including the probability that young ravens remain in the area after maturing, which, in turn, could result in increased predation on desert tortoise in the vicinity of the Project Disturbance Area. Common raven populations in some areas of the Mojave Desert have increased 1,500 percent from 1968 to 1988 in response to expanding human use of the desert. Since ravens were scarce in this area prior to 1940, the current level of raven predation on juvenile desert tortoises is considered to be an unnatural occurrence. (Ex. 400, pp. C.2-82.)

The draft Common Raven Monitoring, Management and Control Plan includes methods and best management practices to avoid and minimize raven attractants and subsidies on the GSEP site, and these methods and practices have been incorporated into Condition of Certification **BIO-13**. The Applicant's Common Raven Monitoring, Management and Control Plan will involve identifying and preventing conditions that might attract or support ravens (for example, eliminating food sources such as garbage or roadkill, minimizing creation of structures that could provide ravens perches, nests or roosts), monitoring the effectiveness of raven management and control measures, and then implementing additional adaptive management measures to make sure that the GSEP does not result in an increase in raven numbers. Implementation of measures in **BIO-13** will avoid or minimize the contributions of the Project to increased desert tortoise predation from ravens to less than significant levels. (Ex. 400, p. C.2-83.)

In addition to ravens, feral dogs have emerged as major predators of the tortoise. Dogs may range several miles into the desert and have been found digging up and killing desert tortoises. Dogs brought to the GSEP site with visitors may harass, injure, or kill desert tortoises, particularly if allowed off leash to roam freely in occupied desert tortoise habitat. The worker environmental awareness training (**BIO-6**) and restrictions on pets being brought to the site (**BIO-8**) will reduce or eliminate the potential for these impacts. (Ex. 400, pp. C.2-82 to C.2-83.)

Lighting During Operations

GSEP operations will require on-site nighttime lighting for safety and security, which could disturb the resting, foraging, or mating activities of wildlife and make wildlife more visible to predators. To reduce off-site lighting impacts, lighting at the GSEP facility will be restricted to areas required for safety, security, and operation. Exterior lights will be shielded and oriented to focus illumination on the desired areas and minimize additional nighttime illumination in the site vicinity (GESP 2009a). Switched lighting will be provided for areas where continuous lighting is not required for normal operation, safety, or security. These features have been incorporated into Condition of Certification **VIS-2** (Temporary and Permanent Exterior Lighting) and **BIO-8**. With implementation of these measures, lighting at the GSEP will have no adverse effects on wildlife. (Ex. SA, p. C.2-92.)

Avian Collision Hazards

Collision hazards at the GSEP site will include several ancillary buildings (e.g., air cooled condenser structure, administration building, control room, steam turbine generator building) that range in height from 30 to 50 feet. The structures will be located within the power block, approximately in the center of each solar field and surrounded by solar arrays. The solar collection assemblies will vary in height depending on their position while tracking the sun; the tallest configuration will be approximately 25 feet tall. The tallest structures are the transmission line monopoles, which are approximately 75 feet tall. As described above, operation of the GSEP will require onsite nighttime lighting for safety and security at the site. The transmission line support structures will not be lit and no red incandescent lighting is proposed. With implementation of Conditions of Certification **VIS-2** and **BIO-8** pertaining to minimization of night lighting, lighted GSEP facilities will not pose a significant collision hazard at night. (Ex. 400, p. C.2-96.)

However, relative to nighttime collisions with lighted facilities, the risk of bird collisions and other injuries from solar facilities during daytime is unstudied. In particular, bird response to glare from the proposed solar trough technology is not well understood. Although the proposed Project facilities are significantly shorter than 350 feet (the height above which is considered a collision danger for migrating birds), there is concern that the mirrors may appear to a bird as a no-hazard flight area. The mirrors reflect light and take on the color of the image being reflected. When viewed from an angle near the current direction of the sun, at a distance or an elevated position, the solar field at its most reflective point

may appear like a waterbody or lake. Diurnal birds could also be at risk of injury and fatality from burns if they flew into the reflected sunlight between parabolic troughs or landed on the collector tubes of heat transfer fluid. Given the lack of research-based data on the impacts of glare and collision threats to birds, Condition of Certification **BIO-16** will require implementation of an Avian Protection Plan. The Avian Protection Plan will provide the information needed to determine if operation of the Project poses a collision risk for birds, and will provide adaptive management measures to mitigate those impacts to less than significant levels. (Ex. 400, p. C.2-97.)

CBD contends that one of the potentially significant impacts of the proposed project that was not adequately addressed is the potential to kill large numbers of birds by singeing or burning or collisions with mirrors. (CBD Op. Brief, p. 8) CBD concedes that "it is unknown whether birds could be singed or burned given the design of this plant—to our knowledge no bird studies have been undertaken or made public regarding the existing solar trough plants." (*Id*). CBD argues that the Conditions of Certification should include monitoring and reporting of impacts to all bird species, including frequent monitoring for migratory birds during migration seasons. If impacts to birds are greater than were expected in the RSA, a condition should be included to provide additional mitigation measures at a later time." (*Id*). We find that the Avian Protection Plan does exactly what CBD is suggesting and therefore, Condition of Certification **BIO-16** will mitigate impacts to avian resources below the level of significance.

Impacts from Electrocution by Transmission Lines

Large raptors such as golden eagle, red-tailed hawk, and great horned owl, can be electrocuted by transmission lines if the bird's wings simultaneously contact two conductors of different phases, or a conductor and grounded hardware. Potential impacts to wildlife resulting from electrocution by transmission lines will be minimized by incorporating the construction design recommendations provided in *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006*. Specifically, the phase conductors shall be separated by a minimum of 60 inches and bird perch diverters and/or specifically designed avian protection materials should be used to cover electrical equipment where adequate separation is not feasible. This is further described in Condition of Certification **BIO-8** (Impact Avoidance and Minimization Measures); with implementation of Condition of Certification **BIO-8** the proposed transmission lines will not pose a substantial electrocution threat to birds. (Ex. 400, p. C.2-98.)

Operational Noise

The majority of operational noise will originate from the power blocks, which will be roughly centered at each site and surrounded by solar fields; this creates a buffer for noise to attenuate before reaching the GSEP property boundary and the Palen/McCoy Wilderness Area. Other minor operational noise sources include mirror rotation and maintenance activities (e.g., mirror washing). Excessive noise could disrupt the nesting, roosting, or foraging activities of sensitive wildlife. Operational noise is expected to typically range from 90dBA and for certain equipment to approximately 50 to 60 dBA at greater linear distances from the power generation equipment. Based on these estimates, the evidence shows that there will be no significant impacts to surrounding wildlife from increased operational noise. (Ex. 400, pp. C.2-98 to C.2-99.)

Impacts from Evaporation Ponds And Groundwater Pumping

The GSEP will include two 5-acre evaporation ponds that will collect wastewater. A variety of waterfowl and shorebirds seasonally inhabit or utilize evaporation ponds as resting, foraging, and nesting areas. Evaporation ponds in the Sonoran Desert pose several threats to wildlife. First, creation of a new water source to an area where water is scarce will attract ravens to the GSEP, potentially increasing predation rates on juvenile desert tortoise in adjacent habitat. Second, waterfowl, shorebirds, and other resident or migratory birds that drink or forage at the ponds could be harmed by selenium or hyper-saline conditions resulting from high total-dissolved-solids concentrations Condition of Certification **BIO-21** requires installation of netting over the evaporation ponds to exclude birds and other wildlife as well as a monitoring program to ensure the effectiveness of exclusion. CBD argues that “birds will be attracted even if the ponds are netted (citations omitted)” (CBD Op. Brief, p. 8). Condition of Certification **BIO-21** requires visual deterrence in addition to the installation of netting over the evaporation ponds. We find that these measures will reduce evaporation pond impacts to birds to less-than-significant levels. (Ex. 400, p. C.2-99.)

The GSEP’s groundwater pumping will have an impact on groundwater levels within the zone of potential effect centered on the GSEP’s pumping well. The uncertainty as to the potential extent of the GSEP’s impacts to groundwater and the potential adverse effects to groundwater dependent sensitive plant communities and to wildlife was reduced to less than significant by the project change to dry cooling. To ensure that the Project’s proposed use of groundwater does not lower groundwater levels in the basin so that biological resources are

significantly and adversely affected. the applicant has reducedthe proposed water use significantly when switching from wet cooling to dry cooling.

Impacts to Biological Resources from Fire Response All-Terrain Vehicles

Condition of Certification **Worker Safety-6** requires the Applicant to provide two all-terrain fire engines for emergency personnel to enter the site in the event that normal access to the plant is unavailable. (Ex. 433). According to the record, these fire engines will be in the possession of the Riverside County Fire Department and will not be housed on the GSEP site. (7/12/10 RT 404:10-23.) Thus, in the event of an emergency where the main access to the GSEP is blocked, the all-terrain fire engines would still have the ability to access the site. At the time of the evidentiary hearing, no routes were planned for alternative access for the all-terrain fire engines. (7/12/10 RT 405:2-7; 409:13-21; 410:21-411:8).

CURE argues "the record contains no analysis of potentially significant impacts to biological resources from fire engines driving through habitat for numerous species. Staff's failure to analyze potentially significant impacts from the all-terrain fire engines blatantly violates CEQA's requirement to analyze all potentially significant impacts. Therefore, if the Commission approves the Project as proposed, the Commission will violate CEQA as a matter of law." (CURE 1st Op. Brief, p. 11).

Likewise, CBD argues, "the impacts of such cross-country or off-road travel in this area by such vehicles were not identified or analyzed in the RSA and therefore the Commission has not complied with CEQA in this regard. The Center [CBD] is aware that the Riverside County Fire Department will likely eventually develop a plan for such emergency access under a variety of scenarios, however, that evaluation has not yet been undertaken." (CBD Op. Brief, p. 10).

Indeed, the record shows that the Riverside County Fire Department will "pre-plan for certain scenarios" (7/12/10 RT 411:3-8) but has yet to do so. (7/12/10 RT 405:2-7). The RCFD is "cognizant of environmental issues [and] safety issues." (7/12/10 RT 409:13-24). The reason the RCFD asked for the all-terrain fire trucks was to obtain access to the GSEP if ever the Wiley Well Road or GSEP main access were blocked. (7/12/10 RT 409:13-24; 413:8-13.)

Applicant's expert testified that "there's never been a case at either of the SEGS facilities where the main access to the plant was blocked. And actually the Harper facility has a similar long road to it. And in almost 20 years of operation that road nor has the main access ever been blocked." (7/12/10 RT 406:15-20.)

We can infer from the record that two emergency situations must *both* exist before the RCFD would take the all-terrain fire trucks off-road. First, a fire or similar emergency must be occurring at the GSEP that RCFD is responding to. Additionally, the Wiley Well Road or GSEP main access must be blocked. The record supports the conclusion that the odds of these two events occurring simultaneously are infinitesimally small. Further, the biological impacts that would be attributable to the all-terrain fire trucks driving to this event, should it ever happen, are speculative at best. We also note that the action of purchasing emergency vehicles does not, in itself, create any significant impact on biological resources. Therefore, the Intervenors have not met their burden to show the need for or the feasibility of an environmental analysis of the hypothetical impacts of the all-terrain fire trucks going off-road to bypass some obstruction to obtain emergency access to the GSEP.

CBD's opening brief quotes their witness' testimony that "fire in desert ecosystems is well documented to cause catastrophic landscape scale changes and impacts to the local species." (CBD Op. Brief, p. 10, citing Ex. 830 at 7.) CBD claims "the RSA fails to adequately identify or analyze the risk of fire or the potential impacts to the surrounding lands if a fire escaped from the site and accordingly also fails to address the mitigation of this impact." (*Id*.)

The record contains ample testimony (Ex. 400, pp. C.14-4, C.14-8, C.14-9, C.14-18 through C.14-24, C.14-31; Ex. 402 pp. 35 through 39) describing and analyzing the risk of fire, the potential impacts, and mitigation. The RSA focused on prevention using engineering and administrative controls, response from on-site automatic fire suppression systems, response from on-site personnel when a fire is in the incipient stage, and response from the off-site RCFD. The record contains background information on existing solar power plants using Therminol as the heat transfer fluid (Ex. 400, pp. C.14-20 through C.14-22) and developed an Emergency Response Matrix to assess the relative risk of a fire and the need for other emergency response at the proposed Genesis site (Ex. 402, p. 39). The **Worker Safety and Fire Protection** section of this Decision contains a finding that with mitigation, the risk of fire spreading beyond the boundary of the site is less than significant.

Other Challenges to the RSA from Intervenors CBD and CURE

First, CBD argues that the RSA failed to address the impacts of bringing a new paved road 6.5 miles into a previously roadless, remote area that will terminate at the edge of a designated wilderness. Secondly, CBD also contends that the RSA failed to address how such increased human presence, off-road vehicle activity, and noise would affect the remaining wildlife and habitat. Thirdly, CBD argues that the RSA failed to discuss edge effects, specifically, changes to sand movement and sand sources as well as spread of weeds and other invasive species, and subsidies to predators such as ravens and coyotes. (CBD Op. Brief, p. 6.)

As to CBD's first challenge, the evidence shows that the access road and transmission lines were included in the biological analysis in the RSA as part of the total disturbance area of the project. The impacts of the new paved road and transmission lines are discussed in several sections of the RSA and particularly at page C.2-84 (Ex. 400, pp. C.2-13; C.2-69; C.2-71; C.2-74; C.2-84). A variety of minimization measures that minimize the risks of increased traffic fatality and other hazards associated with the access road at the GSEP site are incorporated into Condition of Certification **BIO-8**. These measures include confining vehicular traffic to and from the Project site to existing routes of travel, prohibiting cross country vehicle and equipment use outside designated work areas, and imposing a speed limit on paved and dirt roads and posting signs to remind drivers to be aware of the potential for desert tortoise and other wildlife occurring on the roadways. We find Condition of Certification **BIO-8** mitigates the impacts from the new paved road below significance.

Condition of Certification **BIO-8** also responds to CBD's second claim that the RSA failed to disclose the potential impacts from the access road being used by recreationists and off-road vehicles to access areas of the valley that now have no designated routes or motorized vehicle access. CBD argues that the RSA failed to address how increased human presence, off-road vehicle activity, and noise might affect the remaining wildlife and habitat (CBD Op. Brief, p. 6). However, the record shows that the RSA dealt extensively with human presence in off-road vehicles and noise. Impacts from off-road vehicle activity are specifically addressed at page C.2-84 (see also, Ex. 400, pp. C.2-35; C.2-37; C.2-39; C.2-55; C.2-63; C.2-75-C.2-77; C.2-84; C.2-93; C.2-95; C.2-114; C.2-136; C.2-147; C.2-157; and 7/12/10 RT 243:14 – 245:9). Noise impacts (which was discussed in both the Construction Impacts and Operational Impacts sections of this Decision, *supra*) is addressed in the RSA at pages C.2-92

through C.2-93 (see also, Ex. 400, pp. C.2-39; C.2-64 through C.2-66; C.2-74; C.2-86; C.2-89; C.2-98; C.2-130; C.2-136; and C.2-153).

CBD argues that it is "highly likely that [the access road] will attract many off-road vehicle users and others seeking to access public lands." (CBD Op. Brief, p. 6.) CBD's expert testified that the creation of a road may invite an increase in off-road vehicle use and suggested that the BLM has "significant problems" policing off-road vehicles (7/12/10 RT 313:21 – 315:4). The record indicates that off-road vehicles are not authorized in the vicinity of the GSEP (7/12/10 RT 248:7 – 249:17). Staff and CBD differ as to whether the BLM has sole authority to restrict access to roads on their land, but Staff did not proffer conditions of certification that contained restrictions on who may travel on the GSEP access road. (CBD Op. Brief, p. 6; 7/12/10 RT 106:3 – 109:25).

In light of the record, we acknowledge that the risk of increased unauthorized off-road vehicle use from the new GSEP access road may be possible, but is highly speculative. Illegal off-road vehicle use will most likely occur where the "off-roaders" can engage in the activity without detection. Today, the proposed GSEP site is a remote expanse of desert more than 25 miles from the nearest town and nine miles away from the state prison that is the closest human settlement in the area. The sheer size and remoteness of the area may account for the reason the BLM has had "significant problems keeping off-road vehicles on designated routes." (7/12/10 RT 313:21 – 315:4). However, the record establishes that there will be an average of 650 workers on-site during the construction phase and 40 to 50 workers on-site during operation, 24 hours per day, seven days per week. (Ex. 400, pp. B.1-1 to B.1-2; B.1-23.) These workers will have completed the Workers Environmental Awareness Program as required by Condition of Certification **BIO-6** and will be sensitized to the fragile vulnerability of the desert environment. The project owner is highly motivated to protect biological resources in the vicinity of the project. In addition, CUL-16 requires a guard or construction of a security gate at the south end of the access road to prevent unauthorized access, a measure that would further protect sensitive biological resources from illegal off-road use. Thus, the evidence supports a more reasonable inference that unauthorized off-road vehicle use in the vicinity of the GSEP will decrease because the increased presence of people will deter illegal off-road use due to the higher probability of detection. We find Conditions of Certification **BIO-6, BIO-8,** and **CUL-16** mitigates the impacts from the new paved road below significance.

Finally, CBD claims that the RSA failed to discuss edge effects. CBD specifies that edge effects around the facility include changes to sand movement and sand sources as well as spread of weeds and other invasive species, and subsidies to predators such as ravens and coyotes. (CBD Op. Brief, p. 6.) Again, this claim is contradicted by the evidence. Edge effects are discussed in the RSA (Ex. 400, pp. C.2-65 through C.2-66; C.2-160 through; C.2-162; C.2-198 through C.2-200). The RSA's analysis of habitat loss includes a discussion of impacts to sand transport systems and the effects on dunes when renewable energy projects' structures that are surrounded by wind fencing obstruct sand-carrying winds and water-deposited sands (Ex. 400, pp. C.2-75; C.2-147). Additional evidence on sand migration is contained in the RSA section on Soil and Water Resources and was introduced at the evidentiary hearing (Ex. 400, pp. C.9-17 to C.9-18; 7/12/10 RT 83:2 – 87:23).

The spread of noxious weeds (which was discussed in both the Construction Impacts and Operational Impacts sections of this Decision, *supra*) is discussed in detail in the RSA (Ex. 400, pp. C.2-10; C.2-84; C.2-90, C.2-93; see also **BIO-14**). Subsidies to predators such as ravens and coyotes are discussed in the RSA (Ex. 400, pp. C.2-64; C.2-82 - C.2-84; C.2-143, C.2-195; see also **BIO-13** and **BIO-21**; 7/12/10 RT140:12-141:6; 142:-142:20). Therefore, we find that the record includes an adequate analysis of edge effects, including changes to sand movement and sand sources as well as spread of weeds and other invasive species, and subsidies to predators such as ravens and coyotes.

5. Closure

Condition of Certification **BIO-23** requires the Applicant to develop a Decommissioning and Closure Plan and cost estimate that meets the requirements of BLM's 43 CFR 3809.550 et seq. We acknowledge the uncertainty in planning for conditions 30 to 50 years in the future, but the Decommissioning and Closure Plan cannot defer establishing reasonable performance standards and goals until that time. The plan must explicitly state that the goals of reclamation include restoration of the site's topography and hydrology to a relatively natural condition and restoration of native plant communities. The plan must also provide guidelines for developing milestones and specific, quantitative success criteria for parameters such as native plant density and diversity and percent cover for weeds, thresholds that would trigger remedial actions, and information about what those remedial actions would be. The plan should also provide an approximate outline and schedule for monitoring the success of the reclamation effort. The reclamation plan will establish at least

a 10-year monitoring period to achieve revegetation success criteria because of the slow pace of restoration in a desert environment. (Ex. SA, pp. C.2-123 to C.2-124.)

6. Cumulative Impacts

Under CEQA Guidelines, “a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts” (14 Cal. Code Regs., § 15130(a)(1).) Cumulative impacts must be addressed if the incremental effect of a project, combined with the effects of other projects is “cumulatively considerable” (14 Cal. Code Regs., § 15130(a).) Such incremental effects are to be “viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects” (14 Cal. Code Regs., § 15164(b)(1).) Together, these projects comprise the cumulative scenario which forms the basis of the cumulative impact analysis. NEPA states that 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).)

Biological Resources Table 4 lists the existing and foreseeable future projects (proposed) that were included in the quantitative analysis of cumulative effects.

Biological Resources Table 4
Existing and Proposed Future Projects Considered in Cumulative Effects Analysis

Existing Projects (analyzed quantitatively)	ROW Area* (ac)	Foreseeable Future Projects * [Proposed] (analyzed quantitatively)	ROW Area* (ac)
Chuckwalla State Prison	1,044	Genesis Solar Power Project (GSEP)	3,001**
Ironwood State Prison	681	Blythe Solar Power Project	7,239**
Eagle Mountain Pumping Plant (MDWSC)	378	NextEra Energy – McCoy (Solar)	20,560
Kaiser Mine	5,772	Palen Solar Power Project	2,974*
I-10 Corridor (200ft Freeway buffer from CL)	6,494	Bull Frog Green Energy – Big Maria Vista (Solar)	22,663
State highways (50ft Highway buffer from CL)	2,640	Chuckwalla Solar 1	4,091
DPV1 Transmission Line and Existing Access Roads (100ft T-line Tower Buffer; 20ft road width)	2,861	Rice Solar Energy Project	3,859
Landfills(BLM NECO dataset)		Desert Quartzite (Solar)	7,530
Blythe Energy Project I***	148	Desert Sunlight (Solar)	5,119
BLM Campgrounds – Wiley's Well, Coon Hollow, Cottonwood Spring, and Midland Long-Term Visitor Area	8,042	EnXco 1 (Solar)	1,325
BLM Off-Road Vehicle- authorized/designated routes in Meccacopia SRMS. (BLM NECO Human Use LTVAs dataset)	3,031	Chuckwalla Valley Raceway	493
Blythe area urban and agricultural lands (GAP Analysis vegetation dataset)	88,317	Mule Mountain Solar Project	6,618
Desert Center area urban and agricultural lands (2005 NAIP imagery)	8,424	Eagle Mountain Pumped Storage Project	252
Pipeline (NECO pipelines dataset)	4,392	Red Bluff Substation – for Genesis Solar Power Project	90
Projects Considered Qualitatively	Area (ac)	Colorado Substation – for Blythe Solar Power Project	44
Existing		EnXco 2 Mule Mountain	~2,021
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)	6,724
BLM Multiple Use – Intensive multiple-use classes	n/a	Blythe Airport Solar I Project	639
Gen. Patton military training areas	n/a	Eagle Mountain Landfill	1,633
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		

BLM Transmission Corridors	n/a		
		Genesis Solar Project Gas Line (100 foot width)	85
Total Future Projects* 02/05/2010			339,704 acres
Total Existing Disturbances*			134,750 acres

Source: (Ex. 400, p. C.2-138)

* Includes only renewable energy projects that had submitted a Plan of Development (POD) as of the time of the analysis (02/05/2010) and projects for which area data was available. Acreage shown for existing disturbances reflects only those projects for which area data was available.
** Acreage impacts depicted reflect the project footprint only; not the entire ROW. The unused portions of the ROW will be returned to BLM and not included in the final ROW permit
*** UFWS issued a BO for this project in 2001 and it's currently being constructed.
**** 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.

Construction and operation of the GSEP will have effects on a number of biological resources that are individually limited but cumulatively considerable. The cumulative effects analysis employed a quantitative, GIS-based analysis of direct impacts to habitat, and a qualitative analysis of indirect effects (e.g., increases in predators, noxious weeds, etc.). In many cases, the anticipated indirect effects are more significant, or adverse, than the direct loss of habitat, but are more difficult to quantify. Geographic scope varied between biological resources, but most analyses were based on the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) boundaries (BLM-CDD 2002). (Ex. 400, pp. C.2-136.)

Significant cumulative effects (including indirect effects) were identified in a number of biological resource areas where the Project contributes—at least incrementally—to the cumulative effect. These include: desert washes in the Chuckwalla-Ford Dry Lake watershed and the broader NECO planning area; desert tortoise habitat; golden eagle foraging habitat; Mojave fringe toed lizard and their habitat; habitat for American badger, desert kit fox, and burrowing owl; LeConte's thrasher habitat; Couch's spadefoot toad range; habitat for Harwood's milk-vetch and other dune/playa-dependent special-status plants; wildlife habitat and connectivity within the Palen-Ford WHMA (for Mojave fringe toed lizard, dunes, and playa); Mojave and Sonoran creosote bush scrub; desert dry wash woodland (microphyll woodland); playa and sand drifts over playa, and dunes (active and stabilized). (Ex. 400, pp. C.2-173 to C.2-176.)

Of particular concern are the cumulative effects of renewable energy projects within the geographic scope of the Chuckwalla Valley, which contains an isolated system of dunes and population of Mojave fringe-toed lizard. The direct loss of dune habitat and Mojave fringe-toed lizard is minor relative to the indirect

downwind effects from obstructions within the active aeolian sand transport corridor, and the disruption of the fluvial processes that contribute sand to the system from the diversion of washes--approximately 63 miles of washes within the Chuckwalla-Ford Dry Lake watershed alone. In addition to the disruption of geomorphic processes, significant indirect effects that can be reasonably expected to occur in the Chuckwalla system from future projects include: fragmentation and its effects on connectivity and gene flow; spread of invasive non-native plants; increase in avian predators; and an increase in vehicle-related wildlife mortality. (Ex. 400, pp. C.2-174 to C.2-175.)

The Project is expected to contribute to a cumulative reduction in greenhouse gases. However, the benefits gained by the Project's reduction in greenhouse gases must also be weighed against the potential loss of carbon sequestration benefits from the desert vegetation and biological soil crusts. Based on the evidence, the cumulative loss of sequestration benefits and release of stored carbon from all past, present, and probable future projects is likely to be significant. With implementation of the avoidance and minimization measures (**BIO-8**), revegetion plan for temporarily disturbed area (**BIO-24**), compensating for habitat loss by preventing the future development of desert lands through acquisition and permanent protection under conservation easements (**BIO-12, BIO-19, BIO-20** and **BIO-22**), restoring degraded portions of acquired lands (**BIO-12** and **BIO-19**), minimizing the size of the disturbance area along the linears (**BIO-8 and BIO-19**), and revegetating after closure and decommissioning (**BIO-23**), the Project's contribution to the cumulative effects described above will be less than cumulatively considerable.

Implementation Conditions of Certification outlined in **Biological Resources Table 2** and discussed below will reduce the Project's contribution to cumulative effects to a level that is not cumulatively considerable. There may be cumulative effects after mitigation is implemented by all projects, but due to the mitigation implemented by the Project, its contribution will be less than cumulatively considerable. These residual cumulative effects from all future projects could 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. (Ex. 400, p. C.2-176.)

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. We support these programmatic efforts and believes they represent an excellent means of

integrating the State's and BLM's renewable resources goals and environmental protection goals. (Ex. 400, p. C.2-176.)

7. LORS Compliance

The GSEP must comply with state and federal laws, ordinances, regulations, and standards (LORS) that address state and federally listed species, as well as other sensitive species and habitats.

State LORS

Under the Warren-Alquist Act (Pub. Res. Code § 25500) the Energy Commission's certificate for thermal power plants 50 MW and more is "in lieu of" other state, local, and regional permits (*Ibid*.). We have incorporated all required terms and conditions that might otherwise be included in state permits into the Energy Commission's certification process. When Conditions of Certification are finalized they will satisfy the following state LORS and take the place of terms and conditions that, but for the Commission's exclusive authority, would have been included in the following state permits:

Incidental Take Permit: California Endangered Species Act (Fish and Game Code §§ 2050 et seq.) The California Endangered Species Act (CESA) prohibits the "take" (defined as "to hunt, pursue, catch, capture, or kill") of state-listed species except as otherwise provided in state law. Construction and operation of the Project could result in the "take" of desert tortoise, listed as threatened under CESA. Condition of Certification **BIO-12** specifies compensatory mitigation for desert tortoise habitat loss at a 1:1 ratio. Avoidance and minimization measures described in conditions of certification **BIO-6** through **BIO-11** and **BIO-13** will also mitigate for potential impacts to desert tortoise. The evidence suggests that this funding and mitigation approach would ensure compliance with CESA.

Streambed Alteration Agreement: California Fish and Game Code §§ 1600 1607. Pursuant to these sections, CDFG typically regulates all changes to the natural flow, bed, or bank, of any river, stream, or lake that supports fish or wildlife resources. Construction and operation of the Project would result in direct impacts to 69 acres of waters of the state and 21 acres of indirect impacts. Condition of Certification **BIO-22** would minimize and offset direct and indirect impacts to state waters and would assure compliance with CDFG codes that provide protection to these waters. (Ex. 400, pp. C.2-176 to C.2-177.)

Federal LORS

The GSEP is located on federal land under BLM's jurisdiction and is therefore subject to the provisions of BLM's California Desert Conservation Area (CDCA) Plan (BLM 1999). As an amendment to the CDCA Plan, BLM produced the Northern and Eastern Colorado Coordinated Management Plan (NECO) (BLM CDD 2002). The NECO Plan provides for conservation and management of special status species through a system of management areas including: Desert Wildlife Management Areas (DWMAs), multi-species Wildlife Habitat Management Areas (WHMAs), bighorn sheep WHMAs, Areas of Critical Environmental Concern (ACEC), and wilderness areas.

Desert Wildlife Management Areas (DWMA) are general areas recommended by the Desert Tortoise Recovery Plan (USFWS 1994) within which recovery efforts for the desert tortoise would be concentrated. DWMAs had no specific legal boundaries in the 1994 Recovery Plan. The BLM formalized the general DWMAs from the 1994 Recovery Plan through its planning process and administers them as Areas of Critical Environmental Concern (see below). The linear facilities south of I-10 pass through the Chuckwalla DWMA.

Area of Critical Environmental Concern (ACEC) are specific, legally defined, BLM designations where special management is needed to protect and prevent irreparable damage to important historical, cultural, scenic values, fish and wildlife, and natural resources or to protect life and safety from natural hazards. Besides the Chuckwalla DWMA/ ACEC, the GSEP is not included within a designated ACEC, but the Palen Dry Lake ACEC is located to the west.

Critical Habitat consists of specific areas defined by the USFWS as areas essential for the conservation of the listed species, which support physical and biological features essential for survival and that may require special management considerations or protection. Critical habitat for the desert tortoise was designated in 1994, largely based on proposed DWMAs in the draft Recovery Plan. The linear facilities overlap with 24 acres of the Chuckwalla Desert Tortoise Critical Habitat Unit.

Wildlife Habitat Management Areas address other special status species and habitat management in the NECO, and include two kinds: one for bighorn sheep, one for all other special status species and habitats. Bighorn sheep WHMAs overlay the entire range of their occurrence and movement corridors. Multi-species WHMAs are complementary to existing restricted areas and DWMAs, which also cover other special status species and habitats. The plant site and

portions of the linear facility routes are situated within the Palen-Ford Multi-Species WHMA.

Wilderness Area The GSEP is contiguous and south of the 259,000-acre Palen/McCoy Wilderness, which includes the Granite, McCoy, Palen, Little Maria and Arica Mountains, five distinct mountain ranges separated by broad sloping bajadas.

Endangered Species Act (ESA; 16 USC Section 1531 et seq.) Potential take of the desert tortoise, listed as threatened by the USFWS, requires compliance with the federal Endangered Species Act (ESA) (16 USC §§ 1531 et seq.). "Take" of a federally-listed species is prohibited without an Incidental Take Permit, which would be obtained through a Section 7 consultation between BLM and the USFWS. The Applicant has submitted a Draft Biological Assessment (BA) for the Project to BLM, and BLM has initiated formal Section 7 consultation with the USFWS.

Bald and Golden Eagle Protection Act (Title 16, United States Code, Sections 668-668c) A recently issued Final Rule (September 2009) provides for a regulatory mechanism under the Bald and Golden Eagle Protection Act (Eagle Act) to permit take of bald or golden eagles comparable to incidental take permits under the ESA. This rule adds a new section at 50 CFR 22.26 to authorize the issuance of permits to take bald eagles and golden eagles on a limited basis. The Project could potentially result in "take" of the golden eagle from disturbance to nesting pairs as well as loss of foraging habitat. Implementation of Condition of Certification **BIO-28** would avoid of golden eagles by monitoring eagle nests during construction and implementing adaptive management measures. Condition of Certification **BIO-12** requires the acquisition of desert tortoise habitat that would also provide suitable eagle foraging habitat. While acquisition does not address the net loss of foraging habitat in the immediate future, it would prevent future losses of habitat by placing a permanent conservation easement and deed restrictions on private lands. With implementation of Conditions of Certification **BIO-28** and **BIO-12** the project would be in compliance with the Eagle Act. (Ex. 400, pp. C.2-177 to C.2-179.)

8. Public Comment

Staff responded to comments on the Biological Resources section of the Staff Assessment from the following parties in the RSA:

- California Unions for Reliable Energy, May 13, 2010;

- Kenneth Waxlax, Peter Murray and Associates Real Estate, May 7, 2010;
- Defenders of Wildlife, December 23, 2009;
- Western Watersheds Project, December 23, 2009;
- Center for Biological Diversity, December 23, 2009;
- California/Nevada Desert Energy Committee of the Sierra Club, December 23, 2009;
- Californians for Renewable Energy, December 23, 2009; and
- U.S. Environmental Protection Agency , November 30, 2009

(Ex. 400, pp. C.2-179 to C.2-204.)

CURE and CBD submitted "comments" which were essentially identical to the arguments made in their briefs already considered in the record. The Decision addresses both CURE and CBD's arguments, above.

FINDINGS OF FACT

Based on the record, we find the following:

1. The power block and solar arrays of the GSEP will occupy approximately 1,727 acres within the 4,640-acre ROW grant application from the BLM.
2. No federal or state-listed plant species occur within the Project Disturbance Area but four species of special-status plants were detected within the Study area during spring 2009 and 2010 surveys, including Harwood's milk-vetch, desert unicorn, and ribbed cryptantha. Harwood's eriastrum, a California endemic and BLM Sensitive species, was detected at the Colorado River Substation site and Project linears east of the site during the 2010 spring surveys.
3. Fifteen special status wildlife species were detected during the surveys.
4. No live desert tortoises were found within the plant site boundary during the 2009 and 2010.
5. The assumed presence of Couch's spadefoot toad provides an adequate basis upon which to fashion conditions to mitigate potential impacts.
6. The GSEP site contains some suitable habitat for desert tortoise (e.g., Sonoran creosote bush scrub with friable soils for burrowing and appropriate forage plants) and could potentially be occupied by this species in the future.

7. Thirty-nine Mojave fringe-toed lizards were observed during spring 2009 surveys and 60+ were observed during the spring 2010 surveys.
8. The study area contains suitable Mojave fringe-toed lizard habitat wherever stabilized and partially stabilized sand dune habitat (7.5 acres) and playa/sand drift over playa habitat (38 acres) occur.
9. The RSA identifies habitat fragmentation as a significant impact of the facility site, the access road, and the transmission line.
10. Habitat fragmentation impacts will be mitigated to less than significant levels with Condition of Certification **BIO-12 and BIO-20**.
11. No Couch's spadefoot toads were observed during surveys; however, because of the short time this species is above ground, and because the surveys were not conducted after summer rains, the lack of observations does not suggest the species is absent from the GSEP site.
12. GSEP will have no significant impact on bighorn sheep.
13. The entire Project Disturbance Area (1,811 acres) is considered burrowing owl habitat.
14. The entire Study area is considered suitable habitat for the American badger and the desert kit fox.
15. No sign or evidence of Nelson's big horn sheep were found during the 2009 field surveys and bighorn sheep are not expected to occur in the Study area.
16. The closest known historic golden eagle nests are within 14 miles of the GSEP site.
17. Disturbance to nesting golden eagles is unlikely due to the distance of the solar facility from nests, the lack of view of the project from the nests and the lack of known prey concentration in the area.
18. Migratory/special-status bird species were observed during project surveys including the Loggerhead shrikes, Le Conte's thrasher, California horned lark, Brewer's sparrow, prairie falcon, short-eared owl, Swainson's hawk, ferruginous hawk, and northern harrier.
19. Condition of Certification **BIO-14** (Weed Management Plan) will minimize the impacts to adjacent native plant communities from the introduction and spread of noxious weeds.
20. Condition of Certification **BIO-19** will reduce potential impacts to special-status plants to less-than-significant levels.
21. Condition of Certification **BIO-12** requires the Applicant to acquire and enhance at least 1,870 acres of suitable habitat for desert tortoise to offset anticipated habitat loss associated with construction of the GSEP.

22. Implementation of conditions of certification **BIO-9** through **BIO-12** will reduce potential impacts to desert tortoise to less than significant levels.
23. Direct and indirect construction impacts to vegetation and wildlife will be reduced to less than significant levels with implementation of impact avoidance and minimization measures described in Conditions of Certification **BIO-1** through **BIO-8**.
24. Eliminating the washes on the GSEP will fundamentally and permanently alter the natural geomorphic and hydrological processes that currently characterize the project site, which in turn will fundamentally alter the biological processes that support recruitment of native vegetation and creation of wildlife habitat within the wash and on the associated floodplain.
25. With implementation of Condition of Certification **BIO-22**, impacts to 90 acres of state waters and loss of the hydrological and biological functions of the project site desert washes will be mitigated to less-than-significant levels.
26. Implementation of Conditions of Certification **BIO-8** (Impact Avoidance and Best Management Practices), **BIO-15** (Pre-Construction Nest Surveys) and **BIO-16** (Avian Protection Plan) will avoid direct impacts to nests, eggs, or young of migratory birds and will minimize the impacts of construction disturbance to nesting birds below the level of significance.
27. Conditions of Certification **BIO-1** through **BIO-11** impose impact avoidance and minimization measures to reduce construction impacts to desert tortoise including installation of exclusion fencing to keep desert tortoise out of construction areas, reducing construction traffic and speed limits to reduce the incidence of road kills, worker training programs, and other measures.
28. Implementation of Condition of Certification **BIO-9** through **BIO-12**, the compensatory mitigation plan, will offset cumulative regional habitat loss for the desert tortoise.
29. Conditions of Certification **BIO-4**, **BIO-5**, **BIO-6**, **BIO-7**, **BIO-8**, **BIO-12 and BIO-22** will reduce the impacts to native birds and bats to less than significant levels.
30. Conditions of Certification including **BIO-8** (Impact Avoidance and Minimization Measures); **BIO-15** (Pre-construction Nest Surveys); and **BIO-16** (Avian Protection Plan) will minimize the impacts to less significant levels for construction disturbance to resident and migratory birds.
31. The baseline of one pair of owls on the GSEP site is accurate.
32. Pre-construction surveys on the Project Disturbance Area and surrounding 500-foot buffer, as well as passive relocation, will avoid direct take of owls and offset potentially significant impacts to nesting or resident owls.
33. Condition of Certification **BIO-18** reduces potential impacts to burrowing owls to less-than-significant levels.

34. Condition of Certification **BIO-20** will reduce impacts to Mojave Fringe-toed lizard to less-than-significant levels.
35. Condition of Certification **BIO-27** will reduce impacts to Couch's spadefoot toad to less-than-significant levels.
36. Implementation of **BIO-28** will reduce potential impacts of GSEP construction on nesting golden eagles to less than significant levels.
37. Condition of Certification **BIO-17** mitigates potential impacts to the kit fox and badger below significance.
38. Noise impacts to nesting birds and other wildlife at GSEP will be less than significant.
39. Lighting at the GSEP will have no adverse effects on wildlife.
40. Condition of Certification **VIS-2** and **BIO-8** ensure that construction lighting at the GSEP will have no adverse effects on wildlife.
41. Condition of Certification **BIO-8** mitigates the impacts from the new paved road below significance.
42. The record includes an adequate analysis of edge effects, including changes to sand movement and sand sources as well as spread of weeds and other invasive species, and subsidies to predators such as ravens and coyotes.
43. Condition of Certification **BIO-13** (raven monitoring and management plan) contains project design features to reduce raven nesting and includes physical deterrents to nesting such as bird spikes and nest removal and monitoring to make sure these design features work as intended.
44. Condition of Certification **BIO-8**, requires using the minimal amount of water needed for dust abatement, food-related waste management and worker environmental awareness training, with restrictions on pets being brought to the site.
45. Condition of Certification **BIO-21** requires installation of netting over the evaporation ponds to exclude birds and other wildlife, which will reduce evaporation pond impacts to birds to less-than-significant levels.
46. With the mitigation addressed in Condition of Certification **BIO-8**, the transmission lines will not pose a significant threat to birds.
47. With implementation of dry cooling rather than wet cooling, the groundwater pumping for the GSEP will not result in significant impacts to groundwater-dependent ecosystems in the Chuckwalla Basin.
48. Construction and operation of the GSEP will have effects on a number of biological resources that are individually limited but cumulatively considerable.
49. The Conditions of Certification described below will minimize and offset the contributions of the GSEP to the cumulative loss of habitat for native plant communities and wildlife, including special-status species.

50. GSEP project will not result in significant cumulative impacts to biological resources.
51. Condition of Certification **BIO-9** requires the Applicant to implement all terms and conditions developed as part of the Biological Opinion in consultation with USFWS, which will ensure that the project is not likely to adversely affect the desert tortoise or its critical habitat.

CONCLUSIONS OF LAW

1. The project owner will implement appropriate avoidance and mitigation measures to prevent significant adverse impacts to all sensitive species.

2. With implementation of the mitigation measures described in the evidentiary record and incorporated into the Conditions of Certification below, as well as those in other portions of this Decision, the GSEP will not result in significant direct, indirect, or cumulative impacts to biological resources.
3. With implementation of the mitigation measures described in the evidentiary record and incorporated into the Conditions of Certification, the GSEP will conform to all applicable laws, ordinances, regulations, and standards related to biological resources as identified in the pertinent portion of **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

Designated Biologist Selection and Qualifications[1]

BIO-1 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) for approval in consultation with CDFG and USFWS.

The Designated Biologist must meet the following minimum qualifications:

[1] USFWS <www.fws.gov/ventura/speciesinfo/protocols_guidelines/docs/dt> designates biologists who are approved to handle tortoises as "Authorized Biologists." Such biologists have demonstrated to the USFWS that they possess sufficient desert tortoise knowledge and experience to handle and move tortoises appropriately, and have received USFWS approval. Authorized Biologists are responsible for the implementation of all desert tortoise measures for which a project is approved and are permitted to then approve specific Biological Monitors to handle tortoises, at their discretion. The California Department of Fish and Game (CDFG) must also approve such biologists, potentially including individual approvals for Biological Monitors approved by the Authorized Biologist. **Designated Biologists are the equivalent of Authorized Biologists.** Only Designated Biologists and certain Biological Monitors who have been approved by the Designated Biologist would be allowed to handle desert tortoises.

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.

Verification: No fewer than 30 days prior to construction-related ground disturbance, the Project owner shall submit the names 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 and for consideration.

Designated Biologist Duties

BIO-2 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 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 the CPM of any non-compliance with any biological resources condition of certification;

7. Respond directly to inquiries of 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, and the CPM, including notifying these agencies of dead or injured listed species and reporting special-status species observations to the California Natural Diversity Database.

Verification: 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.

Biological Monitor SELECTION AND Qualifications

BIO-3 The Designated Biologist shall submit the resume, at least three references, and contact information of the proposed Biological Monitors to 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>.

Verification: 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 and for approval at least 10 days prior to their first day of monitoring activities.

BIOLOGICAL MONITOR Duties

BIO-4 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 and reporting. The Designated Biologist shall remain the contact for the Project owner and the CPM.

Verification: 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. During Project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report unless their duties cease, as approved by the CPM.

Designated Biologist and Biological Monitor Authority

BIO-5 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 Project owner shall provide Energy Commission staff with reasonable access to the Project site under the control of the Project owner and shall otherwise fully cooperate with the Energy Commission'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 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 the CPM and BLM 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 work stoppage relates to desert tortoise or any other federal- or state-listed species, the Carlsbad Office of USFWS and the Ontario Office of CDFG shall also be notified.

If the Designated Biologist is unavailable for direct consultation, the Biological Monitor shall act on behalf of the Designated Biologist.

Verification: 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 the Carlsbad Office of USFWS and the Ontario Office of the CDFG at the same time. The Project owner shall notify the CPM and BLM 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 USFWS, CDFG and BLM, within five 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.

Worker Environmental Awareness Program (WEAP)

BIO-6 The Project owner shall develop and implement a Project-specific Worker Environmental Awareness Program (WEAP) and shall secure approval for the WEAP from the CPM. The Project owner shall also provide the BLM, USFWS and CDFG a copy of all portions of the WEAP relating to desert tortoise and any other federal or state-listed species for review and comment. 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.

Verification: At least 30 days prior to start of construction-related ground disturbance the Project owner shall provide to the CPM CPM for review and approval, and to the USFWS and CDFG for review, 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 CPM-approved final WEAP.

Training acknowledgement forms signed during construction shall be kept on file by the Project owner for at least six 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 one 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 six months following the termination of an individual's employment.

Biological Resources Mitigation Implementation and Monitoring Plan

BIO-7 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 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 Translocation Plan, the Raven Management Plan, the Closure, Conceptual Restoration Plan, the Burrowing Owl Mitigation and Monitoring Plan, and the Weed Management Plan, and all other individual biological mitigation and/or monitoring plans associated with the Project. The Project owner shall provide to BLM, CDFG, and USFWS a copy of all portions of the BRMIMP relating to desert tortoise and any other federal or state-listed species for review and comment.

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. To address potential impacts of climate change in the implementation and monitoring of biological resource mitigation measures, the Project owner shall make use of available climatalogical data when analyzing project effects or resource trends. 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 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.

Verification: The Project owner shall submit the draft BRMIMP to the CPM 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 BLM, USFWS, and CDFG 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 the final BRMIMP to the CPM, BLM, USFWS and CDFG 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.

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 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 this analysis, 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 of the acreages of vegetation communities/cover types present before and after construction.

Any changes to the approved BRMIMP must be approved by the CPM and in consultation with CDFG, BLM 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.

Impact Avoidance AND MINIMIZATION MEASURES

BIO-8 The Project owner shall undertake the following measures to manage the project site and related facilities in a manner to avoid or minimize impacts to biological resources:

1. Limit Disturbance Areas. 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 on all dirt roads and 45 mph on all paved roads. Signs shall be established at appropriate locations (for example, at Arizona crossings of drainages) to remind drivers to be aware of the potential for desert tortoise and other wildlife occurring on the roadways.

4. Monitor During Construction. In areas that have not been fenced with desert tortoise exclusion fencing and cleared, including during fence construction, 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 walk immediately ahead of equipment during brushing and grading activities in unfenced habitat (i.e., outside of the cleared and fenced Plant Site).

5. Minimize Impacts of Pipeline Alignments, Roads, 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.

6. Implement APLIC Guidelines. Transmission lines, fiber optic lines, and all electrical components shall be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee's (APLIC's) Suggested Practices for Avian Protection on Power Lines (APLIC 1994) and Mitigating Bird Collisions with Power Lines (APLIC 2006) to reduce the likelihood of large bird electrocutions and collisions.

7. Avoid Use of Toxic Substances. Soil bonding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants.

8. Minimize Lighting Impacts. Facility lighting shall be designed, installed, and maintained to prevent side casting of light towards wildlife habitat. Lighting shall be kept to the minimum level for safety and security needs by using motion or infrared light sensors and switches to keep lights off when not required, and shielding operational lights downward to minimize skyward illumination. No high intensity, steady burning, bright lights such as sodium vapor or spotlights shall be used. FAA visibility lighting shall employ only strobed, strobe-like or blinking incandescent lights, preferably with all lights illuminating simultaneously. Minimum intensity, maximum "off-phased" duel strobes are preferred, and no steady burning lights (e.g., L-810s) shall be used.

9. 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 Genesis Project. Loud construction activities (e.g., unsilenced high pressure steam blowing and 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 65dBA. 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 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.

10. 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, 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 harm's way of the disturbed area as described in the *USFWS Desert Tortoise Field Manual* (USFWS 2009).

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 remove and relocate the individual as described in the Desert Tortoise Translocation Plan. 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. During construction, 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 Biologists, who will remove the roadkill promptly for disposal (e.g., removal to a landfill or disposal at the project site). During operations, the Project Environmental Compliance Monitor will be notified of any roadkills and promptly remove and dispose of any roadkills. For special-status species road-kill, the Biological Monitor shall contact the Ontario Office of CDFG and the Carlsbad Office of USFWS within 1 working day of detection of the carcass for guidance on disposal or storage of the carcass. The Biological Monitor shall report 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 Erosion Control Measures. 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. All disturbed soils and roads within the Project site shall be stabilized to

reduce erosion potential, both during and following construction. Areas of disturbed soils (access and staging areas) with slopes 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.

Verification: 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 9a) 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.

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.

DESERT TORTOISE CLEARANCE SURVEYS AND FENCING

BIO-9 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 Exclusion Fence Installation. Per the Applicant's Desert Tortoise Translocation Plan, in order to avoid impacts to desert tortoises, permanent desert tortoise exclusion fencing shall be installed along the permanent perimeter security fence; along the utility corridors, temporary desert tortoise exclusion fencing or monitoring will be used to protect desert tortoises

during construction.. 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 Applicant's Translocation Plan.

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.

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.

2. Desert Tortoise Clearance Surveys within the Plant Site. Following construction of the permanent perimeter security fence and the attached tortoise exclusion fence, the permanently fenced power plant site shall be cleared of tortoises by the Designated Biologist, who may be assisted by the Biological Monitors. Clearance surveys shall be conducted in accordance with the USFWS' 2009 *Desert Tortoise Field Manual* (Chapter 6 – Clearance Survey Protocol for the Desert Tortoise – Mojave Population) and shall consist of two surveys covering 100 percent of 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. On each subsequent pass surveyors shall attempt to view all shrubs and the terrain from as many angles as possible. To achieve this, transects programmed into GPS units shall be either perpendicular, parallel but offset from transect on the previous pass, and/or approached from the opposite direction on each subsequent pass. Clearance surveys of the power plant site may only be conducted when tortoises are most active (April through May or September through October). Surveys outside of these time periods require approval by USFWS and CDFG. Any tortoise located during clearance surveys of the power plant site shall be relocated and monitored in accordance with the Desert Tortoise 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' 2009 *Desert Tortoise Field Manual*. 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 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 Translocation Plan.

b. Burrow Excavation/Handling. All potential desert tortoise burrows located during clearance surveys shall be excavated by hand, tortoises removed, and collapsed or blocked to prevent occupation by desert tortoises, in accordance with the Desert Tortoise Translocation Plan. All desert tortoise handling and removal, and burrow excavations, including nests, shall be conducted by the Designated Biologist, who may be assisted by a Biological Monitor in accordance with the USFWS' 2009 *Desert Tortoise Field Manual.*

3. 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 on site during 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 Translocation Plan.

4. 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 tortoise. Desert tortoise moved from within Project areas shall be marked and monitored in accordance with the Desert Tortoise Translocation Plan.

5. Desert Tortoise Exclusion Fence Installation. Per the Applicant's Desert Tortoise Translocation Plan, in order to avoid impacts to desert tortoises, permanent desert tortoise exclusion fencing shall be installed along the permanent perimeter security fence; along the utility corridors, temporary desert tortoise exclusion fencing or monitoring will be used to protect desert tortoises during construction.

Verification: 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 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 translocated desert tortoises, and any other information needed to demonstrate compliance with the measures described above.

DESERT TORTOISE TRANSLOCATION PLAN

BIO-10 The Project owner shall develop and implement a final Desert Tortoise Translocation Plan (Plan) that is consistent with current USFWS approved guidelines, and meets the approval of the CPM. The goals of the Desert Tortoise 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 Translocation Plan submitted by the Applicant (TTEC 2010a) and shall include all revisions deemed necessary by USFWS, CDFG and Energy Commission staff.

Verification: Within 30 days prior to site mobilization or construction-related ground disturbance, 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 USFWS and CDFG. All modifications to the approved Plan shall be made only after approval by the CPM, in consultation with 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.

Desert Tortoise Compliance VERIFICATION

BIO-11 The Project owner shall provide Energy Commission, BLM, USFWS and CDFG 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 efforts to verify the Project owner's compliance with, or the effectiveness of, mitigation measures set forth in the conditions of certification. The Project owner shall hold the Designated Biologist and the Energy Commission harmless for any costs the Project owner incurs in complying with the management measures, including stop work orders issued by the CPM or the Designated Biologist. The Designated Biologist shall do all of the following:

1. Notification. Notify the CPM and 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 onsite daily in areas located outside of permanent desert tortoise exclusion fencing 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, 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, the Ontario Office CDFG, and the Carlsbad Office 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 shall 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, 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, CDFG, and 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. 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.

Verification: 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, 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, CDFG and USFWS.

No later than 45 days after initiation of Project operation the Designated Biologist shall provide the CPM 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. 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 their results of the Monthly Compliance Inspections to the CPM, BLM, USFWS, and CDFG.

DESERT TORTOISE COMPENSATORY MITIGATION

BIO-12 To fully mitigate for habitat loss and potential take of desert tortoise, the Project owner shall provide compensatory mitigation at a 1:1 ratio for impacts to 1750 acres, and at a 5:1 ratio for impacts to 24 acres of critical habitat, 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 Genesis Project, including all 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 no fewer than 1,864 acres of desert tortoise habitat lands (adjusted to reflect the final Project footprint), and shall also provide funding for the initial improvement and long-term maintenance and management of the acquired lands, and comply with other related requirements in this condition. Costs of these requirements are estimated to be $4,263,600 based on the acquisition of 1,870 acres and estimated per-acre costs of $500 for acquisition, $330 for initial habitat improvement, and $1,450 for long-term management. The actual costs to comply with this condition will vary depending on the final footprint of the Project, 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. The 1,870-acre habitat requirement, and associated funding requirements based on that acreage, will be adjusted up or down if there are changes in the final footprint of the Project.

Condition **BIO-29** may provide the Project owner with another option for satisfying some or all of the requirements in this condition.

The requirements for the acquisition, initial improvement, protection and long-term maintenance and management of compensation lands include all of the following:

Selection Criteria for Compensation Lands. The quality and function of the compensation lands selected for acquisition shall be equal to or better than the quality and function of the habitat impacted and:

- 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;
- provide habitat for desert tortoise with capacity to regenerate naturally when disturbances are removed;
- be 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;
- be connected to lands where desert tortoises can be reasonably expected to occur bssed on habitat or historic occurrences, ideally with populations that are stable, recovering, or likely to recover;
- 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;
- 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;
- not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and
- 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 land without these rights.

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 desert tortoise in relation to the criteria listed above, and must be approved by the CPM. The CPM will share the

proposal with and consult with CDFG, BLM and the USFWS before deciding whether to approve or disapprove the proposed acquisition.

Compensation Lands Acquisition Requirements. The Project owner shall comply with the following requirements relating to acquisition of the compensation lands after the CPM, in consultation with CDFG, BLM and the USFWS, has approved the proposed compensation lands:

- 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. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM, in consultation with CDFG, 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.
- 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 in consultation with CDFG. 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 in consultation with CDFG. 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, in consultation with CDFG, of the terms of any transfer of fee title or conservation easement to the compensation lands.
- Initial Protection and Habitat Improvement. The Project owner shall fund activities that the CPM, in consultation with the CDFG, USFWS and BLM, 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 is estimated at $330 an acre, but 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.

- 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, in consultation with CDFG, before it can be used to establish funding levels or management activities for the compensation lands.

- Long-term Maintenance and Management Funding. The Project owner shall provide money to establish an account with non-wasting capital that will be used to fund the long-term maintenance and management of the compensation lands. The amount of money to be paid will be determined through an approved PAR or PAR-like analysis conducted for the compensation lands. The amount of required funding is initially estimated to be $1,450 for every acre of compensation lands. If compensation lands will not be identified and a PAR or PAR-like analysis completed within the time period specified for this payment (see the verification section at the end of this condition), the Project owner shall either provide initial payment of $2,711,500 (calculated at $1,450 an acre for 1,870 acres) or the Project owner shall include $2,711,500 to reflect this amount in the security that is provided to the Energy Commission under section 3.h. of this condition. The amount of the required initial payment or security for this item shall be adjusted for any change in the Project footprint as described above. If an initial payment is made based on the estimated per-acre costs, the Project owner shall deposit additional money as may be needed to provide the full amount of long-term maintenance and management funding indicated by a PAR or PAR-like analysis, once the analysis is completed and approved. If the approved analysis indicates less than $1,450 an acre will be required for long-term maintenance and management, the excess paid will

be returned to the Project owner. The Project owner must obtain the CPM's approval of the entity that will receive and hold the long-term maintenance and management fund for the compensation lands. The CPM will consult with CDFG before deciding whether to approve an entity to hold the Project's long-term maintenance and management funds.

1. The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fund holder/manager to ensure the following requirements are met:

   - 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 in consultation with CDFG and is designed to protect or improve the habitat values of the compensation lands.

   - 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, in consultation with CDFG, 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.

   - 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 non-wasting funds that it holds from other projects for long-term maintenance and management of compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management funds for this Project must be tracked and reported individually to the CPM and CDFG.

   - 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.

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 plan shall be submitted for approval of the CPM, in consultation with CDFG, BLM and USFWS.

Mitigation Security. The Project owner shall provide financial assurances to the CPM, with copies of the final document to CDFG, 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 in consultation with CDFG. Prior to submitting the Security to the CPM, the Project owner shall obtain the CPM's approval, in consultation with CDFG, 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. The Security shall be returned to the Project owner in whole or in part upon successful completion of the associated requirements in this condition.

1. Security shall be provided in the amount of $4,263,600, calculated as follows but adjusted as specified below:

   i. land acquisition costs for compensation land, calculated at $500/acre = $935,000.

   ii. initial protection and habitat improvement activities on the compensation land, calculated at $330/acre = $617,000.

iii. long-term maintenance and management on the compensation land calculated at $1,450/acre = $2,711,500.

2. The amount of security shall be adjusted for any change in the Project footprint as described above. In addition, the amount of Security specified in this section may be reduced in proportion to any of the secured mitigation requirements that the Project owner has completed at the time the Security is required to be submitted. For example, if the Project owner transfers funds for long-term management of the compensation lands to an entity approved to hold those funds, the Security would not include any amount for long-term maintenance and management of the lands. The Project owner will be entitled to partial or complete release of the Security as the secured mitigation requirements are successfully completed.

   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, or 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.

3. 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 Energy Commission's certification of the Project.

Verification: The Project owner shall provide the CPM with written notice at least 30 days prior to the start of ground-disturbing activities on the Project site.

If the mitigation actions required under this condition are not completed at least 30 days prior to the start of ground-disturbing activities, the Project owner shall provide the CPM with approved Security at least 30 days prior to the start of Project ground-disturbing activities

No later than 12 months after the start of ground-disturbing Project activities, the Project owner shall submit a formal acquisition proposal to the CPM describing the parcels intended for purchase, and shall obtain approval from the CPM, in consultation with CDFG, BLM and USFWS, prior to the acquisition. If NFWF or another approved third party is handling the acquisition, the Project owner shall fully cooperate with the third party to ensure the proposal is submitted within this time period. 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, CDFG, BLM and USFWS 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,

The Project owner shall complete and submit to the CPM a PAR or PAR-like analysis no later than 60 days after the CPM approves compensation lands for acquisition. The Project owner shall fully fund the required amount for long-term maintenance and management of the compensation lands no later than 30 days after the CPM approves a PAR or PAR-like analysis of the anticipated long-term maintenance and management costs of the compensation lands. Written verification shall be provided to the CPM and CDFG to confirm payment of the long-term maintenance and management funds.

No later than 60 days after the CPM determines what activities are required to provide for initial protection and habitat improvement on the compensation lands, the Project owner shall make funding available for those activities and provide written verification to the CPM of what funds are available and how costs will be paid. Initial protection and habitat improvement activities on the compensation lands shall be completed, and written verification provided to the CPM, no later than six months after the CPM's determination of what activities are required on the compensation lands.

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, in consultation with CDFG, BLM and the USFWS, shall approve the management plan after its content is acceptable to the CPM.

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.

RAVEN MANAGEMENT PLAN

BIO-13 The Project owner shall implement a raven monitoring and control plan that is consistent with the most current USFWS-approved raven management guidelines, and which meets the approval of the CPM, in consultation with USFWS. The draft Common Raven Monitoring, Management, and Control Plan (Raven Plan) submitted by the Applicant (TTEC 2010r) shall provide the basis for the final plan, subject to review and revisions and approval from the CPM and USFWS. The Raven Plan shall include but not be limited to a program to monitor increased raven presence in the Project vicinity 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. The threshold for implementation of raven control measures shall be any increases in raven numbers from baseline conditions, as detected by monitoring proposed in the Raven Plan. In addition, to offset the cumulative contributions of the Project to desert tortoise from increased raven numbers, the Project owner shall also contribute to the USFWS Regional Raven Management Program. The Project owner shall do all of the following:

1. <u>Prepare and Implement a Raven Management Plan</u> that includes the following:

    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. Address monitoring and nest removal during construction and for the life of the Project, and;

e. Discuss reporting requirements.

2. Contribute to the 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 amount shall be a one-time payment of $105 per acre of permanent disturbance.

Verification: No less than 30 days prior to any construction-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.

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.

On January 31st of 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.

No less than 10 days prior to the start of any Project-related ground disturbance activities, the Project owner shall provide documentation to the CPM. BLM, 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. *The amount shall be a one-time payment of $105 per acre of permanent disturbance of 1754 acres.*

WEED MANAGEMENT PLAN

BIO-14 The Project owner shall implement a Weed Management Plan that meets the approval of the CPM. The objective of the Weed Management 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 (TTEC 2009g) shall provide the basis for the final plan, subject to review and revisions from the CPM. The Final Weed Management Plan shall include 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; weed risk assessment and measures to prevent the introduction and spread of weeds; monitoring and surveying methods; and reporting requirements.

To ensure that weed management does not have unintended adverse effects on special-status species, the final Weed Management Plan shall be revised to be consistent with guidelines for safe use of herbicides in natural areas provided by The Nature Conservancy's The Global Invasive Species Team:
http://www.invasive.org/gist/products/library/herbsafe.pdf.

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.

The final plan shall only include weed control measures for target weeds with a demonstrated record of success, based on the best available information from sources such as: The Nature Conservancy's The Global Invasive Species Team, Cooperative Extension, 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_hp.htm. The methods shall meet the following criteria:

1. 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.

2. Chemical: Herbicides known to have residual toxicity, such as pre-emergents and pellts, 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 & 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.

3. 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;

4. 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 (GSEP 2009a).

Verification: 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 and approved by Energy Commission staff, USFWS, and CDFG. Modifications to the approved Weed Control Plan shall be made only after consultation with the Energy Commission staff, USFWS, and CDFG.

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.

On January 31st of each year following construction the Designated Biologist shall provide a report to the CPM 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.

PRE-CONSTRUCTION NEST SURVEYS AND AVOIDANCE MEASURES

BIO-15 Pre-construction nest surveys for bird species other than burrowing owls shall be conducted if construction activities would occur at any time during the period of February 1 through July 31. Burrowing owl nest surveys are addressed in BIO-18.

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 the Project site or within 500 feet of the boundaries of the site (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 7-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 are detected during the survey, a buffer zone and monitoring plan shall be developed. The size of the buffer zone shall be developed in consultation with CDFG and shall be determined based on the species specific alert distance and flush initiation distance[2]. 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.

Verification: Prior to the start of any Project-related ground disturbance activities, the Project owner shall provide the CPM a letter-report describing the findings of the pre-construction nest surveys 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 nests are detected during the survey, the report shall include a map or aerial photo identifying the location of the nest and shall depict the boundaries of the no-

[2] Alert distance refers to the distance between an animal and an activity when the animal becomes visibly alert (as evidenced by cessation of feeding and scrutiny of activity). Flush initiation distance, also called flight distance, refers to the distance between the animal and an activity when the animal takes flight (Taylor and Knight 2003).

disturbance buffer zone around the nest(s) that would be avoided during project construction.

No later than January 31st of every year following construction a follow-up report shall be provided to the CPM, 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).

Avian Protection plan

BIO-16 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 Project owner shall use the monitoring data to inform and develop an adaptive management program that would avoid and minimize Project-related avian impacts. Project-related bird deaths or injuries shall be reported to the CPM, CDFG, and USFWS. The CPM, in consultation with CDFG and USFWS, shall determine if the Project-related bird deaths or injuries warrant implementation of adaptive management measures contained in the Avian Protection Plan. The study design for the Avian Protection Plan shall be approved by the CPM in consultation with CDFG and USFWS, and, once approved, shall be incorporated into the project's BRMIMP and implemented.

Verification: No less than 30 days prior to the start of construction-related ground disturbance activitiesthe 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 reports to the CPM, 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.

No later than January 31st of every year the Annual Report shall be provided to the CPM, 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.After two years of data collection the project owner or contractor shall prepare a report that describes the study design and monitoring results of the Avian Protection Plan. The report shall be submitted to the CPM, CDFG and USFWS no later than the third year after onset of Project operation.

AMERICAN BADGER AND DESERT KIT FOX IMPACT AVOIDANCE AND MINIMIZATION MEASURES

BIO-17 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. Surveys shall be conducted as described below:

Biological Monitors shall perform pre-construction surveys for badger and kit fox dens in the Project area, including areas within 90 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, potentially active, or definitely active.

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. 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, and especially if high or low ambient temperatures could potentially result in harm to kit fox or badger from burrow exclusion, various passive hazing methods may be used to discourage occupants 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. In the event that passive relocation techniques fail for badgers, the Applicant will contact CDFG to explore other relocation options, which may include trapping.

Verification: The Project owner shall submit a report to the CPM 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.

Burrowing Owl Impact Avoidance, Minimization, AND COMPENSATION Measures

BIO-18 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 one hour after or from one hour before to two hours after sunrise. The survey area shall include the Project Disturbance Area and surrounding 500 foot survey buffer.

2. 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 1st through January 31st). 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 31st) the Designated Biologist or Biological Monitor shall monitor to determine if these activities have potential to adversely affect nesting efforts, and shall implement measures to minimize or avoid such disturbance.

3. Passive Relocation of Burrowing Owls. If pre-construction surveys indicate the presence of burrowing owls within the Project Disturbance Area (the Project Disturbance Area means all lands disturbed in the construction and operation of the Genesis Project), the Project owner shall prepare and implement a Burrowing Owl Relocation and Mitigation Plan, in addition to the avoidance measures described above. The final Burrowing Owl Relocation and Mitigation Plan shall be approved by the CPM, in consultation with USFWS, BLM and CDFG, and shall:

   a. Identify and describe suitable relocation sites within 1 mile of the Project Disturbance Area, and describe measures to ensure that burrow installation or improvements would not

affect sensitive species habitat or existing burrowing owl colonies in the relocation area;

b. Passive relocation sites shall be in areas of suitable habitat for burrowing owl nesting, and be characterized by minimal human disturbance and access. Relative cover of non-native plants within the proposed relocation sites shall not exceed the relative cover of non-native plants in the adjacent habitats;

c. Provide detailed methods and guidance for passive relocation of burrowing owls occurring within the Project Disturbance Area; and

d. Prepare a monitoring and management of the relocated burrowing owl site, and provide a reporting plan. The objective of the plan shall be to manage the relocation area for the benefit of burrowing owls, with the specific goals of:

   i. maintaining the functionality of the burrows for two years

   ii. Minimizing the occurrence of weeds (species considered "moderate" or "high" threat to California wildlands as defined by CAL-IPC [2006] and noxious weeds rated "A" or "B" by the California Department of Food and Agriculture and any federal-rated pest plants [CDFA 2009]) at less than 10 percent cover of the shrub and herb layers.

4. Acquire Compensatory Mitigation Lands for Burrowing Owls.
The following measures for compensatory mitigation shall apply only if burrowing owls that are detected within the Project Disturbance Area. The Project owner shall acquire, in fee or in easement, 19.5 acres of land for each burrowing owl that is displaced by construction of the Project. Staff anticipates displacement of two owls for a total of 39 acres of compensatory mitigation land. This compensation acreage of 19.5 acres per single bird or pair of nesting owls assumes that there is no evidence that the compensation lands are occupied by burrowing owls. If burrowing owls are observed to occupy the compensation lands, then only 9.75 acres per single bird or pair is required, per CDFG (1995) guidelines. If the compensation lands are contiguous to currently occupied habitat, then the replacement ratio will be 13.0 acres per pair or single bird. All measures below that are based on a compensation lands total of 39 acres would be revised accordingly. Thirty-nine acres will be used as a placeholder for security.

The Project owner shall provide funding for the enhancement and long-term management of these compensation lands. The 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. 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 described in Section 3.i. of Condition of Certification BIO-12.

a. Criteria for Burrowing Owl Mitigation Lands. The terms and conditions of this acquisition or easement shall be as described in Paragraph 1 of **BIO-12** [Desert Tortoise Compensatory Mitigation], with the additional criteria to include: 1) the 39 acres of mitigation land 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 5 miles). The 39 acres of burrowing owl mitigation lands may be included with the desert tortoise mitigation lands ONLY if these two burrowing owl criteria are met. If the 39 acre of burrowing owl mitigation land is separate from the acquisition required for desert tortoise compensation lands, the Project owner shall fulfill the requirements described below in this condition.

b. Security. The Security measures described below is based on the assumption that two owls would be impacted by construction of the Project, and would therefore require 39 acres of compensatory mitigation land. If the 39 acres of 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 prior to initiating ground-disturbing Project activities. Alternatively, financial assurance can be provided by the Project owner to the CPM with copies of the document(s) to CDFG, BLM and the USFWS, to guarantee that an adequate level of funding is available to implement the mitigation measure 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 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, BLM and the USFWS to ensure funding. As of the publication of the RSA, this amount is $120,432 but this amount may change based on land costs or the estimated costs of enhancement and endowment (see subsection C.2.4.2, Desert Tortoise, for a discussion of the assumptions used in calculating the Security, which are based on the most current guidance from the REAT agencies *(Desert Renewable Energy REAT Biological Resource Compensation/Mitigation Cost Estimate Breakdown for use with the REAT-NFWF Mitigation Account, July 23, 2010*) This estimate may be revised with updated information from the REAT agencies.

Verification: If pre-construction surveys detect burrowing owls within 500 feet of proposed construction activities, the Designated Biologist shall provide to the CPM, BLM, CDFG and USFWS documentation indicating that non-disturbance buffer fencing has been installed at least 10 days prior to the start of any construction-related ground disturbance activities. The Project owner shall report monthly to the CPM, CDFG, BLM 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, BLM, CDFG and USFWS a written construction termination report identifying how mitigation measures described in the plan have been completed.

If pre-construction surveys detect burrowing owls within the Project Disturbance Area, the Project owner shall notifiy the CPM, BLM, CDFG and USFWS no less than 10 days of completing the surveys that a relocation of owls is necessary. The Project owner shall do all of the following if relocation of one or more burrowing owls is required:

a. Within 30 days of completion of the burrowing owl pre-construction surveys, submit to the CPM, CDFG and USFWS a Burrowing Owl Relocation and Mitigation Plan.

b. No less than 90 days prior to acquisition of the burrowing owl compensation lands, the Project owner, or an approved third party, shall submit a formal acquisition proposal to the CPM, CDFG, and USFWS describing the 39-acre parcel intended for purchase. At the same time the Project owner shall submit a PAR or PAR-like analysis for the parcels for review and approval by the CPM, CDFG and USFWS.

c. Within 90 days of 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.

d. No later than 30 days prior to the start of construction-related ground disturbing activities, the Project owner shall provide written verification of Security in accordance with this condition of certification.

e. No later than 18 months after the start of construction-related ground disturbance activities, the Project owner shall provide written verification to the CPM, BLM, CDFG and USFWS that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient.

f. On January 31st of each year following construction for a period of five years, the Designated Biologist shall provide a report to the CPM, USFWS, BLM and CDFG that describes the results of monitoring and management of the burrowing owl relocation area. The annual report shall provide an assessment of the status of the relocation area with respect to burrow function and weed infestation, and shall include recommendations for actions the following year for maintaining the burrows as functional burrowing owl nesting sites and minimizing the occurrence of weeds.

SPECIAL-STATUS PLANT Impact Avoidance, Minimization and compensation

BIO-19 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 impacts to plants occurring outside of the Project Disturbance Area and within 100 feet of the Project Disturbance Area during construction, operation, and closure.
- **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 avoidance required for plants detected during the summer-fall surveys, based on the species' rarity and status codes.
- **Section D: Off-Site Compensatory Mitigation for Special-Status Plants** describes performance standards for mitigation for a range of options for compensatory mitigation through acquisition, restoration/enhancement, or a combination of acquisition and 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 Project owner shall implement the following measures in Section A, B, C, and D to avoid, minimize, and compensate for impacts to special-status plant species:

Section A: Special-Status Plant Impact Avoidance and Minimization Measures

To protect all special-status plants[3] 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: Incorporate site design modifications to minimize impacts to special-status plants along the Project linears: 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. Design the engineered channel discharge points to maintain the natural surface drainage

[3] Staff defines special-status plants as described in *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities* (California Natural Resources Agency, Department of Fish and Game, issued November 24, 2009).

patterns between the engineered channel and the outlet of the natural washes that flow toward the south and east, downstream of the Project 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 avoided special-status plants that occur outside of the Project Disturbance Areas and within 100 feet of Project Disturbance Areas. 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. **S**pecial-status plant occurrences within 100 feet of the Project Disturbance Area 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 Team[4] , the U.S. Environmental Protection Agency, and the Pesticide Action Network Database[5].

e. Erosion and Sediment Control Measures. Erosion and sediment control measures shall not inadvertently impact special-status plants (e.g., by using invasive or non-native plants in seed mixes, introducing pest plants through contaminated seed or straw, etc.). These measures shall be incorporated in the Drainage, Erosion, and Sedimentation Control Plan required under **SOIL&WATER-1**.

f. Avoid 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.

g. Monitoring and Reporting Requirements. 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). Fall-blooming perennials that respond to the cooler, later season storms (typically beginning in September or October) shall only be required if blooms and seeds are necessary for identification or the species are summer-deciduous and require leaves for identification. 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.

[4] Hillmer, J. & D. Liedtke. 2003. Safe herbicide handling: a guide for land stewards and volunteer stewards. Ohio Chapter, The Nature Conservancy, Dublin, OH. 20 pp. Online: <http://www.invasive.org/gist/products.html.

[5] Pesticide Action Network of North America. Kegley, S.E., Hill, B.R., Orme S., Choi A.H., PAN Pesticide Database, Pesticide Action Network, North America. San Francisco, CA, 2010 <http://www.pesticideinfo.org>

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 protocols (CDFG 2009). 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)[6], 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. 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

[6] Bureau of Land Management (BLM), California State Office. *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species*. Issued July 2009.

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).

5. Reporting. Raw GPS data, metadata, and CNDDB field forms shall be provided to the CPM 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 standards to late blooming special-status plants that might be detected during late summer/fall season surveys. Avoidance and/or the mitigation measures described in Section D below would reduce impacts to these special-status plant species to less than significant levels.

1. Mitigation for CNDDB Rank 1 Plants (Critically Imperiled) - Avoidance Required: If late blooming species with a CNDDB rank of 1 are detected within the Project Disturbance Area the Project owner shall prepare and implement a Special-Status Plant Mitigation Plan (Plan). The goal of the Plan shall be to retain at least 75% of the local population of the affected species. Compensatory mitigation, as described in Section D of this condition, and at a mitigation ratio of 3:1, shall be required for the 25% or portion that is not avoided. The Plan shall include, at a minimum, the following components and definitions:

    a. A description of the occurrences of the CNDDB rank 1 species on the Project, ecological characteristics such as micro-habitat requirements, ecosystem processes required for maintenance of the 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. 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. 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, unless such avoidance would cause disturbance to areas not previously surveyed for biological resources (GSEP 2009a, TTEC 2010m) or would create greater environmental impacts in other resource areas (e.g. Cultural Resource Sites) or other restrictions (e.g., FAA or other restrictions for placement of transmission poles).

    c. A description of the measures that would be implemented to avoid or minimize impacts to occurrences on the solar facility. Avoidance is generally considered not feasible if the species is located within the Permanent Project Disturbance Area (bounded by the permanent tortoise exclusion fence and the drainage channels).

    d. If avoidance on the linears, construction laydown areas, and solar facility combined protect less than 75% of the local population of the affected species, the project owner shall implement offsite mitigation that demonstrates that the impacts

will not cause a loss of viability for that species. Implementation of the compensatory offsite mitigation must meet the performance standards described in section D of this Condition, and may include land acquisition or implementation of a restoration/enhancement program for the species.

e. "Avoidance" shall include protection of the ecosystem processes essential for maintenance of the protected plant occurrence. For all but one of the late blooming plant species with potential to occur, the plant species are annuals that depend on a viable seed bank to maintain population health and persistence. The primary goal of avoidance for these annual species will be protection of the soil integrity and the seed bank that is closely associated with undisturbed soils. Any impacts to the soil structure or surface features will be considered an impact, but measures like temporary mowing or brush removal that does not disturb the soil will not be considered impacts to the population. 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 to be protected and shall not be credited as contributing to the 75% avoidance requirement because such isolated populations are not sustainable.

2. Mitigation for CNDDB Rank 2 Plants (Imperiled) –Avoidance on Linears Required: If species with a CNDDB rank of 2 are detected within the Project Disturbance Area, the Project owner shall prepare and implement a Special-Status Plant Mitigation Plan (Plan) that describes measures to achieve complete avoidance of occurrences on the Project linears and construction laydown areas, unless such avoidance would cause disturbance to areas not previously surveyed for biological resources (GSEP 2009a, TTEC 2010m) or would create greater environmental impacts in other resource areas (e.g. Cultural Resource Sites) or other restrictions (e.g., FAA or other restrictions for placement of transmission poles). The Project owner shall provide compensatory mitigation, at a ratio of 2:1, as described below in Section D for impacts to Rank 2 plants that could not be avoided. The content of the Plan and definitions shall be as described above in subsection C.1.

3. Mitigation for CNDDB Rank 3 Plants – No On-Site Avoidance Required Unless Local or Regional Significance: If species with a CNDDB rank of 3 are detected within the Project Disturbance Area, no onsite avoidance or compensatory mitigation shall be required unless the occurrence has local or regional significance, in which case the plant occurrence shall be treated as a CNDDB rank 2

plant species. 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. Pre-Construction Notification for State- or Federal-Listed Species, or BLM Sensitive Species. If a state or federal-listed species or BLM Sensitive species is detected, the Project owner shall immediately notify the CDFG, USFWS, BLM, and the CPM.

5. Preservation of the Germplasm of Affected Special-Status Plants. For all significant impacts to special-status plants, regardless of whether compensatory mitigation is required, mitigation shall include seed collection from the affected special-status plants 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 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.

Section D: Off-Site Compensatory Mitigation for Special-Status Plants

1. 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 ¼ acre than the compensatory mitigation will be ¾ 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.

2. 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.
3. 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.

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:

   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.

   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.

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 are estimated based on the most current guidance from the REAT agencies (*Desert Renewable Energy REAT Biological Resource Compensation/Mitigation Cost Estimate Breakdown for use with the REAT-NFWF Mitigation Account, July 23, 2010*) This estimate may be revised with updated information from the REAT agencies. The cost estimate 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, 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.

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.

Long-term Maintenance and Management Funding. The Project owner shall deposit in NFWF's REAT Account a non-wasting 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.

4. 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:

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.

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.

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 non-wasting 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.

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.

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 be based on the most current guidance from the REAT agencies (*Desert Renewable Energy REAT Biological Resource Compensation/Mitigation Cost Estimate Breakdown for use with the REAT-NFWF Mitigation Account, July 23, 2010*) This estimate may be revised with updated information from the REAT agencies. The cost estimate shall use $2,280 per acre, using 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.

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 ¼ acre than the

improvements would be applied to an area equal to ¾ 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 system[7] 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 be based on the most current guidance from the REAT agencies (*Desert Renewable Energy REAT Biological Resource Compensation/Mitigation Cost Estimate Breakdown for use with the REAT-NFWF Mitigation Account, July 23, 2010*) This estimate may be revised with updated information from the REAT agencies. The cost estimate shall use $2,280 per acre, using 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

[7] Master, L., D. Faber-Langendoen, R. Bittman, G. A., Hammerson, B. Heidel, J. Nichols, L. Ramsay, and A. Tomaino. 2009. *NatureServe Conservation Status Assessments: Factors for Assessing Extinction Risk.* NatureServe, Arlington, VA. Online: http://www.natureserve.org/publications/ConsStatusAssess_StatusFactors.pdf , “Threats”. See also: Morse, L.E., J.M. Randall, N. Benton, R. Hiebert, and S. Lu. 2004. An Invasive Species Assessment Protocol: Evaluating Non-Native Plants for Their Impact on Biodiversity. Version 1. NatureServe, Arlington, Virginia. Online: http://www.natureserve.org/publications/pubs/invasiveSpecies.pdf

the enhancement, restoration and monitoring. The 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. Compensatory Mitigation by Conducting or Contributing to a Distribution and Status Study for the Affected Species: As determined by the CPM, in the event there are no opportunities for mitigation through acquisition or restoration/enhancement, a Study of Distribution and Status for the affected special-status plant species may be implemented or funded. Information on the distribution, status or health of known occurrences, ecological requirements, and ownership and management opportunities is very limited for many of the special-status plant species that occur on the Project or have potential to occur on the project, especially the late summer and fall blooming species. 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. The objectives of this study would be to better understand the full distribution of the affected species, the degree and immediacy of threats to occurrences, and ownership and management opportunities, with the primary goal of future preservation, protection, or recovery of the affected species within California. Additionally the study should delineate other areas in the region that should be avoided or protected due to rare plant presence. To further ensure protection, study data shall be published in the state's rare plant database.

At a minimum, the study shall include the following:

1. 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.

2. 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.

3. 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.

4. Prepare a Status and Distribution Study Report. 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) or 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.

Verification: The Special-Status Plant Impact Avoidance and Minimization Measures shall be incorporated into the BRMIMP as required under Condition of Certification **BIO-7.**

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 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.

The draft conceptual Special-Status Plant Mitigation Plan 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 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.

If compensatory mitigation is required, 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 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 Status and Distribution Study is proposed, the study shall commence no later than six months following the start of ground-disturbing activities. The draft study shall be submitted to the CPM and BLM 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.

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.

BIO-20 The Project owner shall mitigate for direct and indirect impacts to stabilized and partially stabilized sand dunes and other Mojave fringe-toed lizard habitat by acquisition of 136 acres of Mojave fringe-toed lizard habitat. The Project owner shall provide funding for the acquisition, initial habitat improvements and long-term management of the compensation lands. The 136 -acre acquisition requirement, and associated funding requirements based on that acreage will be adjusted if there are changes in the final footprint of the Project. 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 described in Section 3.i. of Condition of Certification BIO-12. Condition of Certification BIO-29 may provide the Project owner with another option for satisfying some or all of the requirements in this condition.

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 in the form of an irrevocable letter of credit, a pledged savings account or Security prior to initiating ground-disturbing project activities. The Security shall be approved by the CPM, in consultation with CDFG and the USFWS, to ensure sufficient funding. The amount is $422,668 *based on the most current guidance from the REAT agencies (Desert Renewable Energy REAT Biological Resource Compensation/Mitigation Cost Estimate Breakdown for use with the REAT-NFWF Mitigation Account, July 23, 2010)*. This amount may change based on land costs or the estimated costs of enhancement and endowment (see subsection C.2.4.2, Desert Tortoise, for a discussion of the assumptions used in calculating the Security, which are based on an estimate of $1,450 per acre to fund acquisition, enhancement and long-term management).

3. Preparation of Management Plan: The Project owner shall submit to the CPM, CDFG and USFWS a draft Management Plan that 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.

The requirements for acquisition, initial improvement and long-term management of compensation lands include all of the following:

1. Criteria for Compensation Lands: The compensation lands selected for acquisition shall:

   a. *Provide suitable habitat for Mojave fringe-toed lizards that is equal to or better than that found in the Project disturbance area, and may include stabilized and partially stabilized desert dunes or sand drifts over playas or Sonoran creosote bush scrub;*

   b. Be within the Chuckwalla Valley 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 connected to lands that are either currently occupied or have high potential to be occupied by Mojave fringe-toed lizard based on patch size and habitat quality;

   d. Be 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;

   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;

   h. Not be subject to property constraints (i.e. mineral leases, cultural resources); and

i. Be on land for which long-term management is feasible.

Verification: No later than 30 days prior to beginning construction-related ground-disturbing activities, the Project owner shall provide written verification of Security in accordance with this condition of certification. 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 construction-related ground-disturbing activities.

The Project owner, or an approved third party, shall provide the CPM, 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.

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. At the same time the project owner shall submit a PAR or PAR-like analysis for the parcels for review and approval by the CPM, in consultation with BLM, CDFG and USFWS.

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 of Mojave fringe-toed lizard habitat disturbed during Project construction.

The Project owner shall provide written verification to the CPM, 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 after the initiation of construction related ground-disturbance activities.

EVAPORATION POND NETTING AND MONITORING

BIO-21 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 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 one day for a minimum of two hours following sunrise (i.e., dawn), a minimum of one hour mid-day (i.e., 1100 to 1300), and a minimum of two 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 one day of the detection of the carcass. The Designated Biologists shall report any bird or other wildlife deaths or entanglements within two 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 two surveys per years, 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.

Verification: 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, 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 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, CDFG, and USFWS no later than January 31st of every year for the life of the project.

MITIGATION FOR IMPACTS TO STATE WATERS

BIO-22 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 at least 111 acres of state jurisdictional waters, 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 Genesis Project, including all Project linears. The parcel or parcels comprising the 111 acres of ephemeral washes shall include at least 48 acres of microphyll woodland. If the Reduced Acreage Alternative were constructed the mitigation requirements for impacts to state waters would be a minimum of 109 acres that included at least 48 acres of microphyll woodland. The terms and conditions of this acquisition or easement shall be as described in Condition of Certification **BIO-12**, #2 and #3. Mitigation for impacts to state waters shall occur within the Chuckwalla-Ford Dry Lake or surrounding watersheds, as close to the Project site as possible. The 111-acre acquisition of state waters may be integrated with the desert tortoise mitigation acquisition if the criteria described in this condition are met.

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 construction-related ground disturbing activities. Prior to submittal to the CPM, the Security shall be approved by the CPM, in consultation with CDFG and the USFWS, to ensure sufficient funding. The amount is $342,768, based on the most current guidance from the REAT agencies (*Desert Renewable Energy REAT Biological Resource Compensation/Mitigation Cost Estimate Breakdown for use with the REAT-NFWF Mitigation Account, July 23, 2010*) This estimate may be revised with updated information from the REAT agencies.

3. 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 in consultation with 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 in consultation with 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 the CPM. If an approved non-profit holds a conservation easement, CDFG shall be named a third party beneficiary.

4. 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.

5. Stop Work Provisions. The Project owner shall provide a copy of this condition (Condition of Certification **BIO-22)** from the Energy Commission Final Decision to all contractors, subcontractors, and other on-site personnel. 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 to staff in preparing the terms and conditions; or

c. The Project or Project activities as described in the Staff Assessment have changed.

6. Notification: The project owner shall notify the CPM and CDFG in writing before conducting Project activities in jurisdictional areas. The Project owner shall notify the CPM and CDFG of any change of conditions to the Project, the jurisdictional impacts, or the mitigation efforts, if the conditions at the site of a proposed Project change in a manner which changes risk to biological resources that may be substantially adversely affected by the proposed Project. The notifying report shall be provided to the CPM and CDFG no later than seven days after the 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. A change of conditions is defined as follows:

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.

7. Best Management Practices: The Project owner shall also comply with the following conditions to protect drainages near the approved impact areas as defined in the approved construction documents:

   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.

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.

Verification: 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 shall be implemented. The Project owner shall also provide a discussion of work in waters of the state in Compliance Reports for the duration of the Project.

No less than 30 days prior to beginning construction-related ground-disturbing activities the Project owner shall provide written verification of Security in accordance with this condition of certification. 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 construction-related ground-disturbing activities.

The Project owner shall notify the CPM and CDFG, in writing, at least five days prior to initiation of construction-related 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. The notifying report shall be provided to the CPM and CDFG no later than seven days after the 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.

The Project owner, or an approved third party, shall provide the CPM, CDFG and USFWS with a draft 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.

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 of jurisdictional state waters disturbed during Project construction.

The Project owner shall provide written verification to the CPM, 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 after the start of construction-related ground-disturbing activities.

On January 31st of each year following construction the Designated Biologist shall provide a report to the CPM, BLM, USFWS and CDFG that describes the results of monitoring and management of the acquisition lands. The annual report shall describe actions taken to implement the management plan (for example, fencing, erosion control, weed control) during the year and recommendations for enhancement actions that should be implemented the following year.

DECOMMISSIONING AND CLOSURE PLAN

BIO-23 Upon Project closure the Project owner shall implement a final Decommissioning and Closure Plan for the Project site. The Decommissioning and Closure 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., subject to review and revisions from the CPM in consultation with BLM, USFWS, and CDFG. The Project owner shall submit a draft Decommissioning and Closure Plan for review to the CPM, BLM, USFWS and CDFG. The Project owner shall finalize the plan only after approval from the CPM, in consultation with BLM, USFWS, and CDFG. Throughout the life of the Project the Project owner plan shall regularly submit the plan to the CPM for review and updating, if warranted, as described in Verification below. Modifications to the final Decommissioning and Closure Plan shall be made only after approval from the CPM, in consultation with BLM, USFWS, and CDFG.

Verification: No less than 30 days prior to initiating construction-related ground disturbance activities, the Project owner shall provide to BLM and the CPM a draft Decommissioning and Closure 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 approval, in consultation with BLM. Modifications to the approved Decommissioning and Closure Plan shall be made only after approval from the CPM, in consultation with BLM, USFWS, and CDFG.

No less than 10 days prior to initiating construction-related ground disturbance activities the Project owner shall provide financial assurances to the CPM to guarantee that an adequate level of funding would be available to implement measures described in the Decommissioning and Closure Plan, consistent with the provisions set forth in 43 C.F.R. sections 2805.12 and 3809.500-.599.

Revegetation of temporarily disturbed areas

BIO-24 The Project owner shall prepare and implement a Revegetation Plan to restore all areas subject to temporary disturbance. The final Revegetation Plan shall be based on the draft Revegetation Plan submitted by the Applicant (TTEC 2010i) and shall include all revisions deemed necessary by the CPM inconsultation with BLM. The objectives of the Revegetation Plan shall be to stabilize disturbed soils, minimize erosion and sedimentation impacts to soil and water resources, prevent colonization by noxious weeds and other non-native plants, salvage native plantings and seed from Project Disturbance Areas, and to achieve restoration of disturbed areas to functioning, established early-successional native plant communities.

Target performance standards at the end of the monitoring period shall be as follows:

a. total absolute cover of all plants shall equal at least 30 percent;

b. survivorship of salvaged and transplanted cacti and other native plantings shall equal 30% percent;

c. at least 90 percent (relative cover) of the perennial species observed within the temporarily disturbed areas shall be locally native species that naturally occur in the adjacent desert scrub or dune habitats;

d. relative cover of perennial plant species shall equal at least 60 percent of the total vegetative cover; and

e. Relative cover of non-native plants within the temporarily disturbed areas shall not exceed the relative cover of non-native plants in the adjacent habitats.

Verification: No less than 30 days prior to construction-related ground-disturbance activities the Project owner shall submit to the CPM a final agency-approved Revegetation Plan that has been reviewed and approved by the CPM. All modifications to the Revegetation Plan shall be made only after approval from the CPM.

Within 30 days after completion of Project construction, the Project owner shall provide to the CPM for review and approval a report identifying which items of the Revegetation Plan have been completed, a summary of all modifications to revegetation measures made during the Project's construction phase, and which items are still outstanding.

The Designated Biologist shall provide reports to the CPM according to the reporting schedule in the Revegetation Plan that that includes: a summary of

revegetation activities for the year, a discussion of whether revegetation performance standards for the year were met; and recommendations for revegetation remedial action, if warranted, planned for the upcoming year. Reports shall be submitted on January 31st following the relevant reporting year.

BIO-25 **Deleted.**

BIO-26 **Deleted.**

Couch's spadefoot toad impact avoidance and minimization measures

BIO-27 The Project owner shall prepare and implement a Couch's Spadefoot Toad Protection and Mitigation Plan (Protection and Mitigation Plan) to avoid, minimize or mitigate impacts to Couch's spadefoot toads and their breeding habitat during construction and operation of the Project. The Protection and Mitigation Plan shall be approved by the CPM in consultation with CDFG, and shall be incorporated into the Project's BRMIMP and implemented. It is expected that, as currently proposed, the Project could avoid the known breeding pond south of I-10 near Wiley Well Road and minimize impacts to the surrounding upland buffer. The Protection and Mitigation Plan shall address methods to achieve this avoidance and minimization, and shall include avoidance, minimization, and mitigation measures that would be required if additional habitat is found during habitat surveys. The Protection and Mitigation Plan shall include, at a minimum:

1. Habitat Survey Results:
   a. Survey methodology;
   b. Survey results, including a detailed discussion of potential breeding sites, and a description of areas determined not to include breeding habitat; and
   c. Figures showing the areas surveyed and the location of potential breeding habitat in relation to proposed Project features.
2. Impacts Assessment from:
   a. Habitat disturbance from construction;
   b. Noise from construction, operations, and potential ORV traffic;
   c. Increased access for vehicles from road construction or improvements;
   d. Changes in breeding habitat due to changes in flow levels and flow patterns to breeding ponds;

e. Increased traffic from construction and operations;

f. Increased risk of predation.

3. Avoidance and Minimization Measures:

   a. Description of measures that would be implemented to avoid impacts to potential breeding ponds, such as design strategies; protective fencing or other barriers, worker's education, minimizing construction traffic within the vicinity of breeding ponds, and biological monitoring;

   b. Designation of a Management Area around breeding ponds that includes an appropriate upland buffer, and a description of measures used to minimize impacts within this buffer.

4. Mitigation: If complete avoidance of the pond south of I-10 or other breeding sites identified during surveys is not possible, the Protection and Mitigation Plan shall include plans to create additional breeding habitats (ephemeral pond) at least equal in area to the acreage of ponds being impacted. The created ponds shall be capable of holding water for at least nine days during the spadefoot toad breeding season, and shall be established as close as possible (no more than ¼ mile) from the location of the impacted ponds. The created ponds shall be monitored and managed to ensure fulfillment of this performance standard by site visits at the pond following summer rainfall events. If the created ponds fail to achieve this standard, remedial action shall be implemented (for example, by compacting the soil in the pond to increase water-holding capacity).

Verification: No less than 30 days prior to construction-related ground-disturbance the Project owner shall submit to the CPM and CDFG a final Protection and Mitigation Plan. Modifications to the Protection and Mitigation Plan shall be made only after approval from the CPM, in consultation with CDFG.

If the Protection and Mitigation Plan includes creation of ponds, the number and acreage of created ponds shall be described in the plan. No less than 90 days prior to operation of Project the Project owner shall provide to the CPM as-built drawings and photographs of the created ponds and maps showing the size and location of the ponds in relation to project features. On January 31st of every year following initiation of operation of the Project the Project owner shall submit reports to the CPM documenting the capacity of the created ponds to hold water for at least 9 days during the spadefoot toad breeding season. If ponds fail to hold water as described above the Project owner shall implement remedial actions. The annual reporting may be terminated upon satisfactory demonstration of this performance standard, and with approval of the CPM.

GOLDEN EAGLE INVENTORY AND MONITORING

BIO-28 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.

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 Management Plan for the duration of construction to ensure that Project construction activities do not result in injury or disturbance to golden eagles.

Verification: No fewer than 30 days from completion of the golden eagle inventory the project owner shall submit a report to the CPM, 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 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.

IN-LIEU FEE MITIGATION OPTION

BIO-29 The Project owner may choose to satisfy its mitigation obligations identified in this Decision 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 be in compliance with CEQA and CESA requirements. 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.

Verification: 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 meets CEQA and CESA requirements. Prior to construction related ground disturbance the Project Owner shall provide proof of the in lieu fee payment to the CPM. *If the Project owner elects to use this provision after posting such Security, the Project owner shall provide proof of the in lieu fee payment prior to the time required for habitat compensation lands to be surrendered in accordance with the Conditions of Certification.*

B. SOIL AND WATER RESOURCES

This section addresses the soil and water resources associated with the Genesis Solar Energy Project (GSEP), including the Project's potential to induce erosion and sedimentation, modify drainage and flooding conditions, adversely affect groundwater supplies, and degrade water quality. The analysis also considers potential cumulative impacts to soil and water resources related to future foreseeable projects and site decommissioning. Mitigation measures are included in the Conditions of Certification to ensure that the project will have no significant impacts on the environment and will comply with all applicable LORS. The evidence supporting the record is contained in Exs.1; 3; 4; 10; 11; 12; 13; 14; 16; 18; 20; 22; 25; 27; 28; 29; 33; 35; 36; 43; 48; 49; 52; 57; 60; 63; 400; 416 to 422; 429 to 432; 434; 436; 443; 528 to 541; 546; 800 to 803; and 829. (7/12/10 RT 28:11-14, 33:23-25, 37:2-4, 39:10-14, 42:12-17).

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Background and Setting

Genesis Solar, LLC, a Delaware limited liability company and wholly owned subsidiary of NextEra Energy Resources, LLC, (Applicant), proposes to construct, own, and operate the Genesis Solar Energy project (GSEP or project) in eastern Riverside County, approximately 25 miles west of the City of Blythe and two miles north of U.S. Interstate 10 (I-10). The GSEP consists of two independent solar electric generating facilities with a nominal net electrical output of 125 megawatts (MW) each, for a total net electrical output of 250 MW. The solar steam generators receive heated transfer fluid from solar thermal equipment comprised of arrays of parabolic mirrors that collect energy from the sun. (Ex. 400, p. C.9-4.)

The project proposes to use air-cooled condenser (ACC) systems. Approximately 18 fans would be required for each ACC for the two solar fields.

The Applicant has applied for a right-of-way (ROW) grant from the BLM for approximately 4,640 acres of flat desert terrain. Once constructed, the GSEP would permanently occupy approximately 1,800 acres in the eastern portion of the ROW (the project footprint), plus approximately 90 acres of linear facilities. The remainder of the acreage in the ROW application is not anticipated to be needed for the Project. (Ex. 400, p. C.9-4.)

The GSEP site is located in the Mojave Desert Geomorphic Province. The Mojave Desert is a broad interior region of isolated mountain ranges separated by expanses of desert plains. It has an interior enclosed drainage and many playas. There are two important fault trends that control topography—a prominent NW-SE trend and a secondary east-west trend (apparent alignment with Transverse Ranges is significant). The Mojave province is wedged in a sharp angle between the Garlock Fault (southern boundary Sierra Nevada) and the San Andreas Fault, where it bends east from its northwest trend. The northern boundary of the Mojave is separated from the prominent Basin and Range by the eastern extension of the Garlock Fault. (Ex. 400, pp. C.9-7 to C.9-8.)

2. Soil and Erosion

Erosion is the displacement of solids (soil, mud, rock, and other particles) by wind, water, or ice, as well as by downward or down-slope movement in response to gravity. Due to generally flat terrain, the project site is not prone to significant mass wasting (gravity-driven erosion and non-fluvial sediment transport). (Ex. 400, p. C.9-40.)

Grading of the project site will result in a less than one percent slope downward from the north to the south of the site. Earthwork associated with the project will include excavation for foundations and underground systems, and the total earth movement that will occur is approximately 1,000,000 cubic yards. Cut and fill will be balanced on site and there will be no need to either import or export earthen material. (Ex. 400, pp. C.9-40 to C.9-41.)

The vast majority of the project grading and excavation will occur on the project site with only minor grading and excavation needed for the transmission line (at the locations of the monopoles) as well as the gas pipeline and access road. Based on the USDA soil survey, two soil series are located within the project site, the Cherioni and Rositas series, with summary descriptions as follows:

- The Cherioni series consists of very shallow and somewhat excessively drained soils that formed in slope alluvium on volcanic bedrock. Cherioni soils are on fan terraces or hills and have slopes of 0 to 70 percent. Cherioni soils somewhat excessively drained; have medium to rapid runoff; and moderate permeability. The soils are often used for livestock grazing. Vegetation commonly found associated with these soils includes creosotebush, paloverde, saguaro, cholla, ocotillo, triangleleaf bursage, and ratany.

- The Rositas series consists of very deep, somewhat excessively drained soils formed in sandy eolian material. Rositas soils are on dunes and sand sheets. Slopes range from 0 to 30 percent with hummocky or dune micro relief. Mean annual precipitation is about four inches and the mean annual air temperature is about 72 ºF. The soils are reported to be somewhat excessively drained; have negligible to low runoff; and rapid permeability. Rositas soils are used for rangeland and wildlife habitat. Present vegetation is creosotebush, white bursage, desert buckwheat, and mesquite. (Ex. 400, p. C.9-10.)

The wind erosion hazard is moderate to high. During construction, the area within the plant site fence line (1,800 acres) will be disturbed. There also will be small, localized disturbance at the specific locations where transmission structures will be installed. (Ex. 400, p. C.9-41.)

During construction, the surface of the disturbed areas will be devoid of vegetation and there will be the highest potential for erosion, as well as associated effects including soil loss and increased sediment yields downstream from disturbed areas. With implementation of Best Management Practices (BMPs) such as straw bales, silt fences, and limiting exposed areas detailed in the Drainage Erosion and Sedimentation Control Plan (DESCP) (see Condition of Certification **SOIL&WATER-1**), erosion is expected to be mitigated to a less than significant level. Site grading will be balanced on site; there will be no import or export of fill material. The GSEP is not located on farmland or in areas where agricultural protection legislation is applicable; therefore, there will be no impacts to agricultural soils at or near the project site. (Ex. 400, p. C.9-41.)

The potential for soil loss by wind erosion was estimated using the Wind Erosion Prediction System (WEPS) for pre-development (undisturbed), during construction, and operational conditions. The area of the project site and Project-related off-site linears has a moderate to high potential for wind and water erosion. The WEPS model was used to estimate soil loss due to wind erosion. Wind erosion rates at this project are an order of magnitude higher than soil erosion by rainfall runoff at this location due to the relatively low annual rainfall amount and the presence of fine, sandy soils.

Under current conditions, these processes are in relative equilibrium with ongoing depositional processes and soil loss is estimated at approximately 72.88 tons per acre per year or 131,184 tons for the proposed project area of 1,800 acres. Construction without implementation of BMPs would result in a potential for soil loss of about 50,000 tons; however, the implementation of BMPs is expected to reduce water and wind erosion of soils during construction to less

than 2,250 tons. Based on the conceptual grading plan for the project site, construction will require cut and fill activities on the project site, but import/export of earthen materials to and from the project site will not be required. (Ex. 400, p. C.9-42.)

Roads and paved areas will be kept free of dust, dirt and visible soil materials. Materials will be kept on site to implement temporary control measures during the operational life of the Project. (Ex. 400, p. C.9-42.)

Impacts of project operations on the proposed rerouted desert washes are discussed in **Biological Resources** section of this Decision. As discussed in **Air Quality** of this Decision, by its nature, a solar thermal project must keep dust to a minimum, as a film on the collectors of the solar array will reduce their efficiency for power production. Dust control will be achieved by a combination of soil stabilizers, water from the collector washing and waste cooling water, and compaction of the driving surface over time. Therefore, operational controls designed to control dust are expected to reduce the overall soil erosion in the area. Therefore, potential construction and operational-related impacts to onsite soils would be confined to the project site and related off-site linears. With implementation of BMPs as detailed in the DESCP (see Condition of Certification **SOIL&WATER-1**, erosion will be mitigated to a less than significant level. (Ex. 400, p. C.9-42.)

CURE challenges the conclusion that the GSEP would not result in downwind impacts to vegetation from eroded sand. CURE further argues that the proposed mitigation for erosion control and dust suppression will not reduce impacts to downwind vegetation to a level below significant. (CURE 2nd Op. Brief, pp. 12-14).

Staff's brief acknowledges that erosion and sedimentation impacts could be significant (Ex. 400, p. C.9-1) but points out that "CURE assumes impacts would be significant based on the single fact of the size of the project. CURE then summarily concludes mitigation would fail. Staff has crafted a variety of mitigation measures, many of them standard, to create stabilized surfaces that would be as or more impervious to wind erosion than the native soils, which naturally erode." (Staff's Reply Brief to CURE's 2nd Op. Brief, p.5.)

CURE's expert testified that as a result of the GSEP's mass grading of approximately 1,800 acres, large-scale disturbance will occur in the western portion of the project that will lead to extensive new aeolian activity. Therefore,

given the predominant southwestern wind direction, this will mean that a plume of sand, eroded from the disturbed area, will begin to extend from the southern edge of the Project." (Ex. 509 p. 4.)

Staff's reply brief effectively counters CURE's position that wind will create a plume of sand. Staff argues that because of their size and weight, sand particles are rarely suspended for great distances. (Ex. 402, p. 25.) "Sand moves by creep (where sand grains roll along the ground surface) and saltation (where grains are carried into the air for a short distance and 'hop' downwind before they land and either bounce or dislodge other particles). (*Id*.) The height of the sand transport zone varies with particle size and wind speed, but most transport occurs within six feet of the ground. (Ex. 402, p. 25.) Bagnold (1941) recorded that for sand particles with a diameter of 0.25 mm, the mean elevation of the saltation zone was one centimeter above the ground surface." (Staff's Reply Brief to CURE's 2nd Op. Brief, p. 5).

We note that Condition of Certification **SOIL&WATER-1**, part H (Ex. 400, p. C.9-99), requires the Applicant to develop and put into place a Drainage Erosion and Sedimentation Control Plan, including measures to prevent erosion from wind and water. The Plan requires the use of proven and accepted best management practices (BMPs) to mitigate erosion issues. Both Applicant and Staff point out that soil treatments including chemical based dust palliatives and bonding agents have been used successfully for decades to mitigate soil and dust blown erosion. A monitoring plan is also required to monitor the effectiveness of a treatment and allow for reapplication of soil treatments or additional solutions when necessary. (Staff's Reply Brief to CURE's 2nd Op. Brief, p.5; Applicant's Reply to CURE's 2nd Opening Brief, p. 8).

As to dust control measures and mitigation, Staff points out that CURE's written testimony solely discusses Condition of Certification **AQ-SC3 (n).** (Ex. 509, p. 5-6.) Staff rejoins that **AQ-SC3 (a)** and **(b)** (construction road dust prevention) as well as **AQ-SC7** (operations dust control plan) will prevent or suppress dust on the site. Staff argues that, taken together, these measures mitigate the project site's wind erosion potential to no more than current, baseline levels. (Staff's Reply Brief to CURE's 2nd Op. Brief, p. 6.)

After reviewing the record, we are convinced that the mitigation measures which include proven Best Management Practices are designed to abate windborne dust and that the measures are adequate and effective. Therefore, we find that

with the mitigation for erosion control and dust suppression, the GSEP will not result in significant impacts to downwind vegetation from eroded sand.

For potential soil loss associated with water erosion, it was assumed that 100 percent of the project site would be graded. To address the management of sediment transport, erosion, and sedimentation during operation, the project design will incorporate diversion berms, channels, and detention basins, as discussed in the *Conditions of Certification.* Dirt roads and exposed surfaces will be periodically treated with dust palliatives as needed to reduce wind erosion. Construction and maintenance of the proposed drainage and sediment management system at the project site is expected to reduce water and wind erosion at, and downstream of, the project site to less than significant levels.

Construction and operation of the GSEP could result in significant impacts related to water erosion of soils. Implementation of BMPs and Condition of Certification would reduce the impacts to insignificant. Implementation of Conditions of Certification **SOIL&WATER-1**, and **SOIL&WATER-8** through **-11** and **-13** will ensure there will be no potential for impacts to soils related to water erosion.

3. Geomorphology

The GSEP involves a series of solar arrays within a roughly 1,800 acre rectangular shaped parcel and linears (access road, gas line, transmission lines) involving approximately 90 acres. The method of construction is important in assessing the potential impact to geomorphological conditions associated with the solar arrays and linears. Solar array construction will involve mass grading that will require drainage to be intercepted up-gradient and routed around the arrays to the down-gradient side of the facility to continue flow. Construction of the linears will involve placement of an underground gas line, electric transmission line towers and an access road. The underground gas lines finish grade will be close to exiting ground surface contours and thus have a minimal affect on aeolian systems. The overhead transmission lines will have a minimal effect on aeolian systems and only in areas of the proposed tower foundations. The current design for the proposed access road involves a low relief road close to existing contours that will not adversely affect aeolian sand migration but may require some special design considerations where it crosses existing drainages. (Ex. 400, p. C.9-44.)

Qsad/Chuckwalla Wind Transport Corridor

The evidence shows that the western array avoids the Chuckwalla sand transport corridor. The eastern array intrudes into the corridor by approximately 1,600 feet at a point where the corridor is 24,000 feet wide. This intrusion represents about seven percent of the Chuckwalla sand corridor width. This part of the corridor does not appear to be the most active with regard to sediment transport rates (based on the amount of sand in storage on the ground, evidence for sand transport from ripples and coppice dunes, etc) so the reduction in sediment transport capacity is not considered a significant impact. Based on the degree of intrusion into the corridor and the length of the intrusion it was estimated that an area of 157 acres of vegetated sand dune (Qsad) downwind of the intrusion that might be expected to experience moderate impacts from loss of sand due to the project site. (Ex. 400, p. C.9-45.)

Palen-McCoy Wind Transport Corridor

The eastern solar array intrudes into the Palen-McCoy corridor by approximately 2,800 feet at a point where the corridor is 15,000 feet wide (cutting off 19 percent of the corridor). Although the GSEP cuts off a large area of corridor, the evidence suggests that most sand transport takes place east of this zone (outside the project footprint, though within the area crossed by the laterals). In the absence of quantitative data and conservatively assuming that the rate of sediment transport is half as much in the outer corridor as it is in the inner corridor the intrusion probably represents less than a 10 percent reduction in sand transport. The evidence indicates that it is feasible that the true rate of sediment transport in the impacted area may be an order of magnitude less than this. However, although the magnitude of impact to the entire wind transport corridor is relatively low, the area of off-site impacts immediately downwind of the project is large: the lee area downwind of the project that is likely to experience sand depletion is 309 acres). Since there are 13 acres of overlap from both wind shadows, the combined area impacted by intrusions into both corridors is 453 acres. This area would be expected to experience deflation (loss of sand from the existing vegetated dunes over time) and armoring (coarsening of the sand and gravel as fine sand is eroded by the wind). Condition of Certification **SOIL&WATER-1** will address issues related to minimizing and eliminating the creation of barriers to wind and water transport. In addition, Condition of Certification **SOIL&WATER-13** will address concerns related to infilling of channels by wind transport of sediment. Consequently, potential impacts to drainage channels related to location in sand transport areas is believed to be mitigated to less than significant with implementation of Conditions of Certification **SOIL&WATER-1** and **-13**. (Ex. 400, p. C.9-45.)

With respect to potential impacts and mitigation related to Mojave Fringe Toad Lizard habitat, refer to the **Biological Resources** section of this Decision.

Impacts to the Qsa

The Qsa is the active area of sand dunes supplied by wind and water transport from the Palen – McCoy Valley sand corridor. This corridor supplies significant sand dune habitat downwind. This area is crossed by the laterals near Wiley Wells Rest Stop. The main GSEP footprint should avoid this area completely since large scale obstruction of this unit would be hard or impossible to mitigate for. The GSEP should be able to avoid or minimize impacts created by the laterals within this zone by avoiding creation of barriers to wind and water transport as indicated in Condition of Certification **SOIL&WATER-1**. Most wind-borne transport of sand occurs within three feet of the ground, so infrastructure should be constructed flush with the surrounding ground surface and without ground level obstructions. Power pylons should not pose a significant problem due to their small surface area at ground level. Water and gas pipelines should be buried below ground. Road surfaces should be flush with the ground surface. The amount and quantity of drainage ditches running perpendicular to the wind direction (approximately north-south in the northern section of the lateral route, shifting to west-east in the southern area) should be minimized. Condition of Certification **SOIL&WATER-1** will address issues related to minimizing/eliminating creation of barriers to wind and water transport. In addition, Condition of Certification **SOIL&WATER-13** will address concerns related to infilling of channels by wind transport of sediment. Consequently, potential impacts to drainage channels related to location in sand transport areas is believed to be mitigated to less than significant with implementation of Conditions of Certification **SOIL&WATER-1** and **-13**. (Ex. 400, pp. C.9-45 to C.9-46.)

With respect to potential impacts and mitigation related to Mojave Fringe Toad Lizard habitat, refer to the **BIOLOGICAL RESOURCES** section of this Decision.

4. Groundwater Basin Balance

The GSEP site is located within the Chuckwalla Valley Groundwater Basin (CVGB) which has a surface area of 940 mi^2 (2,435 km^2) underlying Chuckwalla Valley. The CVGB is an unadjudicated groundwater basin and owners of property overlying the basin have the right to pump groundwater from the basin for reasonable and beneficial use, provided that the water rights were never severed or reserved. In addition, groundwater production in the basin is not

managed by an entity and no groundwater management plan has been submitted to the California Department of Water Resources. (Ex. 400, p. C.9-18.)

The CVGB is bounded upgradient by two other groundwater basins that include the eastern part of the Orocopia Valley and Pinto Valley groundwater basins and downgradient by the Palo Verde Mesa Groundwater Basin. (Ex. 400, p. C.9-19.)

Recharge to the CVGB is from sources including precipitation, inflow from the Orocopoia Valley and Pinto Valley groundwater basins, and return flows from agricultural sources and treated wastewater effluent. Groundwater provides the only available water resource in Chuckwalla Valley, with extraction to meet local demand representing the primary source of groundwater outflow. Other minor sources of outflow include underflow to the PVMGB and evapotranspiration in portions of Palen Dry Lake (where shallow groundwater is present). While the groundwater budget for the CVGB includes complex relationships between subsurface flows and withdrawals, the evidence indicates that levels are generally stable and a positive balance exists (i.e., inflow exceeds outflow), with an annual available balance of approximately 2,600 acre-feet under average conditions. (Ex. 400, pp. C.9-18 to C.9-30.)

All water used in association with the GSEP project would be derived from local groundwater aquifers associated with the Bouse Formation and/or the underlying fanglomerate deposits. Based on the currently proposed dry cooling system for the GSEP, the evidence indicates that proposed groundwater used during project construction (between approximately 616 and 1,368 acre-feet per year (AFY) and operation (202 AFY) will not exceed the positive yearly balance of 2,600 AFY. Accordingly, Project-related impacts to the local groundwater basin balance will be less than significant. (Ex. 400, p. C.9-68.)

Based on the connection between the CVGB and the Colorado River, however, the evidence suggests that wells drawing groundwater from the CVGB could result in impacts to the river and the adjacent PVMGB (which is located between the project site and the river). Specifically, water supplies in the Colorado River are fully appropriated, with the existing appropriations encompassing all consumptive uses (including applicable groundwater pumping) pursuant to related Supreme Court decrees.

In the course of the hearings, a dispute persisted between Applicant and Staff as to the GSEP's potential impacts on the Colorado River and associated drains.

Applicant contended that given the existing groundwater mound in the adjacent Palo Verde Valley and its relationship to the river and drains, it is impossible for the decreased underflow to the PVMGB to cause Colorado River water to move from the river or the drains into the subsurface.

Staff did not accept this contention, but agreed that whatever the effect of PVMGB water depletion would be on the river, it would be less than the amount of PVMGB depletion. Applicant and Staff settled upon a water mitigation plan acceptable to both parties. Applicant and Staff agreed that the project will decrease the amount of groundwater underflow from the CVGB to the PVMGB, but that there is no existing legal requirement for the project to obtain an entitlement to Colorado River water for its water supply. Therefore, Applicant and Staff agreed that GSEP will mitigate its impacts on the PVMGB water budget only. This would address any concern regarding project impacts to the river or drains, and the amount of water required to offset the PVMGB water budget depletion will be greater than what would be required to offset any theoretical impact to the river or drains, and thus the measure is conservative. (Ex. 443.)

The described potential impacts to groundwater basin balance would be addressed through Condition of Certification **SOIL & WATER-15**. Specifically, this Condition requires the project owner to implement a Water Supply Plan to mitigate project impacts to the PVMGB, including efforts such as zero liquid discharge (ZLD) wastewater systems, funding of irrigation improvements, purchasing water rights, and/or tamarisk removal. (Ex. 400, pp. C.9-46 to C.9-49.) Condition of Certification **SOIL & WATER-19** refines the quantity of water depleted from the PVMGB associated with project groundwater extraction (i.e., to estimate the amount of water that must be replaced pursuant to Condition of Certification **SOIL & WATER-15**). (Ex. 400, p. C.9-49.) With the implementation of these Conditions, we find that the GSEP will have a less than significant impact on the PVMGB.

Genesis and Staff have been engaged in productive discussions to develop a water mitigation plan acceptable to both parties. Genesis and Staff concur that the Project will decrease the amount of groundwater underflow from the CVGB to the PVMGB, but that there is no existing legal requirement for the Project to obtain an entitlement to Colorado River water for its water supply. However, a difference of opinion persists as to the Project's potential effects/impacts on the Colorado River and associated drains. Genesis contends that given the existing groundwater mound in the adjacent Palo Verde Valley and its relationship to the river and drains, it is not possible for the decreased underflow to the PVMGB to

cause Colorado River water to move from the river or the drains into the subsurface. CEC staff does not accept this contention, but does agree that whatever the effect of PVMGB water depletion is on the adjacent Palo Verde Valley Groundwater Basin or on the river, it will be less than the amount of PVMGB depletion. For this reason, Staff and Genesis have agreed that Genesis will mitigate its impacts on the PVMGB water budget. This would address any concern regarding project impacts to the river or drains, and the amount of water required to offset the PVMGB water budget depletion will be greater than what would be required to offset any theoretical impact to the river or drains, and thus the measure is conservative.

In their brief, CURE reopens the argument that pumping groundwater below the GSEP is pumping Colorado River water. CURE correctly asserts that federal law requires lower Colorado River mainstream water users to have an entitlement and that "consumptive use" of the mainstream includes "water drawn from the mainstream by underground pumping." (CURE's 2nd Op. Brief, p. 4 citing *Arizona v. California,* 547 U.S. at 153.) CURE relies on the U.S. Bureau of Reclamation's accounting surface methodology. (Exhibit 541).

Applicant's reply brief argues that the United States Bureau of Reclamation (Bureau) does not recognize the wells in the Chuckwalla Valley as pumping from the mainstream of the Colorado River water. Applicant further argues that even if the accounting surface methodology is applied to the GSEP; it is undisputed that the GSEP would not cause the static groundwater table to drop below the theoretical accounting surface. (Applicant's Reply Brief to CURE's 2nd Opening Brief, pp.2; 4).

Staff argues that it has never been clear if the Genesis Project would draw Colorado River water at all. Staff points out that the latest letter from the California Colorado River Board required a contract only "if" it is determined that these wells are "in fact" pumping Colorado River water. (Ex. 546.) Staff also states that the U.S. Bureau of Reclamation has never made a determination. (Staff's Response to CURE's 2nd Opening Brief, p.1.) Staff asserts that they have "never argued that there is an existing legal requirement for this project to obtain a Colorado River entitlement." (7/12/10 RT 12:9-11).

Both Staff and Genesis agree that the GSEP would not be required to secure an entitlement of Colorado River Water in order to legally pump groundwater in the Chuckwalla Valley. (Applicant's Reply Brief to CURE's 2nd Opening Brief, p.4 citing Exs. 60, p. 6; 7/12/10 RT 8-16; and 400 p. C.9-95; 443.)

We agree with CURE that using Colorado River water without an entitlement is illegal. (*Arizona v. California* (2006) 547 U.S. 150, 153.) The question before the Committee is whether groundwater pumped at the GSEP site from the Chuckwalla Valley Groundwater Basin (CVGB) is water drawn from the mainstream of the Colorado River.

At the Scoping Hearing of January 26, 2010, the Committee ruled that the U.S. Bureau of Reclamation's accounting surface methodology is not a LORS and that the methodology's applicability to the Genesis AFC process is a question of fact that may be heard in future evidentiary hearings, if necessary.

None of the parties introduced testimony at the evidentiary hearing on the accounting surface methodology's applicability to the Genesis Project. CURE introduced Exhibit 541 entitled "Update of the Accounting Surface along the Lower Colorado River," which describes the methodology and contains maps that indicate that the accounting surface may extend to the area where the GSEP site will be located. However, there is nothing in Exhibit 541 or anywhere else in the record that compels us to adopt the methodology, which we have already found is not a LORS.

In fact, contrary evidence in the record was presented by the Applicant indicating that the GSEP's use of groundwater, even under the overestimate of wet cooling scenario would not result in the static groundwater level dropping below the "theoretical Accounting Surface". (Ex. 62, p. 19). No other evidence was presented regarding the Colorado River Accounting Surface. CURE simply has not provided sufficient evidence to convince us to make a finding that the groundwater pumped at the GSEP site in the Chuckwalla Valley Groundwater Basin is water drawn from the mainstream of the Colorado River [Tit. 20, Cal. Code of Regs. § 1748(e)]. Therefore, there is no evidence that would legally justify a condition requiring the GSEP to obtain a Colorado River entitlement.

More to the point, there is nothing in the record that actually applies the methodology to the quantity of groundwater that GSEP will use or that the GSEP "would cause the static groundwater table to drop below the theoretical accounting surface" as argued by Applicant, *supra*. CURE simply has not provided sufficient evidence to convince us to make a finding that the groundwater pumped at the GSEP site in the Chuckwalla Valley Groundwater Basin is water drawn from the mainstream of the Colorado River [Tit. 20, Cal. Code of Regs, § 1748(e)]. Given the scant record before us regarding this issue,

we simply do not have enough evidence to impose a condition requiring the GSEP to obtain a Colorado River entitlement.

5. Groundwater Levels

The GSEP has the potential to lower groundwater levels as a result of water production during both construction and operations. The lowering of groundwater levels could have a significant impact if the lowering of the groundwater levels: 1) impacts existing water wells in the basin; 2) lowers the water table in areas where deep-rooted phreatophytes are prevalent (see the **Biological Resources** section of this Decision for impacts related to biological resources), 3) affects surface water features including springs and/or 4) induces permanent ground subsidence. (Ex. 400, p. C.9-49.)

The record contains the preliminary investigation conducted by the Applicant using a numerical model to evaluate potential project impacts to groundwater levels. The evidence shows that based on the modeling results and the current understanding of local hydrogeological conditions, it is unlikely that groundwater pumping for the project would cause any nearby wells to go dry, be severely impaired or rendered unusable by declining groundwater levels. (Ex. 400, pp. C.9-51 and C.9-52.)

Groundwater levels near the Project's water supply wells will decline during the project pumping. Local decline of groundwater levels within the cone of depression could affect nearby wells. While preliminary studies and calculations have been made to assess the potential for impact, the quantification of the impact is considered estimation and will not be able to be accurately quantified until actual long-term groundwater production occurs. Implementation of Conditions of Certification **SOIL&WATER-2** through **SOIL&WATER-5** will minimize impacts to groundwater levels below the level of significance. The Applicant will be required to implement Condition of Certification **SOIL&WATER -17** that requires a Subsidence Monitoring and Action Plan to assess and mitigate potential effects of non-elastic subsidence associated with groundwater extraction in the vicinity of the proposed production wells. Mitigation for potential impacts to groundwater-dependent vegetations is discussed in the **Biological Resources** section of this Decision.

6. Groundwater Quality

There is a potential that significant groundwater quality impacts could occur during construction if contaminated or hazardous materials used during construction were to be released and migrate to the groundwater table. Given the distance to the groundwater table (70-90 feet bgs) and the proposed implementation of a hazardous material management plan during construction (refer to the **Hazardous Materials** and **Waste Management** sections of this Decision), the evidence shows that impacts to groundwater quality to be below the level of significance. (Ex. 400, p. C.9-52.)

Potential impacts to groundwater quality during project operation are associated with the influx of higher saline groundwater from Project-related pumping, as well as the proposed on-site use of evaporation ponds, a Land Treatment Unit (LTU), and septic systems, as outlined below.

Groundwater Influx

There is a potential that Project-related extraction may induce the vertical flow of high-saline groundwater from beneath Ford Dry Lake to aquifers beneath the site being used for project water production. This potential impact was assessed by simulating transport of chloride in groundwater using the MT3D transport model. Chloride was selected as the preferred solute for this model, as it does not undergo chemical reactions or attenuation, and is a dominant anion in groundwater in the project area. In addition, chloride can be directly related to total dissolved solids (TDS) concentration with a reasonable degree of accuracy, and chloride comprises approximately 38 percent of the local TDS concentration. (Ex. 400, pp. C.9-52 to C.9-53.)

The noted groundwater quality impact model was run for a period of 33 years to simulate the expected duration of project operations. Chloride in the model migrates with the groundwater that is being extracted. Accordingly, increases in chloride concentrations imply vertical or lateral migration, and indicate the flow of high-TDS groundwater into lower concentration areas (thus potentially degrading water quality). During the 33-year pumping simulation, chloride concentrations are projected to decrease slightly, from a baseline concentration of approximately 1,600 milligrams per liter (mg/L) to approximately 1,470 mg/L (approximately 8 percent). This decrease is likely due to the dilution of groundwater in the project area by lower TDS groundwater drawn in from the north and east of the project site. A number of uncertainties are associated with the modeling efforts, however, including the availability of groundwater quality data, the continuity of

confining layers, and the extent of vertical migration. Accordingly, Conditions of Certification **SOIL&WATER-3** through **SOIL&WATER-5**, as well as **SOIL&WATER-20,** would be required to verify anticipated groundwater quality conditions. Specifically, **SOIL&WATER-20** requires the project owner to implement an approved Groundwater Quality Monitoring and Reporting Plan. Implementation of the described measures is expected to reduce Project-related impacts to groundwater quality below a level of significance. (Ex. 400, pp. C.9-52 to C.9-53.)

Land Treatment Unit

With regard to the operation of the Land Treatment Unit (LTU) on the project site, the material that will be placed in the LTU consists of soil that is contaminated with Therminol® VP1 HTF as a result of minor leaks or spills (see **Hazardous Materials** and **Waste Management** sections of this Decision) that occur during the course of daily operational or maintenance activities. The LTU will cover an area of approximately 600 feet by 725 feet, including the staging area, and will cater to both 125 MW units. The LTU will be constructed with a prepared base consisting of two feet of compacted, low permeability, lime treated material and be surrounded on all sides by a minimum two foot high compacted earthen berm with slopes of approximately 3:1 (horizontal:vertical) 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 70-90 feet beneath the LTU. (Ex. 400, p. C.9-54.)

At ambient temperatures, HTF is a highly viscous material (crystallizes at ~54°F) that is virtually insoluble in water (solubility of ~25 mg/L [WPAR, 2009]). Operation of an LTU is not expected to impact surface water or groundwater quality beneath the site. The LTU will be surrounded on all four sides by berms that will protect the LTU from surface water flow. Because of the viscous and insoluble nature of HTF, it is not likely to mobilize from the soil downwards to the water table (approximately 70-90 feet bgs). In addition, the project owner will be required to implement Condition of Certification **SOIL&WATER-6** that sets forth specific waste discharge requirements that detail construction performance standards, expected operational requirements of the LTU, groundwater and leak detection monitoring requirements and action requirements associated with the operation of the LTU. Compliance with the requirements of CCR Title 23, Division 3, Chapter 15 and Title 27, Section 2000 et seq. and Title 23, Section 2510 et seq and Condition of Certification **SOIL&WATER-6** would minimize potential impacts to groundwater quality to below the level of significance. (Ex. 400, p. C.9-54.)

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, and the waste discharge requirements set forth in Condition of Certification **SOIL&WATER-6**, we find that surface water and groundwater quality beneath the site will not be impacted by LTU operation.

Evaporation Ponds

Each of the proposed 125 MW units will have one, approximately 5-acre, evaporation pond to dispose of wastewater from sources including reverse osmosis (RO) reject water and the air-cooled condenser (ACC), with a total pond area of approximately 10 acres for the entire project site. The ponds will include double linings, consisting of a 60-mil high density Polyethylene (HDPE) primary liner and a 40-mil secondary HDPE liner. Drainage facilities and collection piping comprising part of the proposed leachate collection and removal system (LCRS) will be located between the liners, and a hard surface (e.g., roller-compacted concrete) will be installed on top of the 60-mil liner to provide protection against damage from falling objects, varying climatic conditions, and maintenance activities. The ponds will be designed and permitted as Class II Surface Impoundments in accordance with applicable regulatory requirements. Multiple ponds are planned to allow continued plant operations during activities such as pond maintenance. Pond dimensions will be designed to provide adequate surface area and depth to accommodate proposed wastewater inflow and precipitation rates over the life of the project (approximately 30 years), as well as to provide adequate freeboard for direct precipitation from large storm events (i.e., to prevent overflow). (Ex. 400, p. C.9-66.)

The precipitated solids will be sampled and analyzed to meet the characterization requirements of the receiving disposal facility, with the nature of the solids to determine the transportation and disposal methodology. It is anticipated that the pond solids and other non-hazardous wastes would be classified as Class II Designated Waste, a non-hazardous industrial waste, with this characterization to be verified by the project owner prior to disposal. Monitoring of the evaporation ponds will be required during project operation to detect the presence of liquid and/or solid constituents of concern, which are anticipated to include chloride, sodium, sulfate, TDS, biphenyl diphenyl oxide, potassium, selenium, and phosphate. (Ex. 400, pp. C.9-54 to C.9-55.)

Based on the described design criteria and monitoring program, as well as the additional requirements identified in **SOIL & WATER-6** and **SOIL & WATER-20** (which mandate compliance with applicable waste discharge standards and

implementation of an approved Groundwater Quality Monitoring and Reporting Plan, respectively), potential groundwater quality impacts associated with the evaporation ponds will be mitigated less than significant.

The use and application of septic systems is an established practice as a method of wastewater treatment. It is assumed that individual septic systems would be used for each of the two units and would be installed at approximate depths of five to six feet. The closest privately owned off-site parcel to the proposed septic fields is in excess of one-half mile away, and the septic systems would have no effect on surface water in or around the project site. The County of Riverside has adopted a number of setback requirements for septic systems and leach fields, including: (1) a minimum 50-foot horizontal setback from the nearest water supply well; and (2) a minimum 5-foot vertical separation from the groundwater table. (Ex. 400, pp. C.9-55 to C.9-56.)

The proposed project systems would exceed these requirements, with related setbacks including approximately three miles from the nearest existing off-site groundwater well, approximately 250 feet from the nearest proposed on-site water supply well, and approximately 70 to 90 feet from the local water table. Based on the described information, the proposed project septic systems are not expected to impact groundwater quality. The evidence indicates some potential uncertainty due to the preliminary nature of the analyses, however, and the previously described Conditions of Certification **SOIL & WATER-6** and **SOIL & WATER-20**, as well as **SOIL & WATER-7**, would be required to address these concerns. Specifically, **SOIL & WATER-7** requires conformance with all applicable Riverside County septic system/leach field standards. Implementation of the noted project design measures, as well as the listed Conditions of Certification, will reduce potential groundwater quality impacts from proposed septic system and leach field facilities below a level of significance. (Ex. 400, p. C.9-95.)

7. Surface Hydrology, Storm Water Management, and Flooding

Surface Hydrology/Storm Water Management

The climate in the project site vicinity is characterized by high aridity and low precipitation, with hot summers and generally mild winters. Average annual precipitation in the Blythe area is approximately 3.5 inches, with most rainfall occurring during the winter months or in association with summer tropical storms (which tend to be of shorter duration and higher intensity than winter storms). (Ex. 400, p. C.9-8.) Based on the noted conditions, local drainage is intermittent,

with flows limited to infrequent storm event runoff in otherwise dry washes. Surface drainage in the project site and immediate vicinity is generally to the south towards Ford Dry Lake, with on-site runoff conveyed through a number of small dry washes and (in larger storms) as sheet flow. Surface flows in many of the project site washes do not reach Ford Dry Lake, but fade out on the vegetated sand dune surface. (Ex. 400, pp. C.9-35 to C.9-37.)

The impacts of the project on the local surface water hydrology are directly related to proposed onsite grading and the construction and operation of a network of engineered collector/conveyance channels designed for the purpose of protecting the project from flooding and erosion related to the conveyance of runoff from offsite watersheds across the project. Onsite runoff will be controlled through appropriate grading and a network of engineered channels designed to collect and convey flow through the project for discharge offsite. The project will change both the extent and physical characteristics of the existing floodplain within the project site and downstream of the project site. A change in sediment transport and depositional characteristics at and downstream of the project site will also occur. (Ex. 400, p. C.9-56.)

The Concept Drainage Study prepared for the project provides a summary of discharges at the downstream property boundary which compares existing total outflow at the project boundary with post-development outflows at the project boundary. Based on the evidence, the post-development discharges from the project watersheds are significantly higher than existing conditions. This is to be expected given the change to surface conditions, including soil compaction and a more efficient drainage system. The study indicates that the increase in discharge is to be mitigated by the use of detention basins located at each of the solar fields. These basins would be sized and designed to operate in a manner as to reduce the post-development discharges to pre-development conditions. (Ex. 400, p. C.9-57.)

Engineered drainage channels would be constructed along the project boundary to intercept off-site flows and convey them around and through the project site for discharge along the southern project boundary. Discharge of flow along the downstream project site boundary would be through the use of flow dispersion structures, which would be designed to reduce velocities and allow flows to spread out in a manner that mimics the existing downstream sheet flow conditions. Releasing flows back to native ground in this manner is of concern for two primary reasons. The first is that flows collected from a large area and discharged in a more concentrated form at the proposed dispersion structures

may increase erosion potential. The second potential concern is that a substantial change in drainage patterns could alter existing flows in discrete areas downstream of the project site, potentially resulting in significant impacts to biological resources (refer to the **Biological Resources** portion of this Decision for additional discussion). Specifically, while no physical drainage modifications are proposed downstream of the project site, downstream drainage could potentially be affected from proposed changes to both existing drainage patterns and sediment transport characteristics in upstream (on-site) areas. Accordingly, certain downstream areas would receive more flow than under existing conditions, while other areas may no longer receive any surface flow beyond that from direct precipitation. (Ex. 400, pp. C.9-56 to C.9-57.)

All existing washes and floodplains within the project boundary will be completely eliminated by the grading of approximately 1,800 acres to provide the flat, uniform and vegetation-free topography required for the construction and operation of the solar mirror array. The existing natural drainage system will be replaced with a system of constructed swales and channels designed to collect and convey onsite flows to designated points of discharge from the project. Onsite stormwater from the project will be discharged offsite through constructed detention basins which will provide for attenuation of increased discharges due to site development. The impact to onsite drainage patterns will be significant. (Ex. 400, p. C.9-58.)

The project will not impact the existing natural drainage system upstream of the project boundary as there are no plans for any diversions, basins, dams or other surface water controls beyond the upstream limits of the Project. However, there is the potential for erosion of offsite areas upstream due to the formation of headcuts which could migrate laterally from the engineered channels if they are not stabilized and protected. (Ex. 400, p. C.9-58.)

Physical modifications to the natural drainage system downstream of the project boundary are not proposed. However, there will be changes to both the existing drainage patterns and sediment transport characteristics as the result of the concentration and diversion of flows upstream of the project, and the subsequent release of those flows at discreet locations on the downstream side of the project. Certain downstream areas will receive more flow than under existing conditions, while other areas may no longer receive any surface flow beyond what may be the result of direct precipitation. The release of concentrated flows at the proposed dispersion structures may have the potential for increased erosion. (Ex. 400, p. C.9-58.)

The assessment of the impacts to the existing surface flow patterns requires a detailed analysis utilizing FLO-2D or a similar model to clearly delineate the pre- and post-project conditions. Information obtained from such an analysis is critical to assess the extent and adequacy of the proposed flood control measures on the northern eastern project boundaries as well as along the downstream project boundary where flow is released from the engineered channels onto existing ground. The Applicant completed FLO-2D modeling for existing conditions and provided the results of that analysis in a Technical Memorandum. The modeling confirmed extensive sheet flow conditions along the entire upstream project boundary. The Applicant also provided preliminary FLO-2D modeling for proposed conditions to demonstrate how flow will be released from the downstream project boundary back onto native ground. The design for the outlet structures from the downstream engineered channel will allow for flexibility for where flow is released and how much is released at discreet locations. (Ex. 400, p. C.9-58.)

Implementation of Condition of Certification **SOIL&WATER-10** and **SOIL&WATER-11** will minimize impacts related to surface drainage associated with construction and operation of the project to below the level of significance. These Conditions provide specific guidance and requirements for channel and erosion protection design that will minimize erosion resulting from flow within and into the channel for the adjacent floodplain. Implementation of Conditions of Certification **SOIL&WATER-8** and **SOIL&WATER-9** will ensure that adequate studies and data are provided to assess the that **SOIL&WATER-10** and **SOIL&WATER-11** have been implemented within the context of site specific conditions. These Conditions provide specific requirements for the content of the drainage analysis and report, as well as FLO-2D modeling that will support and document the project design. (Ex. 400, p. C.9-59.)

CURE argues that "the project will cause hydrological impacts to downstream vegetation that have not been adequately analyzed or mitigated. Specifically, CURE argues Staff provided **no analysis** to support its significance finding and **no substantial** evidence to support its finding that the proposed mitigation will reduce impacts to a level below significance (emphasis in the original). Consequently, the project's impacts to downstream vegetation remain significant and unmitigated." (CURE 2nd Op. Brief, p. 9.)

CURE cites the testimony of Dr. Okin, who relied on a study by Schlesinger and Jones (1984), which assessed the effects of constructing water diversions along

the Colorado River Aqueduct on downstream alluvial fan vegetation communities. (Ex. 409, p.1.) Dr. Okin testified that the research shows that water diversions cause significant decreases in plant density (specifically Sonoran creosote bush scrub) and increases in mortality of vegetation because the vegetation communities rely on overland flow for survival. (Ex. 509, pp.1-2.) CURE explains that the Schlesinger and Jones study that Dr. Okin relied on was conducted along the flank of the nearby Coxcomb Mountains where the climate, soils and vegetation are similar to that of the GSEP site. (7/13/10 RT 64:16-25.) Both locations "are on varnished alluvial fans with significant pavements, and both have linear disturbance to surface hydrology, which will cut out sheet flow, and sheet flow appears to be what's necessary for sustenance of vegetation." (7/13/10 RT 64:16-65:1.) (CURE 2nd Op. Brief, p. 9.)

Staff contends that CURE's claim (that the GSEP drainage plan would cause degradation of the alluvial fan vegetation communities downslope (south) of the GSEP site) is based on a faulty comparison. Staff points out that Dr. Okin's argument that the proposed drainage plan will not work is based on the Schlesinger and Jones study (Ex. 409, p. 2). However, Staff argues that the proposed drainage plan for the Genesis site dissipates and disperses water, and does not channel it in a concentrated stream as does the Colorado Aqueduct and the drainage crossings built for Interstate-10 (Staff's Reply Brief to CURE's 2nd Op. Brief, citing Ex.409, Appendix E Soil & Water Report, Figures 20 and 21).

Staff explains that the "Genesis drainage plan will use hydraulic controls to spread small volumes of water from numerous small discharge points with little dry area between them. (Ex. 33, p.1; Ex. 400, **Soil and Water Figure 19**). Water will be released from approximately twenty-five 12-inch pipes and a series of low weirs, each located approximately every 150-250 feet along the project boundary, rather than from a single uncontrolled channel. (Ex. 33; **Appendix A**.) The flows will thus have a much lower velocity, lower discharge rate, be shallower and be more dispersed than the flows near the Colorado River Aqueduct or I-10. This will mimic the natural pre-project drainage pattern and avoid the drainage-plan impacts feared by Dr. Okin." (Staff's Reply Brief to CURE's 2nd Op. Brief, p.4).

Regarding biological resources, Staff again argues that Dr. Okin's comparison to the collector ditches south of I-10 is an inappropriate comparison for the same reasons. In the I-10 example, flows of dozens of small washes are diverted into only three primary channels with no diffusers or return flows so there is

widespread plant mortality, reduced cover, and reduced plant diversity (Ex. 400, p. C.2-72). (Staff's Reply Brief to CURE's 2nd Op. Brief, p.4).

In contrast, Staff explains "that the Genesis project would return the flows to the smaller delineated features. There could potentially be a minor loss of vegetation between these channels in areas supported by sheet flow that are located in areas missed by the diffusers. The sheet flow (which was not delineated as waters) does not support microphyll woodland ("desert dry wash woodland") and instead supports only very sparse cover of creosote bush. This relatively minor loss would be addressed by the 0.5 compensatory mitigation requirement." (Ex. 400, pp., C.2-72 to C.2-73. **Biological Resources Table 6**, see also **BIO-22**.) (Staff's Reply Brief to CURE's 2nd Op. Brief, pp.4-5).

Finally, Staff argues that "CURE's comparison of mitigation ratios for sparse cover downstream to mitigation for the GSEP site itself is similarly inapposite. The site obviously displaces all vegetation. Downstream, because of the well-considered and tailored drainage plan, most impacts will be avoided and minimized. The lesser mitigation also takes into account the specific biology, namely, the stubborn ability of desert plants to survive regardless of a water conditions. In spite of the decades-old, unnatural drainage design of I-10, some plants survive. (Ex. 400, pp., C.2-72 to C.2-73)." (Staff's Reply Brief to CURE's 2nd Op. Brief, p.5).

Applicant argues that Staff "assumed impacts downstream as a worst case scenario and proposed mitigation by requiring as CURE correctly points out purchasing one half acre for ***every acre of offsite wash disturbed***" (emphasis in the original). Applicant argues this is "overly conservative and ignores that the design of the drainage system is to spread out the discharge as quickly as possible so that it will return to natural sheet flow conditions. It is inconceivable that the downstream impacts would be almost half of what the impacts of grading the site would be, but out of an abundance of caution, Staff has required mitigation anyway. CURE's claim that this would not be enough is without merit and not based on any evidence." (Applicant's Reply to CURE's 2nd Opening Brief, p.7.)

In reviewing the evidence, we cannot agree with CURE's assertion that Staff provided no analysis to support a significance finding and no substantial evidence to support a finding that the proposed mitigation will reduce impacts to a level below significance. We note that Conditions of Certification **SOIL&WATER-8, -9** and **-10** address the channel design, with **SOIL&WATER-**

10 containing the specific requirements to match natural drainage patterns. (Ex. 400, pp. C.9-110-112.) Further, the **Biological Resources** section of this Decision fully analyzes the biological impacts to downstream vegetation and supports the mitigation contained in Condition of Certification **BIO-22** which requires off-site acquisition of 132 acres of waters of the state in the Chuckwalla Valley watershed, including 48 acres of microphyllous riparian vegetation. We find that impacts to downgradient drainages and downstream vegetation have been adequately analyzed and are mitigated below significance.

Flood Hazards

The project would be protected from off-site flooding hazards through the construction of engineered channels along the upstream project site boundaries. These channels would capture and convey 100-year (and smaller) storm flows through and around the project site and discharge it along the southern project boundary. The project Concept Drainage Study and Conceptual Grading Plans provide information on the layout and geometry of the proposed channels, as well as the design discharges. Given the level nature of the site, there do not appear to be any major grading-related issues that would induce erosion, such as large cut slopes to accommodate a terraced project design. The evidence indicates, however, that a number of uncertainties exist regarding channel profiles, flow analyses (including depth and velocity), channel slope gradients, the proposed use of gabions or riprap to provide slope armoring (which is not consistent with Project-related wildlife requirements), and the need for additional smaller swales to convey flows to the larger collector channels. Accordingly, Conditions of Certification **SOIL&WATER-8** through **SOIL&WATER-11**, as well as **SOIL&WATER-13**, would be required to address these concerns. Specifically, **SOIL&WATER-13** requires implementation of an approved Channel Maintenance Program to ensure appropriate long-term channel protection and operation, as well as to address related biological concerns (refer to the **Biological Resources** portion of this Decision for additional discussion). (Ex. 400, pp. C.9-59 to C.9-62.)

During operation, the proposed collector and conveyance channel along the west project boundary will be exposed to incoming side flows along most of its extent. These inflows could include concentrated runoff at the more defined drainages, shallow sheet flow, and smaller more localized flows. All of these elements have the ability to cause significant erosion of unprotected channel banks as well as to create headcutting which will extend roughly perpendicular from the outer channel bank into the adjacent floodplain. These headcut features have the potential to achieve the same depth as the main collector channel and can

extend upstream for several hundred feet over time due to numerous smaller flow events, or can occur very quickly from a single large event depending on the magnitude of flow at a given location. Significant impacts to areas beyond the project boundaries can occur due to these erosional features. Appropriate bank stabilization measures must be implemented to ensure that headcutting is prevented at all locations where flow enters the engineered channels. (Ex. 400, p. C.9-61.)

Operation of the proposed channels and erosion mitigation measures will require significant inspection and maintenance over the life of the facility to ensure that the channels are operating as intended and that potential and observed erosion issues are addressed promptly to minimize damage to the facility and areas beyond the project boundary. Relatively small problems and erosional features which develop during smaller more frequent event can become the focal point for problems during larger events. The Applicant has prepared a Draft Channel Maintenance Plan which addresses some of the potential issues associated with long term operation of the channels. The requirement for adequate channel erosion protection is addressed in Condition of Certification **SOIL&WATER-11**. This Condition provides specific requirements for where and under what conditions channel protection must be provided, ensuring that the potential for channel erosion is eliminated or minimized. (Ex. 400, p. C.9-61.)

The Applicant will develop and implement a Channel Maintenance Program that provides a framework for routine channel maintenance projects and ensures compliance with Conditions of Certification in a feasible and environmentally-sensitive manner. The Channel Maintenance Program would be a process document prepared by the project owner, which would be reviewed and approved by the CPM. Condition of Certification **SOIL&WATER-13** requires that the Channel Maintenance Program provide long-term guidance for the implementation of routine channel maintenance projects and comply with Project's related biological and flood protection Conditions of Certification (**SOIL&WATER-1** and **SOIL&WATER-11**). (See also the **Biological Resources** of this Decision). Condition of Certification **SOIL&WATER-13** ensures that the Applicant will implement the measures identified in the program. The main goals of the Channel Maintenance Program is to maintain the diversion channels to meet its original design to provide flood protection, protect offsite areas form erosion, support project mitigation, protect wildlife habitat and movement/migration, and maintain groundwater recharge. Compliance with Condition of Certification **SOIL&WATER-13** will reduce the impacts below the level of significance. (Ex. 400, p. C.9-61.)

Implementation of Conditions of Certification **SOIL&WATER-9** through **SOIL&WATER-11**, and **SOIL&WATER-13** will minimize impacts related to flood hazards and erosion associated with construction and operation of the project to below the level of significance. They will also provide the basic information to assist the CPM to adequately review and assess the appropriateness of the proposed design within the context of the site specific conditions. (Ex. 400, p. C.9-62.)

8. Surface Water Quality

Potential Project-related impacts to surface water quality would be associated with both construction and operation activities. Potential threats to surface water quality related to construction on the project site as well as linear features and would include: potential increases in sediment loads to adjacent streams and washes; accidental spills of hydrocarbon fuels and greases associated with construction equipment. Potential increased sediment loads will be mitigated through development and implementation of a Drainage Erosion and Sedimentation Control Plan (DESCP) which is required as part of Conditions of Certification **SOIL&WATER-1**. Proper implementation of the DESCP ensures proper protection of water quality and soil resources, including provisions for sediment and stormwater retention from the power block, solar fields and transmission right of way. (Ex. 400, p. C.9-62.)

Accidental spills of hydrocarbon fuels and greases associated with construction equipment will be mitigated by development and implementation of **HAZ-1 and HAZ-2** (refer to the **Hazardous Materials Management** section of the Decision) which includes development of a Spill Prevention, Control and Countermeasure (SPCC) Plan. The SPCC Plan sets forth spill prevention methods as well as actions to be taken in the event of an accidental spill or release of hazardous materials. In summary, implementation of Conditions of Certification **SOIL&WATER-1** and Conditions of Certification **HAZ-1 and HAZ-2** would reduce potential water quality impacts to insignificant. (Ex. 400, p. C.9-62.)

Potential threats to surface water quality related to operations include: potential increases in sediment loads to adjacent washes; accidental spills of hydrocarbon fuels and greases (including HTF fluid) associated with operations equipment, and accidental releases from HTF treatment area and the surface impoundments that includes wastewater from the pre-treatment and RO reject water. (Ex. 400, p. C.9-62.)

A DESCP would be required (see Conditions of Certification **SOIL&WATER-1)** prior to onsite operations and will reduce the potential for increased sediment loads to less than significant. Implementation of Condition of Certification **SOIL&WATER-1** and **HAZ-1** and **HAZ-2** (described in detail in the **Hazardous Materials Management** of this Decision), will reduce impacts to surface water quality to below the level of significance associated with construction and operation of the Project. Potential spills will be managed through hazardous materials management (see the **Hazardous Materials Management** section of this Decision and Conditions of Certification **HAZ-1** and **HAZ-2**). The operation of the surface impoundments will include two feet of freeboard to minimize the potential for overtopping during 100-year precipitation event. In addition, the LTU and surface impoundments will operate under the waste discharge requirements that include operational and leak detection monitoring as stipulated in **SOIL&WATER-6** and will reduce the potential for impacts to surface water quality to less than significant. (Ex. 400, p. C.9-63.)

Additional requirements for mitigation of potential surface water quality impacts will also be included as a part of the waste discharge requirements for the LTU and surface impoundment that would be included in Condition of Certification **SOIL&WATER-6**. (Ex. 400, p. C.9-63.)

9. Cumulative Impacts

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. (14 Cal. Code Regs., § 15065[A] [3].) The discussion of cumulative impacts should be guided by standards of practicality and reasonableness. (14 Cal. Code Regs., 14, § 15130[b].)

Construction and operation of the proposed project will result in both temporary and permanent changes at the project site. A number of past, present and future foreseeable projects (cumulative projects) were identified for the assessment of potential cumulative impacts, including the proposed GSEP Project. A summary of potential cumulative impacts to soil and water resources from past, present and future foreseeable projects is provided below. These projects are defined within a geographic area that has been identified by the Energy Commission and BLM as covering an area large enough to provide a reasonable basis for

evaluating cumulative impacts for all resource elements or environmental parameters (Staff Assessment C.9-68) The evidence indicates that the following projects were considered in the cumulative analysis relating to Soil and Water Resources: Chuckwalla Solar I, Eagle Mountain Soleil, Desert Lily Soleil, Desert Sunlight Solar Farm, Eagle Mountain Pump Storage, Mule Mountain Solar Project, Mule Mountain Soleil, Palen Solar Power. (Staff Assessment Exhibit 400 Table 20 p. C.9-70.)

Soil Erosion

Construction the proposed project would result in both temporary changes at the project site which could incrementally increase local soil erosion and storm water runoff during construction. The proposed project would be expected to contribute only a small amount to the possible short term cumulative impacts related to soil erosion because the project Applicant will be required to implement the mitigation measures defined in this analysis, which are expected to bring short term impacts below the level of significance. (Ex. 400, p. C.9-72.)

Operation of the proposed project will result in permanent changes at the project site. These changes could incrementally increase local soil erosion and storm water runoff. The proposed project will be expected to contribute only a small amount to these possible long term operational cumulative impacts because potential Project-related soil erosion and increased sedimentation resulting from storm water runoff are expected to be reduced to a level of insignificance through implementation of the Conditions of Certification **SOIL&WATER-1, -8, -9, -10, -11** and **-13**. (Ex. 400, p. C.9-72.)

Geomorphology

There is a concern that implementation of all of the reasonably foreseeable projects could have a cumulative impact on the regionally-significant geomorphic processes that transport sand downwind along the Chuckwalla Valley and to the Colorado River. Blocking or disrupting the sand transport corridors would impact various sites that provide habitat for biological resources such as the Mojave Fringe-Toed Lizard. See the **Biological Resources** of this Decision for further analysis of potential cumulative impacts related to geomorphic processes. (Ex. 400, p. C.9-74.)

Groundwater Basin Balance

The evidence evaluated whether the amount of groundwater used for both construction and operations would place the groundwater basin into Overdraft. Groundwater; overdraft is “the condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that

recharges the basin over a period of years during which water supply conditions approximate average conditions." (Ex. 400, p. C.9-74.)

For purposes of impact analysis, it is assumed that any withdrawals that exceed the average natural recharge and exceed a significant percentage of the total amount of groundwater in storage would be a significant impact. The following discussion presents an analysis of the potential for overdraft and significant depletion of groundwater in storage to occur. (Ex. 400, p. C.9-74.)

A comparison was made between the average annual basin budget with the anticipated foreseeable projects cumulative construction and operation water production requirements. The evidence shows that currently the CVGB balance is positive by approximately 2,608 AFY whereby inflow (approximately 13,719 AFY) to the basin is slightly greater than estimated outflows (approximately 11,111 AFY) to the basin. (Ex. 400, p. C.9-74.)

It is anticipated that groundwater extraction of foreseeable projects during construction of the project would range from 1,915 AFY in Year 2011 and peak at 10,009 AFY in Years 2014 through 2017 which would exceed the basin balance in Years 2014 through 2017 by 7,440 AFY. The CVGB would be in overdraft conditions commencing in Year 2014. It is anticipated that groundwater extraction during operations of reasonably foreseeable projects would be approximately 3,745 AFY which would exceed the basin balance by 1,137 AFY. The cumulative change in storage over the construction and operational period (33 years) would amount to approximately -57,000 AF, which would equate to less than 0.5 percent of the total amount of the estimated total recoverable groundwater in storage (15,000,000 AF). (Ex. 400, p. C.9-74.)

However, the amount of water that is storage (estimated to be as much as 15,000,000 AF) in the basin greatly exceeds the amount of cumulative overdraft (56,212 AF), even taking into account the potential for dramatically increased water demand. In light of these facts, the project's contribution to the cumulative impact to basin balance is less than cumulatively considerable. (Ex. 400, p. C.9-75.)

Lastly, the I-10 corridor within the CVGB has been targeted for renewable energy projects that have not been identified or quantified as to amounts of water required for development. Given that perennial surface water sources are non-existent and the only available water source is groundwater, it is likely that these as yet unidentified projects could further develop the groundwater resources and exacerbate the cumulative overdraft conditions identified above. However, given

the amount of total recoverable groundwater in storage (estimated at 15,000,000 AF), the impact would be insignificant. (Ex. 400, p. C.9-75.)

In addition, the evidence shows that the cumulative impact analysis conducted by the project suggested that during the course of operations for all reasonably foreseeable projects, the subsurface outflow from the CVGB into the PVMGB will decline from approximately 400 AFY to approximately 348 AFY in 2043. This could have an indirect impact on the Palo Verde Mesa Groundwater Basin by reducing underflow to Palo Verde Mesa Groundwater Basin. (Ex. 400, p. C.9-74.) Nevertheless, the impact related to outflow will be fully mitigated, such that the project will not contribute to cumulative impacts with implementation of **SOIL&WATER-15** and **SOIL&WATER-19**.

Groundwater Levels

Based on uncertainties identified in the assessment of water level declines, related impacts cannot currently be accurately quantified and associated potential impacts to water levels in existing wells are considered cumulatively significant. Implementation of Conditions of Certification **SOIL & WATER-2** through **SOIL & WATER-5** is anticipated to reduce project-related impacts to groundwater levels below a level of significance. While mitigation for similar impacts from the cumulative projects cannot be determined at this time, it is considered likely that such impacts will be subject to similar measures as the GSEP. In any case, impacts to groundwater levels in the CVGB from the proposed project will not be cumulatively considerable, based on the noted Conditions of Certification. (Ex. 400, p. C.9-76.)

Groundwater Quality

Significant cumulative groundwater quality impacts could potentially occur during construction and/or operation of the cumulative projects if associated contaminated or hazardous materials were to be released and migrate to the groundwater table. The proposed project is expected to contribute only a small amount to potential short- or long-term cumulative groundwater quality impacts, however, based on the following considerations: (1) the groundwater table at the project site is located approximately 70 to 90 feet below the surface; (2) project construction and operation would require implementation of a hazardous material management plan; and (3) operation of the LTU, evaporation ponds and, septic systems would require applicable monitoring plans (pursuant to Conditions of Certification **SOIL & WATER-6**, **SOIL & WATER-7** and **SOIL & WATER-20**). As a result, impacts to groundwater quality from the proposed project will not be cumulatively considerable. (Ex. 400, p. C.9-76.)

Surface Water Hydrology

The cumulative impacts of the cumulative projects (including the proposed Project) on local surface water hydrology are directly related to proposed onsite grading and the potential construction and operation of a network of engineered collector/conveyance channels designed for the purpose of protecting the various projects from flooding. The proposed projects could change both the extent and physical characteristics of the existing floodplains within and downstream of each project site. There is not enough information available on each site nor has a regional study been completed to define the extent of the cumulative effects of these projects on surface water within the watershed. However, each of these projects will be required to define their impacts and mitigate where required. (Ex. 400, pp. C.9-76 to C.9-77.)

The project is expected to contribute only a small amount to the possible short-term cumulative impacts related to surface water hydrology because the implementation of the Conditions of Certification specified below, will reduce the project specific impacts below the level of significance. (Ex. 400, p. C.9-77.)

Surface Water Quality

The cumulative impacts of the proposed foreseeable projects (including the proposed Project) could have an impact on surface water quality. Stormwater generated on the various project sites may encounter soil or chemicals deleterious to aquatic and terrestrial plant and wildlife. It is expected that all of the projects would be required to implement BMPs for managing potentially harmful storm water and protect water quality. Implementation of the Conditions of Certification **SOIL&WATER-1, -8, -9, -10, -11** and **-13** will reduce the project specific impacts below the level of significance. Potentially significant water quality impacts could occur during operations if contaminated or hazardous materials used during operations were to contact storm water and drain offsite. It is expected that all of the projects would have Hazardous Material Management Plans (refer to the **Hazardous Materials Management** of this Decision) to reduce impacts below the level of significance. (Ex. 400, p. C.9-77.)

All of the proposed projects would alter natural storm water drainages and the expected use of BMPs will reduce potentially significant impacts related to concentrated drainage and ensuing soil erosion and sediment transport offsite. The proposed project is expected to contribute only a small amount to the possible short-term cumulative impacts related to surface water quality with implementation of the Conditions of Certification **SOIL&WATER-1, -8, -9, -10, -**

11 and **-13** and will reduce the project specific impacts below the level of significance. (Ex. 400, p. C.9-77.)

Decommissioning

Closure and decommissioning of the GSEP may result in potential impacts related to soils and water resources similar to those identified for project construction. It is considered unlikely that the construction or decommissioning of any of the cumulative projects would occur concurrently with decommissioning of the proposed Project, as this decommissioning is not expected to occur for approximately 40 years. Accordingly, potential impacts related to soil and water resources from decommissioning of the GSEP are not expected to be cumulatively considerable. Potential impacts associated with project decommissioning will be further reduced through implementation of Condition of Certification **SOIL & WATER-14**, which requires the preparation and implementation of an approved decommissioning plan. (Ex. 400, p. C.9-77.)

10. Compliance with LORS

The Genesis Solar Project compliance with LORS ensures the most appropriate use and management of both soil and water resources. The requirements of these LORS are intended to protect human health and the environment. Refer to **APPENDIX A** of this Decision.

CURE argued in their brief that the Energy Commission failed to include a water supply assessment ("WSA") for the Project, as required by State law. Specifically, CURE claims a WSA must be prepared for any project that meets the definition of "project" under Section 10912 of the Water Code. We disagree. Section 10910 of the California Water code, is expressly binding on cities and counties. (Water Code, § 10910, subd. (a).) No component of Part 1 of Division 6 of the Water Code imposes *any* requirements on state lead agencies, such as the California Energy Commission.

We would further point out that even assuming *arguendo* that Water Code, § 10910 did apply to state lead agencies; the analysis in the record contains all information required by these statutory provisions. The evidence contains a description of basins (Water Code, § 10910, subd. (f)(2), including information about threat of overdraft, analysis of historic and proposed pumping, (subd. (f)(3),(4)), and an analysis about the ability of the basin to meet the demand of the proposed project. (Subd. (f)(5)). A thorough description of all these elements is included in the record, *supra*. (Ex. 400.)

Specifically, the record identifies that the project plans to drill a minimum of two wells for each power block (with additional standby wells) onsite (Ex. 402, p., C.9-5), and has drilled test wells to aid analysis of water availability and water quality. The amount of water use for construction and operation is identified. (Ex. 402, p. C.9-5-7.) The Chuckwalla Valley Groundwater Basin and neighboring basins are analyzed. (Ex. 402, p. C.9-18-26.) Direct and indirect impacts are intensely analyzed through the use of a comprehensive groundwater model. (E.g., Exh. 416.) Cumulative impacts are also evaluated, including long-term impacts on basin balance and budget. (Ex. 402, p. C.9-70-77.) Water demand is described, and was thoroughly debated regarding the use of wet-cooling versus dry-cooling technology. (Ex. 402, p. C.9-7.) Lastly, Conditions **SOIL&WATER-2**, **-15** and **-19** fully mitigate the GSEP's water demands and impacts, including any latent impacts after the project's closure. (Exh. 443.) In sum, a comprehensive water supply analysis was prepared for this project.

PUBLIC COMMENT

CURE submitted "comments" which were essentially identical to the arguments made in their briefs. The Decision addresses CURE's arguments, above.

FINDINGS OF FACT

1. Total grading at the GSEP site will encompass approximately one million cubic yards of soil, and project implementation will potentially result in short- and long-term erosion/sedimentation impacts.

2. During construction, the area within the plant site fence line (1,800 acres) will be disturbed.

3. With implementation of BMPs as detailed in the DESCP (see Condition of Certification **SOIL&WATER-1**, erosion will be mitigated to a less than significant level.

4. Adherence to the procedures in the Condition of Certification **SOIL & WATER-1** (including the construction DESCP) will avoid significant soil erosion and subsequent sedimentation during construction, conserve soil resources, maintain water quality, and prevent accelerated soil loss.

5. The mitigation for erosion control and dust suppression, the GSEP will not result in significant impacts to downwind vegetation from eroded sand.

6. Without mitigation, project implementation could result in potentially significant impacts to the Chuckwalla Valley and Palen-McCoy sand transport corridors, including depletion of sand transport and related deflation (loss of sand from the existing vegetated dunes over time) and armoring (coarsening of the sand and gravel as finer material is eroded by the wind) of downwind geomorphic features, including sandy plains and partially stabilized/vegetated dunes that provide habitat for sensitive-status species (e.g., the Mojave fringe-toed lizard).

7. Implementation of Conditions of Certification **SOIL & WATER-1** and **SOIL & WATER-13** would reduce potential project impacts related to sand transport below a level of significance (with related potential impacts to the Mojave fringe-toed lizard discussed in the **Biological Resources** section of this Decision).

8. Project implementation will require groundwater extraction from the CVGB, including approximately 616 to 1,368 AFY during construction and, approximately 202 AFY during operation.

9. Implementation of Condition of Certification **SOIL & WATER-15** and **SOIL & WATER-19** (if applicable) would reduce potential impacts related to groundwater basin balance in the CVGB and related PVMGB inflow below a level of significance.

10. The proposed project could potentially impact local groundwater levels, including effects related to subsidence.

11. With the implementation of Conditions of Certification **SOIL & WATER-2** through **SOIL & WATER-5** and **SOIL & WATER-17**, potential Project-related impacts to groundwater levels would be reduced below a level of significance.

12. There is no existing legal requirement for the project to obtain an entitlement to Colorado River water for its water supply.

13. Based on the depth of the local groundwater table and the fact that a hazardous material management plan would be implemented during construction (refer to the **Hazardous Materials Management** portion of this Decision), potential short-term impacts to groundwater quality will be less than significant.

14. Implementation of Conditions of Certification **SOIL & WATER-6, SOIL & WATER-7**, **SOIL & WATER-12,** and **SOIL & WATER-20** would reduce long-term impacts related to groundwater quality below a level of significance.

15. The project could potentially result in short- and long-term impacts to surface hydrology, storm water management and flooding as a result of on-site grading and the construction and operation of a network of engineered collector/conveyance channels.

16. Implementation of Conditions of Certification **SOIL & WATER-1**, **SOIL & WATER-8** through **SOIL & WATER-11**, and **SOIL & WATER-13** (along with related Conditions of Certification identified in the **Hazardous Materials Management** and **Biological Resources** portions of the Decision) will reduce short- and long-term impacts to surface hydrology, storm water management and flooding below a level of significance.

17. Without Conditions, GSEP may result in short- and long-term impacts to surface water quality in association with erosion/sedimentation, accidental spills of contaminants (e.g., fuels/greases or HTF), and accidental discharge from facilities such as the LTU or evaporation ponds.

18. Implementation of Conditions of Certification **SOIL & WATER-1**, **SOIL & WATER-6** and **SOIL & WATER-13**, as well as **HAZ-1** and **HAZ-2**, will ensure that short- and long-term impacts to surface water quality are below a level of significance.

19. Conditions of Certification **SOIL&WATER-2** through **SOIL&WATER-5** will minimize impacts to groundwater levels below the level of significance.

20. Surface water and groundwater quality beneath the site will not be impacted by LTU operation.

21. Potential groundwater quality impacts associated with the evaporation ponds will be mitigated less than significant.

22. Implementation of the project design measures and Conditions of Certification will reduce potential groundwater quality impacts from proposed septic system and leach field facilities below the level of significance.

23. All existing washes and floodplains within the project boundary will be completely eliminated by the grading of approximately 1,800 acres to provide the flat, uniform and vegetation-free topography resulting in a significant impact to onsite drainage patterns.

24. Implementation of Condition of Certification **SOIL&WATER-10** and **SOIL&WATER-11** will minimize impacts related to surface drainage associated with construction and operation of the project to below the level of significance.

25. Impacts to downgradient drainages and downstream vegetation have been adequately analyzed and are mitigated below significance.

26. Implementation of Conditions of Certification **SOIL&WATER-9** through **SOIL&WATER-11**, and **SOIL&WATER-13** will minimize impacts related to flood hazards and erosion associated with construction and operation of the project to below the level of significance.

27. Potential Project-related impacts to surface water quality would be associated with both construction and operation activities.

28. Implementation of Condition of Certification **SOIL&WATER-1, SOIL&WATER-6** and **SOIL&WATER-13** and **HAZ-1** and **HAZ-2** (described in detail in the **HAZARDOUS MATERIALS MANAGEMENT** of this Decision), will reduce impacts to surface water quality to below the level of significance associated with construction and operation of the Project.

29. GSEP will have no cumulatively considerable impacts on soil and water resources.

CONCLUSIONS OF LAW

1. With implementation of the Conditions of Certification listed below, the GSEP project will comply with all applicable LORS, and will not result in any unmitigated and significant direct, indirect or cumulative adverse impacts related to Soil or Water Resources.

CONDITIONS OF CERTIFICATION

DRAINAGE EROSION AND SEDIMENTATION CONTROL PLAN (DESCP)

SOIL&WATER-1 Prior to site mobilization, the Project owner shall obtain both the and 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 DESCP shall contain, at minimum, the elements presented below that outline site management activities and erosion and sediment-control BMPs 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=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=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.

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 storm water 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 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 storm water diversions. The monitoring plan shall be part of the Channel Monitoring and Maintenance Plan, **SOIL&WATER-13**.

Verification: No later than thirty (30) days prior to start of site mobilization, the Project owner shall submit a copy of the final DESCP to 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 as required by Condition of Certification **CIVIL-1**, and relevant portions of the DESCP shall clearly show approval by the chief building official. 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 DESCP for the life of the Project and shall provide in the annual compliance report information on the results of monitoring and maintenance activities.

GROUNDWATER LEVEL MONITORING, MITIGATION, AND REPORTING PLAN

SOIL&WATER-2 The Project owner shall submit a Groundwater Level Monitoring and Reporting Plan to the CPM for review and approval. The Groundwater Level Monitoring 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 primary objective for the monitoring is to establish pre-construction and Project related groundwater level trends that can be quantitatively compared against observed and simulated trends near the Project pumping wells and near potentially impacted existing wells.

The Project owner shall:

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 2 miles of the project site for a dry-cooled project, provided that access is granted by the well owners. The reconnaissance will include sending notices by registered mail

to all property owners within 2 miles of the project site for a dry-cooled project.

2. Monitor to establish preconstruction conditions. The monitoring plan and network of monitoring wells will make use of the two test wells and observation wells installed during the Groundwater Resources Investigation completed by the applicant (WPAR, 2010) and any monitoring wells that are installed to comply with Waste Discharge Requirements issued by the RWQCB for the evaporation ponds and land treatment unit associated with the Project. In addition, up to four additional existing wells in the basin that are located up to 2 miles will be incorporated into the program, provided access is granted by the owners and that the wells are deemed to be of suitable location and construction to satisfy the requirements for the monitoring program. The off-site wells incorporated in the program will include both shallower wells completed above the pumped interval and deeper wells completed within the pumped interval. The monitoring plan shall also include the identification of any seeps and or springs within one mile of the perimeter of the project site. The seeps and or springs shall be included in the groundwater level monitoring network.
3. Collect groundwater levels from the off-site and on-site wells, seeps and or springs to provide initial groundwater levels for both on-site and off-site wells.
4. Map groundwater levels within the CVGB within 10 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 within the monitoring network and seeps and or springs on a quarterly basis throughout the construction period and at the end of the construction period. In addition, collect continuous water level measurements from two shallow (water table) wells at the site using recording pressure transducers. Perform statistical trend analysis for water levels data. Assess the significance of an apparent trend and estimate the magnitude of that trend. Use pressure transducer data to characterize seasonal and diurnal fluctuations in groundwater levels.

C. During Operation:

1. On a quarterly basis for the first year of operation and semi-annually thereafter for the following four years, collect water level measurements from any wells and seeps and or springs identified in the groundwater monitoring program to evaluate operational influence from the Project. In addition, collect continuous water level measurements from two shallow (water table) wells at the site using recording pressure transducers.

Quarterly operational parameters (i.e., pumping rate) of the water supply wells shall be monitored. Additionally, quarterly groundwater-use in the eastern CVGB shall be estimated based on available data.

2. On an annual basis, perform statistical trend analysis for water levels 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. Use the pressure transducer data to characterize seasonal and diurnal fluctuations in groundwater levels. 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 pre-site operational trends, and monitoring data provided by the Project owner show these water level changes are different from background trends or influences by other groundwater pumpers and are caused by Project pumping, then the Project owner shall provide mitigation to the well owner(s) if impacted. 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 the drawdown (or a portion thereof) is the result of Project-related changes to water levels and water level trends relative to measured pre-project water levels, and the well 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 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-3** 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 percent or more of the initial 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 well yield reductions be reoccurring, the Project owner shall provide payment or reimbursement for either periodic maintenance throughout the life of the Project or, if treatment is anticipated to be required more frequently than every 3-5 years, replacement of the well.
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 percent 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. For already low-yielding wells identified prior to Project construction, a reduction due solely to Project pumping of 10 percent or more below the pre-project yield shall be considered a significant impact. The contribution of Project pumping to observed decreases in observed well yield shall be determined by interpretation of the groundwater monitoring data collected and shall take into consideration the effect of other nearby pumping and the condition of the well prior to the commencement of project pumping.

d. The Project owner shall notify any owners of the impacted wells within one month of 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 in proportion to the Project's contribution to the lowering of the groundwater table that resulted in the impact..
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 shall reimburse the impacted well owner for all costs associated with deepening existing wells or constructing new wells in proportion to the Project's contribution to the lowering of the water table that resulted in the impact.

4. After the first five-year operational and monitoring period the CPM shall evaluate the data and determine if the monitoring program water level measurement frequencies 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. 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.
6. During the life of the Project, the Project owner shall provide to the CPM all monitoring reports, complaints, studies and other relevant data within ten (10) days of being received by the Project owner.

Verification: The Project owner shall do all of the following:

a. At least thirty (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.
b. The Project owner shall submit to the CPM all calculations and assumptions made in development of the report data and interpretations.
c. During Project construction, the Project owner shall submit to the CPM quarterly reports presenting all the data and information required in item B above.

d. The Project owner shall submit to the CPM all calculations and assumptions made in development of the report data and interpretations.
e. No later than sixty (60) days after commencing 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.
f. 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 thirty (30) days following the end of the quarter. The 4th quarter report shall serve as the annual report, and will be provided on January 31 in the following year.
g. The Project owner shall submit to the both the CPM all calculations and assumptions made in development of report data and interpretations, calculations, and assumptions used in development of any reports.
h. The Project owner shall provide mitigation as described in item 3.c above, if the CPM's inspection of the monitoring information confirms Project-induced changes to water levels and water level trends relative to measured pre-project water levels, and well yield has been lowered by Project pumping. The type and extent of mitigation shall be determined by the amount of water level decline and site specific well construction and water use characteristics. The mitigation of impacts will be determined as set forth in item 3.c above.
i. 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 payment are made, payment is made by March 31 following the first year of operation only. Within thirty (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.
j. After the first five year operational and 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 water level measurement frequencies should be revised or eliminated.

SOIL&WATER-3: 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-2,** the Project owner shall calculate the compensation owed to any owner of an impacted well as described below.

<u>Increased cost for energy</u> = 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

Protocol: 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.

- 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 that experience more than 5 feet of project-induced drawdown.
- 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.
- 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 in the form of meter readings, calculations based on pump characteristics and volumes pumped, 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 projected project-pumping rates for a wet-cooled or dry-cooled project, as applicable. Compensation associated with increased pumping lift for the life of the project shall be estimated as a lump sum payment as follows:

- 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;

- An annual inflation factor for energy cost of 3 percent; and
- A net present value determination assuming a term of 30 years and a discount rate of 9 percent;

Verification: The Project owner shall do all of the following:

1. No later than thirty (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 thirty (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.

PROJECT GROUNDWATER WELLS, PRE-WELL INSTALLATION

SOIL&WATER-4 The Project owner proposes to construct and operate up to two or more onsite groundwater production 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 (see C.9.9.2) 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 the CPM provides approval to construct and operate the well.

Post-Well Installation. The Project owner shall provide documentation 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 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.

Verification: The Project owner shall do all of the following:

a. No later than sixty (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 thirty (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.
c. No later than sixty (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.
d. During well construction and for the operational life of the well, the Project owner shall submit two (2) copies each to the CPM of any proposed well construction or operation permit changes within ten (10) days of submittal to or receipt from the County of Riverside.
e. No later than fifteen (15) days after completion of the onsite groundwater production wells (including closure of any associated mud pits), the Project owner shall submit documentation to the CPM, and the CRBRWQCB 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.) requirements and that any onsite drilling sumps used for Project drilling activities were removed in compliance with 23 CCR section 2511(c).

CONSTRUCTION AND OPERATION WATER USE

SOIL&WATER-5 The Project owner proposes to use groundwater for water supply during construction and during operation. The proposed Project's use of groundwater during construction shall not exceed an annual average of 1,368 afy during the entire construction period and an annual average of 202 afy for dry cooling. Water quality used for project construction and operation will be reported in accordance with Condition of Certification **SOIL&WATER-20** 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.

Verification: At least thirty (30) 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 (6) 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 will include monthly range and monthly average of water usage in gallons per month, and total water used on an annual basis in acre-feet. For years subsequent to the initial year of operation, the annual summary will also include the yearly range and yearly average water use by source. For calculating the total water use, the term “year” will correspond to the date established for the annual compliance report submittal.

WASTE DISCHARGE REQUIREMENTS

SOIL&WATER-6: 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)

Verification: No later than sixty (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 CRBWQCB, 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 associated storm water system shall be requested in writing to the CPM, with copies to the CRBWQCB, and approved by the CPM, in consultation with the CRBWQCB, prior to initiation of any changes. The Project owner shall provide to the CPM, with copies to the CRBWQCB, 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, treatment units, or storm water system.

SEPTIC SYSTEM AND LEACH FIELD REQUIREMENTS

SOIL&WATER-7 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.

Verification: The Project owner shall submit all necessary information and the appropriate fee to the County of Riverside to ensure that the project has complied with county sanitary waste disposal facilities requirements. Written assessments prepared by the County of Riverside regarding the project's compliance with these requirements must be submitted to the CPM for review and approval thirty (30) days prior to the start of power plant operation.

REVISED PROJECT DRAINAGE REPORT AND PLANS

SOIL&WATER-8 The Project owner shall provide a revised Drainage Report which includes the following additional information:

A. Calculations for all the collector/conveyance channels and onsite drainage channels showing adequate depth and non-erosive velocities. Data provided shall include depth, velocity, Froude number and other relevant hydraulic parameters.

B. 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.

C. Post development onsite drainage maps, calculations and discussion which include a delineation of all onsite watersheds with basin areas, points of concentration, and peak discharge values where the smaller onsite channels discharge into the larger collector and conveyance channels. The maps should also show peak flow values at all downstream points of discharge from the Project.

D. A discussion and associated calculations documenting the methods to be used for erosion control at outlet locations along the southern property boundary where flow is released to existing ground.

E. 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.

F. Stage-discharge rating calculations for all outlet structures (i.e. pipes and weirs) used to outlet water along the southern project boundary.

G. Digital copies of all hydrologic and hydraulic analysis.

The Project owner shall also provide the 30 percent Grading and Drainage Plans which include the design based on information provided in the revised Drainage Report outlined above.

Verification: The Project owner shall submit a Revised Project Drainage Report with the 30 percent Grading and Drainage Plans to the CPM for their review and comments a minimum of sixty (60) days before project mobilization. The owner will 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 percent Grading and Drainage Plans will be included in the final Grading and Drainage Plans.

DETAILED FLO-2D ANALYSIS

SOIL&WATER-9 The Project owner shall provide a revised FLO-2D analysis which models the post-development flood conditions for the 10-, 25- and 100-year storm events along the southern project boundary where flow is released to existing ground. The post-development model must include all outlet structure in the model with appropriate elevations and stage-discharge data. The methods and results of the analysis must be fully documented in the revised Project Drainage Report required in **SOIL&WATER-8**. Graphical output must include depth and velocity mapping for the post-development condition. 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 feet per second (ft/s) intervals

A set of figures will be provided for the 10-, 25- and 100-year events at a scale of no less than 1 in=200 ft which show the extent, depths and velocities of flows being discharged along the southern property boundary, as well as annotation indicating the location and type of outlet structure. Digital input and output files associated with the FLO-2D analysis must be included with all submittals.

The results of this analysis will be used to ensure a design where flow is released from the southern channel in a manner which reasonably mimics existing conditions with respect to flow depth and velocity, and does not result in erosion downstream of the facility.

Verification: The Project owner shall submit a detailed FLO-2D analysis to the CPM for their review and comments with the 30 percent Grading and Drainage Plans and revised Project Drainage Report required in **SOIL&WATER-8**. The Project owner will address comments provided by the CPM until approval of the analysis is issued.

DRAINAGE CHANNEL DESIGN

SOIL&WATER-10 All collector and conveyance channels shall be constructed consistent with Riverside County Flood Control and Water Conservation District (RCFCWCD) guidelines where applicable. Deviation from those guidelines should be documented in the Project drainage report along with justification. 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 Project owner shall also flatten constructed channel side slopes at a 4:1 ratio at all locations where

adequate space exists and in no cases are slopes to be steeper than 3:1along reaches requiring soil cement. At slopes of 3:1, soil cement shall be placed in horizontal lifts.

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 200-foot intervals or any major changes in channel configuration 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 will 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.

E. Details for all outlet structures to be used along the downstream property boundary to release flow from the engineered channels to existing ground as well as details and specifications for all erosion protection measures to be used at those locations.

F. Consistent nomenclature and stationing on all plans, sections, profiles and details.

Verification: The Project owner shall prepare preliminary, 30 percent channel design drawings and submit two (2) 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 will update and modify the design as necessary to obtain CPM approval.

CHANNEL EROSION PROTECTION

SOIL&WATER–11 The Project owner must provide revised preliminary Grading and Drainage Plans which incorporate the items and information as listed below for the channels designated as A, B, C, D, E, B/C, D/E on the Conceptual Grading Plans (GSEP 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. The plans shall include reference to regionally accepted specifications for soil cement production and construction. A copy of the specification must be submitted with the revised plans.

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.

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. If modifications to the existing drainages to allow construction of and future access to linear facilities require stabilization of the

channel in the vicinity of those modifications, location of disturbance to the existing drainages shall be stabilized consistent with best engineering practice to eliminate future negative impacts to those drainages upstream and downstream of the linear facility in the form of downcutting, erosion and headcutting. The use of "non-engineered" 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.

Verification: 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** through **SOIL&WATER-10**. The drainage report associated with the linears identified in "I" above may be submitted separately from the site Grading and Drainage Plans. The Project owner will update and modify the design as necessary to obtain CPM approval.

NON-TRANSIENT, NON-COMMUNITY WATER SYSTEM

SOIL&WATER-12: 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 will require periodic monitoring for various bacteriological, inorganic and organic constituents.

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 will supply updates on an annual basis of monitoring requirements, any submittals to County of Riverside as well and proof of annual renewal of the operating permit. Pursuant to this requirement, the Project owner shall obtain a permit from the County of Riverside to operate a non-transient, non-community water system.

Verification: The Project owner shall obtain a permit to operate a non-transient, non-community water system with the County of Riverside at least sixty (60) days prior to commencement of operations at the site. The Project owner shall supply updates annually for all monitoring requirements and submittals to County of Riverside related to the permit, and proof of annual renewal of the operating permit.

CHANNEL MAINTENANCE PROGRAM

SOIL&WATER-13: 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 by the CPM. The Project owner shall supervise the implementation of a Channel Maintenance Program in accordance with conditions of certification.
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 Project owns or holds an easement for access and maintenance. The Program would 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** - 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 protection. The Project owner would implement instream repairs when the problem: (1) causes or could cause significant damage to 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.

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 stream 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. The Project owner shall supervise the implementation of a Channel Maintenance Program in accordance with conditions of certification.

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. 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 would be developed to guide decision-making for channel maintenance activities. BMPs shall be developed to implement these policies.

In addition, 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).

Verification: At least sixty (60) days prior to the start of any project-related activities (not including linears), 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.

CLOSURE AND DECOMMISSIONING PLAN

SOIL&WATER–14 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 surface water monitoring, revegetation and restoration of disturbed areas, post-decommissioning maintenance, collection and disposal of project materials and chemicals, and access restrictions.

Verification: At least sixty (60) days prior to the start of site mobilization or alternate date as agreed to with BLM, 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.

SOIL&WATER–15 The Project owner shall undertake one or more of the activities identified below to mitigate project impacts that result in depletion of the PVMGB groundwater budget. The amount of PVMGB depletion requiring mitigation shall be determined based on an analysis of the Project's effect on the PVMGB groundwater budget, including an estimate of the decrease in underflow from the CVGB to the PVMGB. The analysis shall be conducted as described in **SOIL&WATER-19.**

Water conservation projects that may be considered as mitigation include the following: payment for irrigation improvements in Palo Verde Irrigation District (PVID), payment for conversion of cultivation of crops with lower crop water demand in the PVID, use of tertiary treated water, implementation of water conservation programs in the CVGB, PVMGB or Colorado River flood plain communities, and/or participation in BLM's Tamarisk Removal Program. The Project owner shall demonstrate to the satisfaction of the CPM that the appropriate amounts of water will be conserved.

The activities proposed for mitigation will be outlined in a Water Supply Plan that will be provided to the CPM for review and approval. The Water Supply Plan shall include the following at a minimum:

A. Identification of the activity and water source that will replace the decreased underflow to the PVMGB determined under **SOIL&WATER-19**;

B. Demonstration of the Project owner's legal entitlement to the water or ability to conduct the activity;

C. Discuss whether any governmental approval of the identified activities will be needed, and, if so, whether additional that approval will require compliance with CEQA or NEPA;

D. Demonstration of how water diverted from the PVMGB will be replaced for each of the activities;

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 activities; and

G. Monitoring and Reporting Plan outlining the steps necessary and proposed frequency of reporting to show the activities are achieving the intended benefits and replacing Colorado River diversions.

The Project owner shall implement the activities reviewed and approved in the Water Supply Plan in accordance with the agreed upon schedule in the Water Supply Plan. If agreement on identification or implementation of mitigation activities cannot be achieved the Project owner shall immediately halt construction or operation until assurance that the agreed upon activities can be identified and implemented.

Verification: The Project Owner shall submit a Water Supply Plan to the CPM for review and approval thirty (30) days before the start of extraction of groundwater for construction or operation.

GROUNDWATER PRODUCTION REPORTING

SOIL&WATER–16 The Project will file an annual notice per the requirement of Water Code Sections 4999 et. seq. for reporting of groundwater production in excess of 25 acre feet per year.

Verification: The Project owner shall file an annual "Notice of Extraction and Diversion of Water" with the SWRCB in accordance with Water Code Sections 4999 et. seq. The Project owner shall include a copy of the filling in the annual compliance report.

GROUND SUBSIDENCE MONITORING AND ACTION PLAN

SOIL&WATER–17 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 Project owner shall:

A. Prepare and submit a Subsidence Monitoring Plan (SMP), including all calculations and assumptions. 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 will include presentation and interpretation of the data collected including comparison to the thresholds developed in Item C.

C. Prepare a Mitigation Action Plan that will detail 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 to form;

c. Any subsidence that violates (a) or (b) will result in the Project owner to investigate the need to immediately reduce/cease pumping until the cause is interpreted 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 will be required to submit the Ground Subsidence Monitoring and Action Plan that is prepared by an Engineering Geologist registered in the State of California thirty (30) days prior to the start of extraction of groundwater for construction or operation.

Verification: The Project owner shall do all of the following:

1. At least thirty (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. 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.

3. The Project owner shall submit to the CPM all calculations and assumptions made in development of the report data and interpretations.

4. After the first five (5) 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.

WATER POLICY COMPLIANCE

SOIL&WATER-18 DELETED

ESTIMATION OF IMPACTS TO PVMGB

SOIL&WATER-19 The Project owner, for the purpose of determining the appropriate volume of water for mitigation in accordance with **SOIL&WATER-15**:

shall conduct an analysis of the Project's effect on the PVMGB groundwater budget including an estimate of the decrease in underflow from the CVGB to the PVMGB. The analysis shall include the following:

A. Refinement of the estimate of decrease in underflow from the CVGB to the PVMGB using the numerical groundwater flow model developed for the Project. An upper-bound estimate of the underflow decrease shall be developed through sensitivity analysis of the lateral hydraulic conductivity of the pumped aquifer and the general head boundaries, as well as recharge.

   1. A statistical analysis of the seventeen existing aquifer tests and specific capacity tests in the eastern CVGB shall be conducted to characterize the distribution of hydraulic conductivity values in the area.

   2. Model runs shall be conducted using the first quartile (25 percent), second quartile (50 percent) and third quartile (75 percent) hydraulic conductivities to evaluate the change in underflow induced by Project pumping under a reasonable range of values.

   3. The effect of recharge in the model domain shall be simulated by applying mountain front recharge at the appropriate locations in amounts representing two percent to three percent of total average incident precipitation falling on the model domain and tributary mountain areas.

B. The maximum predicted decrease in underflow from the CVGB to the PVMGB shall be used to assess the volume of water requiring mitigation under Soil & Water 15. The volume predicted will include the cumulative decrease in underflow during the period the project pumps groundwater from the CVGB as well as any latency effects

following cessation of pumping. The latency period will extend until underflow achieves pre-project conditions.

C. An assessment report shall be prepared summarizing the methods and results of this supplemental analysis, presenting any supporting data, assumptions made, and an estimate of the uncertainty of PVMGB underflow depletion.

D. 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:

1. Introduction
2. Previous Investigations
3. Conceptual Model
4. Numerical Model and Input Parameters
5. Sensitivity Analysis
6. Transient Modeling Runs
7. Conclusions

Verification: Within thirty (30) days prior to mobilization of the proposed Project, the Project owner will submit to the CPM for their approval a report detailing the results of the modeling effort. The report will include the estimated amount of PVMGB underflow depletion due to project pumping. This estimate shall be used for determining the appropriate volume of water for mitigation in accordance with **SOIL&WATER-15**.

GROUNDWATER QUALITY MONITORING AND REPORTING PLAN

SOIL&WATER-20 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 levels and quality. The sampling required for the water quality monitoring program shall be implemented during groundwater level monitoring events using the well identified to comply with **SOIL&WATER-2**. Prior to project construction, monitoring shall commence to establish pre-construction groundwater quality conditions in the well proposed for the program. Monitoring shall continue during construction and project operation. The primary objectives for the water quality monitoring program are to identify potential changes in

the existing water quality of the proposed water supply resulting from Project pumping, if any, in concert with Condition of Certification **SOIL&WATER–2,** establish pre-construction and project related groundwater quality data and to avoid, minimize, or mitigate significant impacts to sensitive receptors (springs and groundwater-dependent vegetation, and groundwater supply users).

A. 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 to be installed include wells required under Waste Discharge Requirements issued by the CRBRWQCB for the evaporation ponds and land treatment unit proposed for the project. 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.

B. At least four (4) weeks prior to construction, 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-2**. 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.

C. As part of the monitoring well network development, all newly constructed monitoring wells shall be constructed consistent with State and Riverside County specifications.

D. At least four (4) weeks prior to use of any groundwater for construction, all groundwater quality and groundwater level monitoring data shall be reported to the CPM. The report shall include the following:

1. An assessment of pre-project groundwater levels, a summary of available climatic information (monthly average temperature and rainfall records from the nearest weather station).
2. As assessment of pre-project groundwater quality with groundwater samples analyzed for TDS, chloride, nitrates, major cations and anions, oxygen-18 and deuterium isotopes, and any other

constituents the CPM deem critical in protecting existing water supply quality.

3. The data shall be tabulated, summarized, and submitted to the CPM. The data summary shall include the estimated range (minimum and maximum values), average, and median for each constituent analyzed. If a sufficient number of data points are available, the data shall also be analyzed using the Mann-Kendall test for trend at 90 percent confidence to assess whether pre-project water quality trends, if any, are statistically significant.

E. 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 semi-annually to the CPM. After five years of project operations, the frequency and scope of the monitoring program shall be reassessed by the CPM. The summary report shall document water level and quality monitoring methods, the water level and quality data, water level and quality plots and trend evaluation, 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.

1. Groundwater samples from all wells in the monitoring well network shall be analyzed and reported semi-annually for TDS, chloride, nitrates, cations and anions, oxygen-18 and deuterium isotopes. These analyses, and particularly the stable isotope data, can be useful for identifying water sources and assessing their contributions to the quality of water produced by wells.

2. 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. The compliance data shall be analyzed for both trends and for contrast with the pre-project data.

3. Trends shall be analyzed using the Mann-Kendall test for trend at the 90 percent confidence, once a statistically significant number of sample data are available. Trends in the compliance data shall be compared and contrasted to pre-project trends, if any.

4. 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

RWQCB 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 percent confidence between the two data sets, the monitoring data are inconsistent with random differences between the pre-project and baseline data indicating a water quality impact from project pumping may be occurring.

5. If compliance data indicate that the water supply quality has deteriorated (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) for three consecutive years, the Project owner shall provide treatment or a new water supply to either meet or exceed pre-project water quality conditions to any impacted water supply wells.

Verification: The Project owner shall complete the following:

At least six (6) weeks prior to the start of construction activities, a Groundwater Level and Quality Monitoring and Reporting Plan shall be submitted to the CPM for review and approval.

SOIL AND WATER
APPENDIX B

Waste Discharge Requirement
Facts for Waste Discharge

SOIL AND WATER RESOURCES – APPENDIX B

FACTS FOR WASTE DISCHARGE—Genesis Solar LLC, Owner/Operator, Genesis Solar Power Project, Riverside County

1. Genesis Solar, LLC, (the Discharger) is proposing to construct, own and operate a concentrated solar power (CSP) electric generating facility and a land treatment unit (LTU) on land owned by the Bureau of Land Management (BLM). The Facility referred to as the Genesis Solar Power Project is located near Ford Dry Lake in Riverside County, California. A site map is included as **Figure 1**, as incorporated here in and made a part of these requirements for waste discharge (Waste Discharge Requirements, or WDRs). The address for Genesis Solar, LLC is 700 Universe Blvd, FED/JB, Juno Beach, FL 33408. The address for the land owner (BLM) is 1201 Bird Center Drive, Palm Springs, CA 92258.

2. These WDRs regulate the Facility's two evaporation ponds and the LTU. The evaporation ponds are designated as Class II Surface Impoundments Waste Management Units (WMU) and must meet the requirements of the California Code of Regulations (CCRs), Title 27, CCR § 20200 et seq. The boundaries of the Genesis Solar Power Project are shown on **Figure 2**, as incorporated here in and made a part of these WDRs.

3. The Discharger submitted a Report of Waste Discharge dated August 27, 2009 for the Genesis Solar Power Project.

4. Definition of terms used in these WDRs:

   a. **Facility** – The entire parcel of property where the proposed Genesis Solar Power Project industrial operation or related solar industrial activities are conducted.

   b. **Waste Management Units (WMUs)** – The area of land, or the portions of the Facility where wastes are discharged. The LTU and the evaporation ponds are WMUs.

   c. **Discharger** – The term Discharger means any person who discharges waste that could affect the quality of the waters of the State, and includes any person who owns the land, WMU or who is responsible for the operation of a WMU. Specifically, the terms "discharger" or "dischargers" in these WDRs means Genesis Solar, LLC.

Facility Location

5. The Facility will be located in the Colorado Desert in Chuckwalla Valley between the communities of Blythe, CA (approximately 24 miles east) and Desert Center, CA (approximately 27 miles west). Ford Dry Lake is located approximately 1 mile south west of the Project. The Facility is located in Township 6S, Range 19E San Bernardino Base and Meridian. The Facility covers approximately 1,800 acres of Federal land managed by the BLM.

Surrounding Land Use

6. Current land uses around the Facility include I-10 to the south, the Palen McCoy Wilderness to the north, the Palen Dry Lake Area of Critical Environmental Concern (ACEC) to the west and open (unrestricted access) lands to the east. Most of the land near the Facility is managed by BLM. However, there are also private holdings in the area.

Facility Description

7. The Discharger is proposing to develop a 250-megawatt (MW) solar thermal power generating project, using concentrated solar trough technology. There will be two independent 125 MW units on site to provide a total net electrical output of 250 MW. Commercial operation is planned to commence July 2014.

8. The process to produce 125 MW of electrical power in each module is as follows:

    a. 650 to 800 acres of solar fields containing Parabolic Mirrors to collect the Sun's energy (field is oversized to ensure 125MW can still be generated when there is less sun);

    b. HTF absorbs the Sun's energy from the mirrors;

    c. HTF creates Steam in the Solar Steam Generator (SSG);

    d. Steam drives the Steam Turbine Generator (STG); then STG produces Electrical Power.

    e. Solar Arrays;

    f. Wet Cooling area;

    g. Power Block (161-230 KV substation);

h. Evaporation Ponds (24 acres per unit, for a total of 48 acres);

i. Bioremediation LTU (5 acres); and

j. Stormwater Detention Pond.

9. The solar thermal technology will provide 100 percent of the power generated by the Project; no supplementary energy source (e.g. natural gas to generate electricity at night) is proposed to be used for electric energy production. The Project will utilize a natural gas fired auxiliary boilers to reduce start up time and for HTF freeze protection. Freeze protection shall maintain HTF at a minimum 100 degrees Fahrenheit [°F]

10. The Discharger proposes to use a dry cooling tower for power plant cooling. Water for process water makeup, and other industrial uses such as mirror washing will be supplied from on-site groundwater wells, which also will be used to supply water for employee use (e.g., drinking, showers, sinks, and toilets). A package water treatment system will be used to treat the water to meet potable standards. A sanitary septic system and on-site leach field will be used to dispose of sanitary wastewater.

11. Project wastewater (excluding sanitary waste) will be piped to lined, on-site evaporation ponds, which are designated as Class II Surface Impoundments. One evaporation pond is allocated to each power block for a total of two evaporation ponds. For safety and operational purposes, accumulated precipitated solids will be removed from the base of the evaporation ponds when they reach a depth of 3 feet. It is estimated that 3 feet of solids will accumulate approximately every 20 years when using groundwater containing 5,000 mg/l of total dissolved solids (TDS) as a water supply. Dewatered residues from the ponds will be sent to an appropriate off-site landfill for disposal. No off-site water supply is planned at this time; the use of multiple on-site water supply wells and redundancy in the well equipment will provide an inherent backup in the event of outages affecting one of the on-site supply wells.

12. The Project will include a LTU to treat soil contaminated with HTF. The unit will be designed in accordance with Colorado River Basin Regional Water Quality Control Board (Regional Board) requirements.

Climate

13. The Project is located in an arid desert climate; therefore, there are extreme daily temperature changes, low annual precipitation, strong seasonal winds and mostly clear skies. Evaporation rates are higher than precipitation rates. Based on 60 years of data from Blythe Airport,

the mean maximum temperatures in June to September exceed 100°F. Winter months are more moderate with mean maximum temperatures of high 60's to low 70's °F and minimum temperatures in the low to mid 40's °F. Although there are no average minimal temperatures below freezing point (32°F), the temperature has historically dropped below freezing point between November and March.

14. Average annual evaporation in the Facility area, based on published data at the Indio Fire Station 70 miles west of the Project site, is 105 inches, of which 87 percent of that evaporation occurs between March and October. Average annual precipitation in the Project area, based on the gauging station at Blythe Airport, is 3.55 inches, with August recording the highest monthly average of 0.63 inches and June recording the lowest monthly average of 0.02 inches. Per the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 for the Southern California area, 3.51 inches of rainfall shall fall in the 100 year, 24 hour storm event.

15. Winds in the Project area are generally south to southwest with a less frequent component of northerly winds (north through northwest). Calm conditions occur approximately 16.43% of the time, with the annual average wind speed being approximately 7.62 miles per hour (mph) (3.41 m/s).

Regional Topography and Drainage

16. The general topography in the area of the Facility consists of mountain ranges surrounded by extensive alluvial fans coalesced into bajadas that slope toward the topographic low-points of the valley, Ford Dry Lake and Palen Lake. The Project site is situated within the Chuckwalla Valley and is relatively flat. The Project site generally slopes from north to south with elevations of approximately 400 to 370 feet above mean sea level. There are no perennial streams in Chuckwalla Valley and a vast majority of the time, the area is dry and devoid of any surface flow anywhere. Water runoff occurs only in response to infrequent intense rain storms. Much of the area is subject to inundation either by sheet flow or flow confined to an expansive network of ephemeral washes, Palen and Ford Dry Lakes, and other local topographic low-points. The entire area drains first to these two dry lakes, and then to evaporation or groundwater.

Flood Hazard

17. The Facility is within "RIVERSIDE COUNTY AND INCORPORATED AREAS" as designated by the Federal Emergency Management Agency (FEMA); however, there are no flood insurance maps provided for this

area. The Site is not located in a flood hazard area identified in the Riverside County General Plan Safety Element.

Regional Geology

18. The region has undergone a complex geologic history that includes sedimentation, volcanic activity, folding, faulting, uplift and erosion. The Project area is underlain by Holocene to Miocene basin fill deposits (Stone, 2006). These deposits include younger alluvium, older (Pleistocene) alluvium, the Pliocene Bouse Formation and the Miocene fanglomerate. The uppermost alluvium in the basin consists of Holocene to Pleistocene alluvial fan, fluvial, playa, and aeolian (wind blown) deposits. In general, coarser alluvial fan deposits are found near the valley edges and grade into finer distal fan, valley axial (fluvial) and playa deposits near the low points of the basin. Holocene-age playa deposits are found in the Ford Dry Lake area and consist mainly of clay, silt, and sand above the water table (DWR 1963).The older alluvium (Pleistocene age) consists of fine to coarse sand interbedded with gravel, silt, and clay (DWR 1963). The Pleistocene alluvium likely comprises the most important aquifer in the area (DWR 1963). The Pliocene-age Bouse Formation is a marine to brackish-water sequence that is composed of a basal limestone overlain by interbedded clay, silt, sand, and tufa. Near the southeastern portion of the basin the Bouse Formation occurs at a depth between approximately 100 to 800 feet below ground surface (bgs) (Wilson and Owens-Joyce 1994).The fanglomerate lies unconformably below the Bouse Formation and is composed chiefly of angular to subrounded and poorly sorted partially to fully cemented pebbles with a sandy matrix (Metzger 1973). The fanglomerate is likely Miocene age; however, it may in part be Pliocene age (Metzer 1973). Near the southeastern portion of the basin the fanglomerate occurs at a depth between approximately 800 to 5,000 feet bgs (Wilson and Owens-Joyce 1994).

Site Specific Geology

19. Geologic units near the project area consist of the recent dune sand, recent alluvium, and non-marine sedimentary deposits. The unconsolidated alluvial fan, river channel, and stream deposits consist of silt, sand, clay, and gravel. These also include recent floodplain deposits of the Colorado River including silt, sand, and clay. The nonmarine sedimentary deposits consist of older alluvium and fanglomerate, dissected with well-developed desert pavement and desert varnish in some areas. These consist mostly of clay, siltstone, sand, and gravel.

Seismicity

20. The Project site lies within the eastern part of Riverside County in a part of California considered not to be very seismically active. Although there are several bedrock faults off site in the mountains surrounding Chuckwalla Valley, these do no exhibit recent activity and are presumed to be Tertiary or pre-Tertiary in age (Stone, 2006). In addition, gravity anomalies suggest the presence of several subsurface faults beneath Chuckwalla Valley in the vicinity of the project area (Stone, 2006; Rotstein, et al., 1976). The gravity anomalies reflect abrupt changes in basement elevation strongly suggestive of dip-slip movements. In addition, some of these faults may have undergone right-lateral strike slip movements. These faults are presumed Tertiary and likely inactive with very low chance of earthquakes.

21. The active faults considered most likely to produce large earthquakes potentially affecting the Project site are located at a considerable distance to the west and southwest and include the San Andreas, Imperial, and San Jacinto-Anza faults. Other smaller faults are located within approximately 100 kilometers (km) of the Site. These faults are believed to be capable of producing ground shaking with peak ground accelerations exceeding 0.10 times the force of gravity (0.10 g).

Seismic Shaking

22. A preliminary estimate of ground motions expected at the site was prepared using source and attenuation models developed by the USGS National Seismic Hazard Mapping Project (NSHMP, 2009). For design of important facility structures, a site-specific Probabilistic Seismic Hazard Assessment is being completed as part of an ongoing Geotechnical Investigation and will be made available to the CEC. The preliminary results indicate that peak ground acceleration (PGA) with a probability of exceedance of 10 percent in 50 years (475 Year Return Period) is 0.14 g. The deaggregation information indicates that the mean moment magnitude is 6.8 at a mean distance of 68 km. The PGA with a probability of exceedance of 2 percent in 50 years (2475 Year Return Period) is 0.23 g. The mean moment magnitude is 6.7 at a mean distance of 48 km.

Ground Rupture

23. The Project site is not located within a State of California Earthquake Fault Zone designated by the Alquist-Priolo Special Studies Zone Act of 1972 (formerly known as a Special Studies Zone), an area where the potential for fault rupture is considered probable (Riverside County, 2008). In addition, no Quaternary, Sufficiently Active, or Well Defined

Faults are located under or near the Site. Based on this information and engineering judgment, earthquake-induced ground rupture is not considered to be a significant hazard at the Site.

Slope Stability

24. The Site is not considered to be an area with the potential for permanent ground displacement due to earthquake-induced landslides because surface topography at and near the site is relatively flat (Riverside County, 2008). A review of the Riverside County General Plan, Safety Element, did indicate areas considered susceptible to earthquake induced landslides and rockfalls in the Palen and McCoy Mountains; however, these areas are several miles from the Site and are not expected to impact the Project. Based on this information and engineering judgment, slope instability is not considered to be a significant hazard at the Site.

Erosion

25. Erosion is the displacement of solids (soil, mud, rock, and other particles) by wind, water, or ice and by downward or down-slope movement in response to gravity. Due to generally flat terrain, the Project site is not prone to significant mass wasting (gravity-driven erosion and non-fluvial sediment transport) at present. The Riverside County General Plan, Safety Element (Riverside County, 2008), indicates the Site is in an area with moderate potential for wind erosion, the off-site linears are in areas with moderate to high potential for wind erosion. Soil characteristics at the Project site allow for the potential for wind and water erosion, and significant sediment transport currently occurs across the valley axial drainage that crosses the majority of the proposed plant site. As indicated above, these valley axial deposits are characterized by subdued bar and swale topography and ongoing deposition from sheet floods. Limited sand and aeolian erosion also occurs between depositional episodes.

26. To address the management of sediment transport, erosion and sedimentation during operation, the project design will incorporate diversion berms, channels, detention basins and dispersion structures. The final design for these features will be developed during detailed design, and will include industry-standard calculations and modeling to reduce the potential for erosion or sedimentation, and to reduce the need for ongoing maintenance. Dirt roads and exposed surfaces will be periodically treated with dust palliatives as needed to reduce wind erosion. Construction and maintenance of the proposed drainage and sediment management system at the Site is expected to reduce water

and wind erosion at and downstream of the Site to less than significant levels.

Liquefaction

27. Liquefaction is a soil condition in which seismically induced ground motion causes an increase in soil water pressure in saturated, loose, uniformly-graded sands, resulting in loss of soil shear strength. As a result, the effects of liquefaction can include loss of bearing strength, differential settlement, ground oscillations, lateral spreading, and flow failures or slumping. Liquefaction occurs primarily in areas where the groundwater table is within approximately 50 feet of the surface (Riverside County, 2008). The Riverside County General Plan Safety Element (Riverside County, 2008) indicates that the majority of Chuckwalla Valley, including the soils beneath the Project site and associated Project off-site linears, is mapped as having deep groundwater but underlain by soils with an otherwise moderate susceptibility to liquefaction. The depth to water beneath the Site is estimated to range from approximately 61 to 94 feet bgs. In addition, the sandy soils encountered in the upper 100 feet beneath the Project site during geotechnical drilling are generally dense and well graded. Dense, well-graded sands are not generally considered susceptible to liquefaction. Based on this information and engineering judgment, the potential for liquefaction hazard at the Project site is considered to be low. The potential for liquefaction will be further evaluated as part of the Final Geotechnical Investigation for the Project, and if necessary, design parameters to address identified conditions will be incorporated into the detailed project design.

Differential Settlement

28. Seismically induced settlement can occur during moderate and large earthquakes in soft or loose, natural or fill soils that are located above the ground water table, resulting in differential settlement. The settlement can cause damage to surface and near-surface structures. The most susceptible soils are clean loose granular soils. Due to the expected dense to very dense nature of the near surface soils, the potential for damage due to seismically induced settlement is considered to be low at the Project site. The potential for seismically-induced settlement will be further evaluated as part of the Final Geotechnical Investigation for the Project, and if necessary, design parameters to address identified conditions will be incorporated into the detailed project design.

Collapsible Soil Conditions

29. Alluvial soils in arid and semi-arid environments can have characteristics that make them prone to collapse with increase in moisture content and without increase in external loads. Soils that are especially susceptible to collapse or hydrocompaction in a desert environment are loose dry sands and silts, and soils that contain a significant fraction of water soluble salts. In the Site vicinity, this would include aeolian sand, playa evaporite deposits, and potential loose flash flood deposits. Based on surface reconnaissance, review of geologic mapping, and review of aerial photographs, although there are aeolian deposits south of the Site near Ford Dry Lake, but no significant aeolian or playa deposits are located within the Site. There do not appear to be near surface evaporite deposits associated with Ford Dry Lake (Stone, 2006). The near surface soils at the Site are composed primarily of alluvial soils which appear to have been deposited in relatively thin sheet flood and fluvial deposits have a low potential for hydrocompaction. Based on this data and engineering judgment, the site soils do not have a significant potential for hydrocompaction or collapse. The potential for hydrocompaction and soil collapse will be further evaluated as part of the Final Geotechnical Investigation for the Project, and if necessary, design parameters to address identified conditions will be incorporated into the detailed project design.

Expansive Soil

30. Expansive soil is predominantly fine grained and contains clay minerals capable of absorbing water in their crystal structure. It is often found in areas that were historically a flood plain or lake area, but can also be associated with some types of shale, volcanic ash or other deposits, and can occur in hillside areas also. Expansive soil is subject to swelling and shrinkage, varying in proportion to the amount of moisture present in the soil. As water is initially introduced into the soil (by rainfall or watering) expansion takes place. If dried out, the soil will contract, often leaving small fissures or cracks. Excessive drying and wetting of the soil can progressively deteriorate structures that are not designed to resist this effect, and can lead to differential settlement under buildings and other improvements. The surficial soils at the site generally consist of predominantly granular soils that do not contain much clay and are not subject to significant expansion hazards. The potential for expansive soils will be further evaluated as part of the Final Geotechnical Investigation for the Project, and if necessary, design parameters to address identified conditions will be incorporated into the detailed project design.

31. Based on the above information, the cut and fill slope dimensions and earthwork requirements will be adequate to address the stability of the evaporation ponds and LTU for the life of the project and no further analysis is warranted.

Regional Hydrogeology

32. The site is located in the eastern half of the Chuckwalla Valley Groundwater Basin which encompasses approximately 605,000 acres. The basin generally trends east-southeast and is bounded by consolidated rocks of the Chuckwalla, Little Chuckwalla, and Mule Mountains on the south, of the Eagle Mountains on the west, and of the Mule and McCoy Mountains on the east. Groundwater flow is directed southward from the basin's boundary with the Cadiz Valley Basin and east-southeastward from its boundary with the Pinto Valley Basin, toward the eastern basin boundary where it flows into the adjacent Palo Verde Mesa Basin. Beneath the Site, groundwater occurs at depths ranging from approximately 70 to 90 feet bgs (approximately 298 to 315 feet msl).

33. There are three water-bearing sedimentary units overly non-water bearing bedrock in the Chuckwalla Valley Groundwater Basin; Quaternary Alluvium., Pliocene Bouse Formation and Miocene Fanglomerate (DWR, 2004; DWR, 1963). DWR reports the maximum thickness of these deposits as about 1,200 feet in the Chuckwalla Valley Basin (DWR 1979). Gravity studies performed by USGS near the narrows between the McCoy and Mule Mountains on the southeastern portion of the basin suggests the depth to non-water bearing bedrock ranges from approximately 6,500 feet bgs to 1,000 feet bgs (Wilson and Owens-Joyce 1994).

34. Groundwater quality varies markedly in the basin. The best groundwater quality is located in the western portion of the basin near Desert Center and the worst water quality is located in the southeastern portion of the basin near Ford Dry Lake (Steinemann, 1989). Groundwater to the south and west of Palen Lake is typically sodium chloride to sodium sulfate-chloride in character (DWR 2004). The detected concentrations of TDS in the basin range from 274 milligrams per liter (mg/L) to 8,150 mg/L with an average concentration of 2,100 mg/L (Steinemann 1989). Generally, the dissolved-solids concentrations increase moving further downgradient from Desert Center (to the southeast) and are highest in the central and eastern parts of the basin (Steinemann 1989). In general, the groundwater in the basin has concentrations of sulfate, chloride, fluoride, and dissolved solids too high for domestic use and concentrations of sodium, boron and dissolved solids too high for

irrigation use (DWR 1975). Several of the wells sampled in the basin contain high levels of fluoride and boron.

Site Specific Hydrogeology

35. Site-specific investigation indicates the water quality in the study area varies laterally and vertically. Generally, water quality improves vertically with depth and laterally to the south. Vertically, water quality is generally the worst in the alluvium followed by the Bouse Formation and finally by the Fanglomerate. Calculated TDS concentrations from borehole geophysical logging indicate TDS concentrations as high as 30,500 mg/L within finer grained units (silt and clay) in the alluvium decreasing to less than 5,000 mg/L TDS in more transmissive sediments in the Bouse Formation at depths of 800 to 900 feet bgs. Laterally, water quality is generally better south and southeast of the Site within all three water bearing units in the basin. The best water quality in the study area is generally in the vicinity of and south of I-10.

On-site Drainage

36. On-site storm water management for the completed facility will be provided through the use of source control techniques, site design and treatment control. The storm flows from the solar collector arrays will be treated through the use of swales, ditches and detention ponds. Minimum preliminary volumes required for the detention basins are 66 acre-feet for Unit 1, and 49 acre-feet for Unit 2. These volumes are based on the detention ponds receiving the 100 year, 24 hour event post-development runoff from the Project site, and then discharging the run-off at the pre-developed rate into the existing drainage system. The Riverside County Best Management Practice (BMP) Manual requires extended detention basins to release runoff over a 48 hour draw down period, and the outlet sized to retain the first half of the design volume for a minimum of 24 hours.

37. Locations within the power block for the potential of chemical or oil releases will be fully contained. Rainfall within the containment areas will be allowed to evaporate or will be drained through an oil water separator. Locations within the power block where “contact” storm water may occur will be contained within a system of curbs or trenches. Drains from these curbed areas or containment trenches will be directed to an oil water separator. The oil separated and captured within the oil water separator will be trucked off-site to a licensed disposal/recycling facility. Clean water discharged from the oil water separator will be used on Project site by discharging it to the cooling tower or to the raw water storage tank. The water discharge from the oil water separator will not be discharged to the storm water system.

Facility Operational Water

38. Water to supply the project will be derived from a minimum of two new groundwater supply wells located near each unit's power block area. The wells will pump groundwater from the Bouse Formation below a depth of 780 feet bgs. Two wells at each units power block will provide redundancy in the event of outages or maintenance.

39. The average total annual water usage for each 125 MW unit is estimated to be about 101 acre-feet per year (afpy), or 202 afpy for the Project, which corresponds to an average daily flow rate of about 1250 gallons per minute (gpm). Usage rates will vary during the year and will be higher in the summer months.

40. The TDS concentration of the proposed groundwater supply is 5000 mg/L. The groundwater is not considered a potential source for municipal or domestic water supply under Resolution 88-63 of the State Water Resources Control Board as the TDS exceeds 3000 mg/L.

Evaporation Ponds (Design and Installation Sequence)

41. The two 5-acre evaporation ponds (one per unit) have a proposed average design depth of 8 feet across each pond which incorporates:

    a. 3 feet of sludge buildup;

    b. 3 feet of operational depth; and

    c. 2 feet of freeboard.

42. The sub grade under the liner system will be scarified, moisture conditioned, compacted, and proof-rolled with a smooth drum roller to form a competent working surface. The subgrade beneath the Geosynthetic Clay Layer (GCL) needs to have an adequate moisture content to ensure effectiveness of the GCL layer. Therefore, additional moisture conditioning will be specified immediately prior to installation of the GCL layer. The purpose of this is to add additional moisture beneath the GCL to provide moisture for hydration of the GCL material.

43. The GCL liner will be installed in accordance with current practices and will employ the use of proper installation requirements, following manufacturer requirements for the GCL and proper QA/QC during installation to ensure proper continuity of the base layer.

44. The secondary liner or lower liner will consist of a 40 mil thick HDPE geomembrane liner. This liner will be installed in accordance with current practices and will employ the use of wedge welding and extrusion welding procedures. In addition, destructive and non-destructive testing procedures will be used to ensure liner quality and continuity.

45. A HDPE geonet drainage layer, with an option for non-woven geotextile heat bonded to one side or both sides, will be used in the leak detection and collection layer between the primary and secondary liners. HDPE geonet used in combination with geotextile materials has been selected because polyethylene is not reactive with the fluids and provides a highly conductive layer, it is readily available, and is easily installed with minimal potential for damage to the liner system during installation.

46. The base of the evaporation pond leak detection and collection layer will slope at a minimum inclination of 1% to a leak collection trench. The trench will contain screened coarse sand (with no fines) and a perforated pipe that will slope at a minimum inclination of ¾% towards a leak detection and collection sump, located at the lowest point in the pond. The water in the collection sump will drain by gravity to a monitoring well that is constructed for each evaporation pond (one well per pond). Automated pneumatic pumping systems in the monitoring wells will automatically return water collected in the sump to that evaporation pond, which in turn minimizes the hydraulic pressures across the secondary liners and therefore the risk of leakage through the secondary liner. Leakage rates will be measured using a flow totalizer.

47. The collection sump, pipe, and monitoring well, will include prefabricated and field-fabricated HDPE components with water tight, extrusion welded and wedge welded seams and penetrations. The liner system will be installed in accordance with current practices. Destructive and non-destructive testing procedures will be used to verify sump and penetration tightness and continuity.

48. This design is consistent with CCR, Title 27, Section 20340, which requires a Leachate Collection and Removal System (LCRS) between the liners for surface impoundments.

49. The upper or primary liner will consist of a 60 mil thick HDPE geomembrane liner. Consistent with installation of the secondary 40 mil HDPE liner, current installation, quality control monitoring, testing, and quality assurance measures and techniques will be employed to ensure liner quality and continuity. The primary liner will be protected by a non-woven geotextile that will be installed directly on top of the liner.

50. The moisture detection system below the liner system consists of continuous carrier pipes installed at the sides and low point of each pond (one carrier pipe per pond) at a depth of approximately 5 feet below the secondary liner. The carrier pipes will be terminated at the surface on each side of the pond and will be equipped with a pull cable system for conveyance of a neutron probe for moisture detection.

51. Prior to the placement of the hard surfacing, a 1 foot thick sub-base layer consisting of granular fill with a maximum particle size of ½" shall be placed and spread over the non-woven geotextile. The sub-based layer will be spread carefully and sequentially to avoid damage to the underlying liner system. After placement, the granular layer will be proof rolled using light compaction equipment.

52. A hard surface / protective layer will be constructed on the non-woven geotextile that covers the primary liner. The hard surface will allow for vehicular traffic during unscheduled or emergency maintenance or cleanout. Hard surface types to be considered and assessed include roller compacted concrete, or an approved equivalent (formed concrete, gunite, or other alternates, all of which must be submitted for approval).

53. An aggregate road base material will be placed along the top of each berm to provide an all weather access location for maintenance vehicles. The material will conform to the Department of Transportation Specifications for Class II Aggregate Base. This will be installed to a minimum thickness of 6 inches and will be placed and compacted in accordance with the Department of Transportation requirements.

Action Leakage Rate

54. The action leakage rate (ALR) is the allowable leakage from the primary liner system above which contingency actions are triggered. According to CFR Title 40, Section 264.222, the ALR is defined as "…the maximum design flow rate that the leak detection system can remove without the fluid head on the bottom liner exceeding 1 foot". The ALR must also include an adequate safety margin to allow for variability in the containment system design (e.g. liner and collection pipe slope, interstitial fill hydraulic conductivity, thickness of drainage material).

55. The estimated ALR for the evaporation ponds is 2,750 gallons per acre per day. This is based on one standard hole per acre, a drainage layer geonet with hydraulic conductivity of 0.06 m/s and a 50 percent safety factor. The assumption underlying this ALR calculation will be verified in the actual constructed ponds. Based on a 5 acre pond, each evaporation pond would have an estimated ALR of 1,375 gallons per day. However, the ALR will need to have field verification as this rate will

56. A large hole in the geomembrane may cause a rapid large leakage rate (RLLR) of approximately 9,500 gallons per acre per day. This would equate to a RLLR of 47,500 gallons per day per pond. The RLLR is provided herein for informational purposes only.

57. The recording flow totalizer at each sump will be monitored at least weekly to determine the leakage rate through the primary liner. If the leakage rate exceeds the ALR, then the appropriate actions in the Contingency Plan will be implemented.

Waste Classification

58. Wastewater from several processes within each 125MW Unit will be piped to one 5-acre evaporation pond for disposal. Therefore there is a total of 10 acres (top pond area) of evaporation ponds on the Project site. Discharge into the evaporation ponds is derived from three primary and one occasional source.

Wastewater Discharge

59. The combined estimated rate of wastewater discharge into the evaporation ponds is 19,000 gallons per day (gpd) for peak conditions and 12,000 gdp under annual average conditions. The peak flow rates occur in the summer months, between May and August, when solar energy production is at a peak.

Evaporation Residue

60. During the 30-year operating life of the Facility, it is estimated that up to 4.5 ft of sludge may accumulate in the bottoms of the evaporation ponds that consists of precipitated solids from the evaporated wastewater. For operational and safety purposes, the ponds will be cleaned when 3 feet of precipitated solids are accumulated in the base of the ponds, which is estimated to be every 20 years when using groundwater with a TDS of 5,000 mg/L. Approximately 8,000 tons of evaporative residues will be removed every twenty years or approximately 12,000 tons during the 30 year project life.

61. The predicted concentrations of chemical constituents in the evaporation residue in the ponds are less than the Total Threshold Limit Concentrations (TTLCs) for all reported parameters. The predicted concentrations of chemical constituents in the evaporation residue in the

ponds is also less than 10 times the Soluble Threshold Limit Concentrations (STLCs) for reported parameters; therefore, further analysis of the residue using the Waste Extraction Test (WET) would not be required and the waste may be classified as non-hazardous under CCR Title 22, Division 4.5. In addition, the total concentrations of chemical constituents in the evaporation residue in the ponds is less than the Toxicity Characteristic Leaching Procedure (TCLP) for all reported parameters; therefore, further analysis of the residue using the TCLP method would not be required and the waste may be considered a non-hazardous waste under federal regulations. Testing of this material will be conducted as part of the facility monitoring program to verify this characterization. The evaporation residue accumulated in the ponds is non hazardous; however, it does contain pollutants which could exceed water quality objectives if released, or that could be expected to affect the beneficial uses of waters of the state. Therefore, the evaporation residue is classified as a "designated waste." This classification is consistent with CCR Title 27, Chapter 3, Subchapter 2, Article 2, Section 20210.

Land Treatment Unit

62. The proposed design for the LTU has been selected to optimize performance based on the operating requirements. The location of the LTU is shown in Attachment B, as incorporated here in and made a part of these WDRs. The LTU will not incorporate a liner containment system or LCRS, but will be constructed with a prepared base consisting of 2 feet of compacted, low permeability, lime-treated material. This base will serve as a competent platform for land farming activities, and will serve to slow the rate of surface water infiltration in the treatment area. The compacted and native soil beneath the LTU is designated as a "treatment zone" to a depth of 5 feet. Although the LTU will be taking vehicle traffic, no hard surface will be required, as there is no liner system to protect. A staging area is allocated in the LTU for storage of HTF-impacted soils while they are being characterized. Soil characterized as hazardous will be removed from the site; therefore, no additional liner system is required in the LTU to cater for the hazardous waste.

63. The LTU will be surrounded on all sides by a 2-foot high compacted earthen berm with side slopes of approximately 3:1 (horizontal: vertical). These berms will control and prevent potential inflow (run-on) of surface storm water into the LTU or runoff of stormwater from the LTU.

64. The LTU will be used to treat HTF-affected soil at various concentrations. HTF (Therminol VP-1 or equivalent) is an oil that consists of a mixture of biphenyl and diphenyl oxide that is solid at temperatures below 54

degrees Fahrenheit, is relatively insoluble in water (solubility of approximately 25 milligrams per liter), combustible, and has relatively low volatility (Solutia, 2006). The components of HTF are reported to biodegrade relatively rapidly in the environment, have slight toxicity to tested terrestrial species, higher toxicity to tested aquatic species, and a potential to bio-accumulate (IPCS, 1999; JECFA, 2003; SOCMA Biphenyl Working Group, 2003).

65. Spills of HTF will be cleaned up within 48 hours and affected soil will be moved to a staging area in the LTU where it will be placed on plastic sheeting pending receipt of analytical results and characterization of the waste material. Samples of excavated HTF-affected soil will be collected in accordance with the Environmental Protection Agency's (EPA's) current version of the manual – "Test Methods for Evaluating Solid Waste" (SW-846) and the waste material characterized in accordance with State and Federal requirements.

66. If the soil is characterized as a hazardous waste, the impacted soils will be transported from the site by a licensed hazardous waste hauler for disposal at a licensed hazardous waste landfill. No HTF-impacted soils characterized as hazardous waste will be disposed or treated on site. Based on past experience, it is anticipated that soil containing 10,000 milligrams per kilogram (mg/kg) HTF or more will be managed as hazardous waste, and that soil containing less than 10,000 mg/kg HTF will be a non-hazardous waste and managed at the Project site. If the soil is characterized as a non-hazardous waste, it will be spread in the LTU for bioremediation treatment. In general, more highly contaminated soil will be covered with plastic sheeting to prevent contact with stormwater and to control potential odors and emissions, as well as for moisture and temperature retention. Once the soil has been treated to a concentration of less than 100 mg/kg HTF, it will be moved from the LTU to another portion of the site until it is reused at the facility as fill material.

67. Based on available operation data from other sites, it is anticipated that approximately 750 cubic yards (on average) of HTF-affected soil may be treated per year. Larger or smaller quantities could be generated during some years, depending on the frequency and size of leaks and spills.

68. A spill prevention, control and countermeasure (SPCC) plan will be undertaken for this site. The SPCC will include:

    a. Secondary containment around the tanks storing HTF, capable of containing the 110% of the storage tank capacity and/or sufficient freeboard to contain precipitation from a 25-year, 24-hour storm event.

b. It is not practicable to provide secondary containment around HTF product piping, therefore will have daily inspections of all infrastructure containing HTF.

c. If leaks are identified, the affected area will be isolated and spills cleaned up within 48 hours.

Heat Transfer Fluid Treatment Process

69. Treatment of HTF-impacted soil in the LTU will involve moisture conditioning and addition of nitrogen and phosphorous nutrients (i.e., fertilizers) as needed to stimulate consumption of HTF by the indigenous bacteria. The HTF-impacted soil will be moisture conditioned and turned periodically as needed to enhance aeration, promote breakdown of HTF by the indigenous bacteria and/or to control dust emissions. Permanent or portable irrigation sprinklers will supply water to the area for dust control and to assist in treatment.

70. Treatment piles may be covered by plastic sheeting as needed to enhance temperature and moisture retention characteristics, and as needed to control storm water contact, odors and dust emissions.

71. Representative soil samples will be collected for every batch of HTF contaminated soil undergoing treatment in the LTU and composited according to methods specified in EPA SW-846. It is expected that treatment times will vary between one to four months, depending on initial concentrations, and the ambient air and soil temperature.

Hazardous Waste

72. There will be a variety of chemicals stored and used during construction and operation of the project. The storage, handling, and use of all chemicals will be conducted in accordance with applicable laws, ordinances, regulations, and standards.

73. Hazardous materials will be stored in proper containers in material yards and designated construction areas. Cleanup materials (spill kits) will also be stored in these areas. Fuel, oil, and hydraulic fluids used in on-site vehicles will be transferred directly from a service truck to construction equipment and will not otherwise be stored on site.

74. Designated, trained service personnel will perform fueling either prior to the start of the workday or at completion of the workday. Service personnel and construction contractors will follow SOPs for filling and servicing construction equipment and vehicles.

75. Any HTF impacted soil classified as hazardous will be removed from the LTU staging area after the initial characterization. The evaporation ponds will not contain hazardous wastewater or sludge as it is illegal to discharge hazardous waste into surface impoundments under the Toxic Pits Cleanup Act of 1984.

Basin Plan

76. The Water Quality Control Plan for the Colorado River Basin Region of California (Basin Plan) was adopted on November 17, 1993, and designates the beneficial uses of ground and surface water in this Region.

77. The beneficial uses of ground water in the Imperial Hydrological Unit are:

    a. Municipal Supply (MUN)
    b. Industrial Supply (IND)

78. The beneficial uses of nearby surface waters are as follows:

    a. Ford Dry Lake:
        i. Wildlife Habitat (WILD)
        ii. Preservation of Rare, Threatened, or Endangered Species (RARE)

    b. Palen Dry Lake
        i. Wildlife Habitat (WILD)
        ii. Preservation of Rare, Threatened, or Endangered Species (RARE)

Monitoring Parameters

79. Based on the chemical characteristics of the projected discharges to the evaporation ponds from wastewater, the following list of monitoring parameters are required. These specific parameters are selected because they provide the best distinction between the wastewater and the groundwater in the Project area that can be used to differentiate a potential release that could change the chemical composition of the groundwater.

    a. Cations: Antimony, Arsenic, Barium, Cadmium, Calcium, Total Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Zinc;

    b. Anions: Chloride and Sulfate; and

    c. Other: HTF, Total Dissolved Solids, Specific Conductivity, and pH.

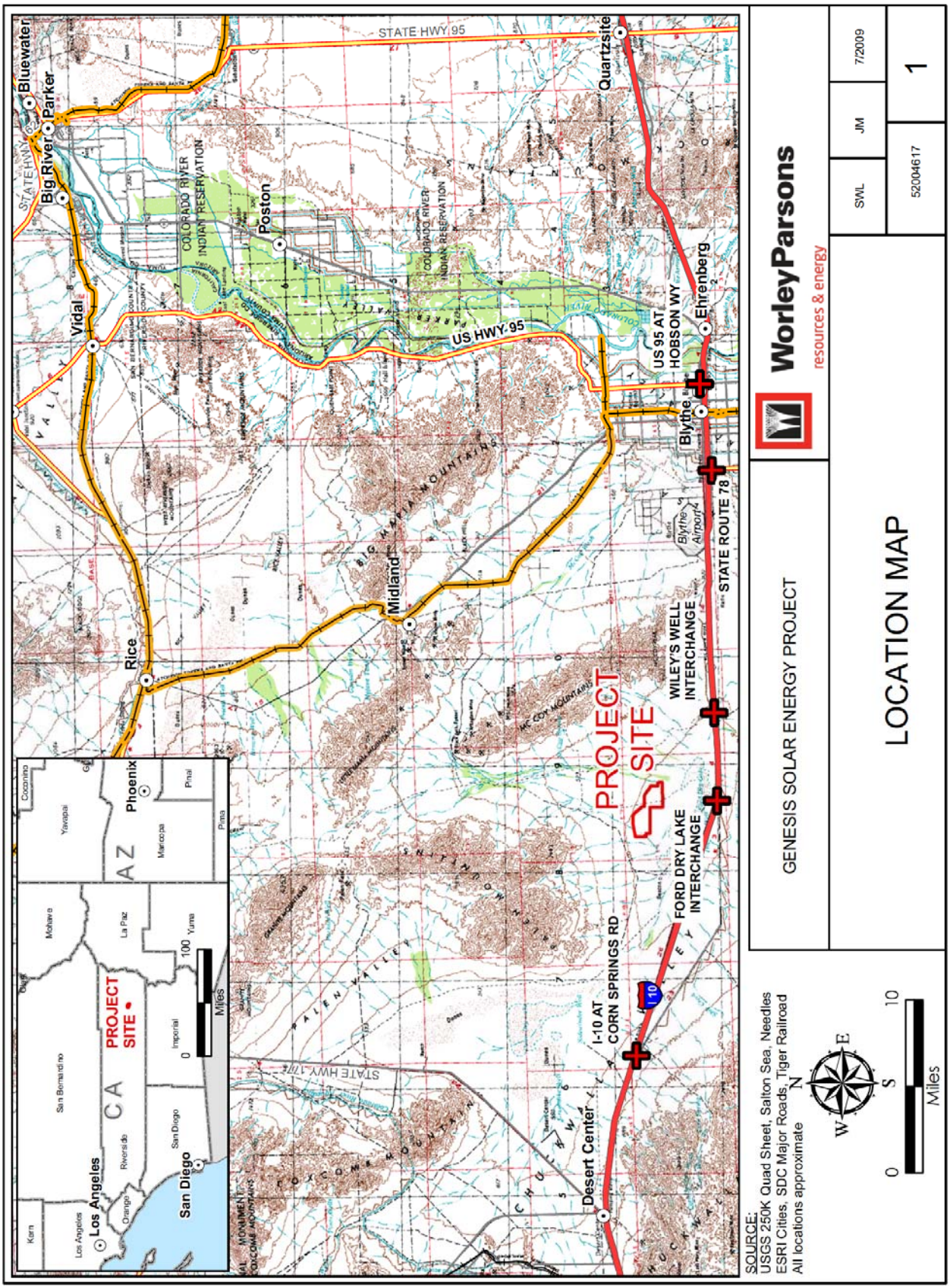
California Environmental Quality Act (CEQA)

80. The California Energy Commission (CEC) is the lead agency under the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) for all thermal power plants with power ratings of 50 MW or more. The CEC's power plant licensing process is a CEQA-equivalent process. The CEC will coordinate reviews and approvals with the regulatory agencies to ensure that the proposed project meets CEQA requirements. This includes obtaining these WDRs from the staff of the Regional Board. The CEC will certify this project and will include these WDRs as conditions of certification in accordance with the Warren-Alquist Act.[44]

Monitoring and Reporting Program

81. The monitoring and reporting requirements in the Monitoring and Reporting Program (Appendix D), and the requirement to install groundwater monitoring wells, are necessary to determine compliance with these WDRs, and to determine the Facility's impacts, if any, on receiving water.

[44] The Warren-Alquist State Energy Resources Conservation and Development Act is the authorizing legislation for the California Energy Commission. The Act is codified at Public Resources Code (PRC) Section 25000 et seq.. PRC Section 25500 establishes the Commission's authority to certify all sites and related facilities for thermal power plants with power ratings of 50 megawatts or more. The section further declares that "the issuance of a certificate by the commission shall be in lieu of any permit, certificate, or similar document required by any state, local or regional agency, or federal agency to the extent permitted by federal law, for such use of the site and related facilities, and shall supersede any applicable statute, ordinance, or regulation of any state, local, or regional agency, or federal agency to the extent permitted by federal law."


GENESIS SOLAR ENERGY PROJECT
LOCATION MAP
WorleyParsons
resources & energy
SWL
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5200461 7
1
SOURCE:
USGS 250K Quad Sheet, Salton Sea, Needles
ESRI Cities, SDC Major Roads, Tiger Railroad
All locations approximate
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10
Miles
N
E
S
W
PROJECT SITE
I-10 AT CORN SPRINGS RD
FORD DRY LAKE INTERCHANGE
WILEY'S WELL INTERCHANGE
US 95 AT HOBSON WY
STATE ROUTE 78
US HWY 95
STATE HWY 95
STATE HWY 177
Desert Center
Rice
Midland
Vidal
Poston
Big River
Parker
Bluewater
Blythe
Ehrenberg
Quartzsite
Blythe Airport
COLORADO RIVER INDIAN RESERVATION
BIG MARIA MOUNTAINS
MC COY MOUNTAINS
PALEN VALLEY
CHUCKWALLA
Los Angeles
San Diego
Phoenix
PROJECT SITE
CA
AZ
Coconino
Yavapai
Maricopa
Pinal
Pima
Mohave
La Paz
Yuma
Imperial
San Bernardino
Riverside
San Diego
Orange
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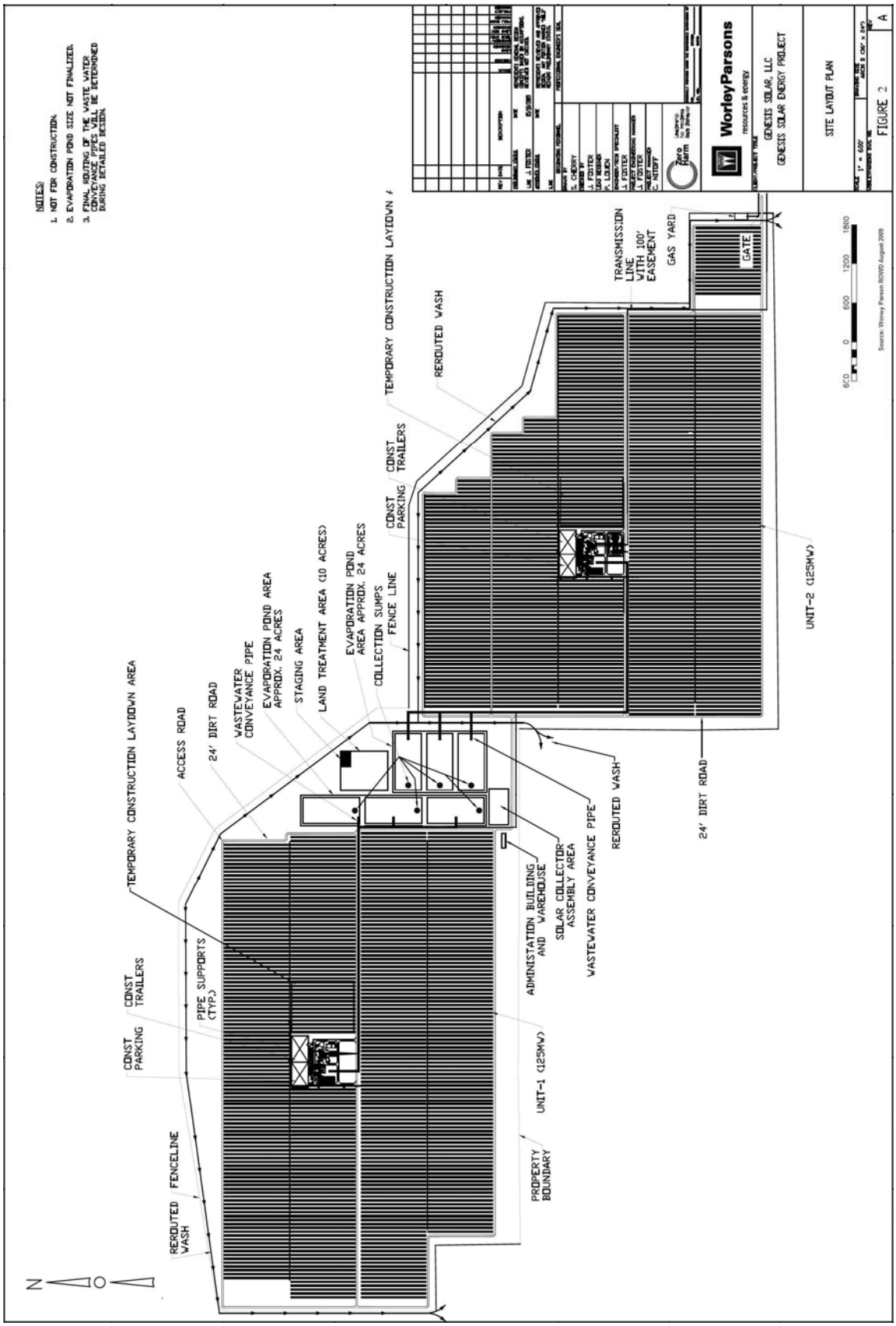
NOTES:
1. NOT FOR CONSTRUCTION.
2. EVAPORATION POND SIZE NOT FINALIZED.
3. FINAL ROUTING OF THE WASTE WATER CONVEYANCE PIPES WILL BE DETERMINED DURING DETAILED DESIGN.
WorleyParsons
resources & energy
GENESIS SOLAR, LLC
GENESIS SOLAR ENERGY PROJECT
SITE LAYOUT PLAN
FIGURE 2
TEMPORARY CONSTRUCTION LAYDOWN AREA
ACCESS ROAD
24' DIRT ROAD
WASTEWATER CONVEYANCE PIPE
EVAPORATION POND AREA APPROX. 24 ACRES
STAGING AREA
LAND TREATMENT AREA (10 ACRES)
EVAPORATION POND AREA APPROX. 24 ACRES
COLLECTION SUMPS
FENCE LINE
CONST PARKING
CONST TRAILERS
TEMPORARY CONSTRUCTION LAYDOWN
REROUTED WASH
TRANSMISSION LINE WITH 100' EASEMENT
GAS YARD
GATE
UNIT-2 (125MW)
REROUTED WASH
24' DIRT ROAD
WASTEWATER CONVEYANCE PIPE
SOLAR COLLECTOR ASSEMBLY AREA
ADMINISTATION BUILDING AND WAREHOUSE
UNIT-1 (125MW)
PROPERTY BOUNDARY
PIPE SUPPORTS (TYP.)
CONST TRAILERS
CONST PARKING
FENCELINE
REROUTED WASH
N
Source: Worley Parson ROWD August 2009

SOIL AND WATER
APPENDIX C
Waste Discharge Requirement
Requirements for Waste Discharge

SOIL AND WATER RESOURCES – APPENDIX C
REQUIREMENTS FOR WASTE DISCHARGE—Genesis Solar LLC, Owner/Operator, Genesis Solar Energy Project, Riverside County

A. Discharge Specifications

1. The treatment or disposal of wastes at this Facility shall not cause pollution or nuisance as defined in Sections 13050 of Division 7 of the California Water Code (CWC).

2. The Discharger will maintain the monitoring wells in good working order at all times. Well maintenance may include periodic well re-development to remove sediments.

3. Thirty days prior to introduction of a new waste stream into the evaporation ponds, the Discharger must receive approval from the Regional Board's Executive Officer.

4. Waste material shall be confined or discharged to the evaporation ponds.

5. Prior to drilling a new well or abandoning a well at the Facility, the Discharger shall notify, in writing, the Regional Board's Executive Officer of the proposed change.

6. Containment of waste shall be limited to the areas designated for such activities. Any revision or modification of the designated waste containment area, or any proposed change in operation at the Facility that changes the nature and constituents of the waste produced must be submitted in writing to the Regional Board's Executive Officer for review and approval before the proposed change in operations or modification of the designated area is implemented.

7. Any substantial increase or change in the annual average volume of material to be discharged under this order at the Facility must be submitted in writing to theRegional Board's Executive Officer for review and approval.

8. If any portions of the evaporation ponds are to be closed, the Discharger shall notify the Regional Board's Executive Officer at least 180 days prior to beginning any partial or final closure activities.

9. Fluids and/or materials discharged to and/or contained in the evaporation pondsshall not overflow the ponds.

10. Prior to the use of new chemicals for the purposes of adjustment or control of microbes, pH, scale, and corrosion of the cooling tower water and wastewater,

the Discharger shall notify the Regional Board's Executive Officer in writing.

11. For the liquids in the evaporation ponds, a minimum freeboard of two (2) feet shall be maintained at all times.

12. Final disposal of residual waste from cleanup of the evaporation ponds shall beaccomplished to the satisfaction of the Regional Board's Executive Officer upon abandonment or closure of operations.

13. The evaporation ponds shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods having a predicted frequency of once in 100 years.

14. Prior to removal of solid material that has accumulated in the concrete coolingtower basins, an analysis of the material must be conducted and the materialmust be disposed of in a manner consistent with that analysis and applicablelaws and regulations.

15. Conveyance systems throughout the Facility area shall be cleaned out at leastevery 90 days to prevent the buildup of solids or when activity at the site creates the potential for release of solid materials from the conveyance systems.

16. Pipe maintenance and de-scaling activities that include hydroblasting and/or sandblasting shall be performed within a designated area that minimizes the potential for release to the environment. Waste generated as a result of these activities shall be disposed of in accordance with applicable laws and regulations. Water from the hydroblasting process shall be conveyed to the evaporation ponds.

17. Public contact with wastewater shall be precluded through such means as fences, signs, or other acceptable alternatives.

18. The evaporations ponds shall be managed and maintained to ensure their effectiveness, in particular,

19. Implementation of erosion control measures shall assure that small coves andirregularities are not created.

20. The liner beneath the evaporation ponds shall be appropriately maintained to ensure its proper functioning.

21. Solid material shall be removed from the evaporation ponds in a manner that minimizes the likelihood of damage to the liner.

22. Ninety days prior to the cessation of discharge operations at the Facility, the

Discharger shall submit a work plan, subject to approval of the Regional Board's Executive Officer, for assessing the extent, if any, of contamination of natural geological materials and waters of the Ford Hydrological Unit by the waste. One hundred twenty days following work plan approval, the Discharger shall submit a technical report presenting results of the contamination assessment. A California Registered Civil Engineer or Certified Engineering Geologist must prepare the workplan, contamination assessment, and engineering report.

23. Upon ceasing operation at the Facility, all waste, all natural geologic material contaminated by waste, and all surplus or unprocessed material shall be removed from the site and disposed of in accordance with applicable laws and
regulations.

24. The Discharger shall establish an irrevocable bond for closure in an amount acceptable to the Regional Board's Executive Officer or provide other means to ensure financial security for closure if closure is needed at the discharging site. The closure fund shall be established (or evidence of an existing closure fund shall be provided) within six (6) months of the adoption of this Order.

25. Surface drainage from tributary areas or subsurface sources, shall not contactor percolate through the waste discharged at this site.

26. The Discharger shall implement the attached Monitoring and Reporting Program, Appendix D, and revisions thereto, in order to detect, at the earliest opportunity, any unauthorized discharge of waste constituents from the Facility, or any impairment of beneficial uses associated with (caused by) discharges of waste to the brine pond.

27. The Discharger shall use the constituents listed in the attached Monitoring and Reporting Program, Appendix D, and revisions thereto, as "Monitoring Parameters".

28. The Discharger shall follow the Water Quality Protection Standard (WQPS) fordetection monitoring established by the Regional Board. The following are parts of WQPS as established by the Regional Board's Executive Officer:

    a. The Discharger shall test for the monitoring parameters and the Constituents of Concern (COCs) listed in the Monitoring and Reporting R7-2010-0xxx and revisions thereto.

    b. Concentration Limits – The concentration limit for each monitoring parameter and constituents of concern for each monitoring point (as stated in the Detection Monitoring Program), shall be its background valued as obtained during that reporting period.

29. All current, revised, and/or proposed monitoring points must be approved by the Region Board's Executive Officer.

30. Water used for the process and site maintenance shall be limited to the amountnecessary in the process, for dust control, and for Facility cleanup and maintenance.

31. The Discharger shall not cause or permit the release of pollutants, or waste constituents, in a manner which could cause or contribute to a condition of contamination, nuisance, or pollution to occur.

32. The Discharger must develop and implement a Hazardous Materials BusinessPlan (HMBP), which will include, at a minimum, procedures for:

    a. Hazardous materials handling, use, and storage;
    b. Emergency response;
    c. Spill control and prevention;
    d. Employee training; and
    e. Reporting and record keeping.

33. Hazardous materials expected to be used during construction include: unleadedgasoline, diesel fuel, oil, lubricants (i.e., motor oil, transmission fluid, andhydraulic fluid), solvents, adhesives, and paint materials. There are no feasiblealternatives to these materials for construction or operation of constructionvehicles and equipment, or for painting and caulking buildings and equipment.

34. The construction contractor will be responsible for assuring that the use, storage and handling of these materials will comply with applicable federal, state, and local laws, ordinances, regulations and standards (LORS), including licensing, personnel training, accumulation limits, reporting requirements, and recordkeeping.

35. During Facility operations, chemicals will be stored in chemical storage areas appropriately designed for their individual characteristics. Bulk chemicals will be stored outdoors on impervious surfaces in aboveground storage tanks with secondary containment. Secondary containment areas for bulk storage tanks will not have drains. Any chemical spills in these areas will be removed with portable equipment and reused or disposed of properly. Other chemicals will be stored and used in their delivery containers.

36. A portable storage trailer may be on site for storage of maintenance lube oils, chemicals, paints, and other construction materials, as needed. All drains and vent piping for volatile chemicals will be trapped and isolated from other drains to eliminate noxious vapors. The storage, containment, handling, and

use of these chemicals will be managed in accordance with applicable laws,ordinances, regulations, and standards.

37. Small quantities of hazardous wastes will be generated over the course of construction. These may include paint, spent solvents, and spent welding materials. Some hazardous wastes will be recycled, including used oils from equipment maintenance, and oil-contaminated materials such as spent oil filters, rags, or other cleanup materials. Used oil must be recycled, and oil or heavy metal contaminated materials (e.g., filters) requiring disposal must be disposed of in a Class I waste disposal facility. Scale from pipe and equipment cleaning operations, and solids from the evaporation pond, will be disposed of in a similar manner.

38. All hazardous wastes generated during facility construction and operation must be handled and disposed of in accordance with applicable laws, ordinances, regulations, and standards. Any hazardous wastes generated during construction must be collected in hazardous waste accumulation containers near the point of generation and moved daily to the contractor's 90-day hazardous waste storage area located on site. The accumulated waste must subsequently be delivered to an authorized waste management facility. Hazardous wastes must be either recycled or managed and disposed of properly in a licensed Class I waste disposal facility authorized to accept the waste.

39. The Discharger shall monitor the evaporation ponds in conformance with applicable CCR Title 27 requirements for Class II surface impoundment waste management units.

40. The leachate collection and removal system must be used to provide preliminary detection monitoring of leaks through the top liner of the double lined evaporation ponds. Physical evidence of leachate beneath the upper concrete liner shall be interpreted as a warning that containment of the evaporation pond contents may be compromised.

41. Groundwater monitoring wells must be constructed adjacent to and both up gradient and down gradient of the evaporation ponds to provide background and detection monitoring for any potential release from the evaporation ponds containment. The Point of Compliance to be used for the detection monitoring must be the uppermost shallow groundwater beneath the evaporation pond. The groundwater monitoring wells must be constructed in conformance with Title 27 CCR Section 20415 requirements. The monitoring wells must be designed to meet the background and detection monitoring requirements in conformance with Title 27 CCR Section 20415(b)(1)(B) as applicable, including:

    a. Providing a sufficient number of monitoring points to yield ground water

samples from the uppermost aquifer that represent the quality of ground water passing the Point of Compliance and to allow for the detection of a release from the evaporation ponds;

b. Providing a sufficient number of monitoring points installed at locations and depths to yield ground water samples from the upper most aquifer to provide the best assurance of the earliest possible detection of a release from the evaporation ponds;

c. Providing a sufficient number of monitoring points and background monitoring points installed at appropriate locations and depths to yield ground water samples from zones of perched water to provide the best assurance of the earliest possible detection of a release from the evaporation ponds; and

d. Selecting monitoring point locations and depths that include the zone(s) of highest hydraulic conductivity in the ground water body monitored.

42. The detection monitoring wells shall be constructed to meet the well performance standards set forth in Title 27 CCR Section 20415(b)(4), as applicable, including:

43. All monitoring wells shall be cased and constructed in a manner that maintains the integrity of the monitoring well bore hole and prevents the bore hole from acting as a conduit for contaminant transport.

44. The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative ground water samples.

45. For each monitoring well, the annular space (i.e., the space between the bore hole and well casing) above and below the sampling interval shall be appropriately sealed to prevent entry of contaminants from the ground surface, entry of contaminants from the unsaturated zone, cross contamination between portions of the zone of saturation, and contamination of samples.

46. All monitoring wells shall be adequately developed to enable collection of representative ground water samples.

47. The monitoring program must also meet the general requirements set forth in Title 27 CCR Section 20415(e), which require that all monitoring systems be designed and certified by a registered geologist or a registered civil engineer. The applicable general requirements set forth for boring logs, quality assurance/quality control, sampling and analytical methods used, background

sampling, data analysis, and other reporting as applicable will be implemented.

48. Baseline samples of the groundwater must be collected from each of the monitoring wells and analyzed prior to discharging wastewater to the evaporation ponds. The groundwater must be initially sampled for each of the proposed monitoring parameters listed in the attached Monitoring and Reporting Program, Appendix D, and any additional Constituents of Concern (COC) identified by the Regional Board.

B. Prohibitions

1. The discharge or deposit of solid waste to the evaporation ponds as a final form of disposal is prohibited, unless authorized by the Regional Board's Executive Officer.

2. The Discharger is prohibited from discharging, treating or composting at this site the following wastes:

   a. Municipal solid waste;
   b. Sludge (including sewage sludge, water treatment sludge, and industrial sludge);
   c. Septage;
   d. Liquid waste, unless specifically allowed by these WDRs or approved by the Regional Board's Executive Officer;
   e. Oily and greasy liquid waste; unless specifically allowed by these WDRs or approved by the Regional Board's Executive Officer;
   f. Hot, burning waste materials or ash.

3. The Discharger shall not cause degradation of any groundwater aquifer or water supply.

4. The discharge of waste to land not owned or controlled by the Discharger is prohibited.

5. Use of wastewater or cooling tower liquids on access roads, well pads, or other developed project locations for dust control is prohibited.

6. The discharge of hazardous or designated wastes to other than a waste management unit authorized to receive such waste is prohibited.

7. Any hazardous waste generated or stored at the facility will be contained and disposed in a manner that complies with federal and state regulations.

8. Wastewater or any fluids in the evaporation ponds shall not enter any canal, drainage, or drains (including subsurface drainage systems) which could provide flow to the Waters of the State.

9. The Discharger shall appropriately dispose of any materials, including fluids and sediments removed from the evaporation ponds.

10. The Discharger shall neither cause nor contribute to the contamination or pollution of ground water via the release of waste constituents in either liquid or gaseous phase.

11. Direct or indirect discharge of any waste to any surface water or surface drainage courses is prohibited.

12. The Discharger shall not cause the concentration of any Constituent of Concern or Monitoring Parameter to exceed its respective background value in any monitored medium at any Monitoring Point assigned for Detection Monitoring pursuant to the attached Monitoring and Reporting, Appendix D, and future revisions thereto.

C. Provisions

1. The Discharger shall comply with the attached Monitoring and Reporting Program, Appendix D, and future revisions thereto, as specified by the Regional Board's Executive Officer.

2. Unless otherwise approved by Regional Board's Executive Officer, all analyses shall be conducted at a laboratory certified for such analyses by the California Department of Public Health. All analyses shall be conducted in accordance with the latest edition of "Guideline Establishing Test Procedures for Analysis of Pollutants", promulgated by the United States Environmental Protection Agency.

3. The laboratory shall use detection limits less than or equal to Environmental Protection Agency (EPA) Action Level/Maximum Contaminate Levels (MCLs) or California Department of Public Health (CDPH) Notification Level/MCL for all samples analyzed. The lowest concentration, whether EPA or CDPH, of the two agencies must be used for the analysis.

4. Prior to any change in ownership of this operation, the Discharger shall transmit a copy of the Board Order to the succeeding owner/operator, and forward a copy of the transmittal letter to the Regional Board.

5. Prior to any modification in this facility that would result in material change in the quality or quantity of discharge, or any material change in the location of discharge, the Discharger shall report all pertinent information in writing to the Regional Board's Executive Officer and obtain revised waste discharge requirements before any modification is implemented.

6. All permanent containment structures and erosion and drainage control systems shall be certified by a California Registered Civil Engineer or Certified Engineering Geologist as meeting the prescriptive standards and performance goals.

7. The Discharger shall ensure that all site-operating personnel are familiar with the content of these WDRs, and shall maintain a copy of these WDRs at the site.

8. These WDRs do not authorize violation of any federal, state, or local laws or regulations.

9. The Discharger shall allow the Regional Board, or an authorized representative, upon presentation of credential and other documents as may be required by law, to:

   a. Enter upon the premises regulated by these WDRs, or the place where records must be kept under the conditions of these WDRs;

   b. Have access to and copy, at reasonable times, any records that shall be kept under the condition of these WDRs;

   c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under these WDRs; and

   d. Sample or monitor at reasonable times, for the purpose of assuring compliance with these WDRs or as otherwise authorized by the CWC or California Code of Regulations, any substances or parameters at this location.

10. The Discharger shall comply with all of the conditions of these WDRs. Any noncompliance with these WDRs constitutes a violation of the Porter-Cologne Water Quality Act and may be grounds for enforcement action.

11. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with these WDRs. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures.

12. These WDRs do not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

13. The Discharger shall comply with the following:

    a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

    b. The Discharger shall retain records of all monitoring information, copies of all reports required by these WDRs, and records of all data used to complete the application for these WDRs, for a period of at least five (5) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Board's Executive Officer at any time.

    c. Records of monitoring information shall include:

        i. The date, exact places, and time of sampling or measurements.
        ii. The individual(s) who performed the sampling or measurements.
        iii. The date(s) analyses were performed.
        iv. The individual(s) responsible for reviewing the analyses.
        v. The results of such analyses.

    d. Monitoring must be conducted according to test procedures described in the attached Monitoring and Reporting Program, Appendix D, unless other test procedures have been specified in these WDRs or approved by the Regional Board's Executive Officer.

14. All monitoring systems shall be readily accessible for sampling and inspection.

15. The Discharger is the responsible party for the WDRs, and the monitoring and reporting program for the Facility. The Discharger shall comply with all conditions of these WDRs. Violations may result in enforcement actions, requiring corrective action or imposing civil monetary liability.

16. The Discharger shall furnish, under penalty of perjury, technical monitoring program reports, and such reports shall be submitted in accordance with the specifications prepared by the Regional Board's Executive Officer. Such specifications are subject to periodic revisions as may be warranted.

17. The Discharger may be required to submit technical reports as directed by the Regional Board's Executive Officer.

18. The procedure for preparing samples for the analyses shall be consistent with the attached Monitoring and Reporting Program, Appendix D, and any future revisions thereto. The Monitoring Reports shall be certified to be true and correct, and signed, under penalty of perjury, by an authorized official of

the company. All technical reports require the signature of a California Registered Professional Engineer or Professional Geologist.

19. All monitoring shall be done as described in Title 27 of the CCRs.

SOIL AND WATER
APPENDIX D
Waste Discharge Requirement
Monitoring and Reporting Program

SOIL AND WATER RESOURCES – APPENDIX D
MONITORING AND REPORTING PROGRAM--Genesis Solar LLC, Owner/Operator, Genesis Solar Power Project, Riverside County

PART I
GENERAL REQUIREMENTS

A. GENERAL

A Discharger who owns or operates a Class II Surface Impoundment is required to comply with the provisions of Title 27, Division 2, Chapter 3, Subchapter 3, Article 1 of the California Code of Regulations for the purpose of detecting, characterizing, and responding to releases to the groundwater. Section 13267, California Water Code (CWC) gives the Colorado River Basin Regional Water Quality Control Board (Regional Board) authority to require monitoring program reports for discharges that could affect the quality of waters within its region.

1. This Monitoring and Reporting Program (MRP) is Appendix D of the WDRs set forth in Appendices A and B, and are incorporated herein by this reference...The principal purpose of this self-monitoring program is:

   a. To document compliance with Waste Discharge Requirements (WDRs), and prohibitions established by the Regional Board;
   b. To facilitate self-policing by the Discharger in the prevention and abatement of pollution arising from waste discharge;
   c. To conduct water quality analyses.

2. The Regional Board Executive Officer may alter the monitoring parameters, monitoring locations, and/or the monitoring frequency during the course of this monitoring program.

B. DEFINITION OF TERMS

1. Affected Persons – all persons who either own or occupy land outside the boundaries of the parcel upon which a waste management unit (surface impoundment or impoundment) is located that has been or may be affected by the release of waste constituents from the unit.

2. Background Monitoring Point – a device (e.g. well) or location (e.g. a specific point along a lakeshore) that is upgradient or side gradient from the impoundment assigned by this MRP, where water quality samples are taken that are not affected by a release from the impoundment and that are used as a basis of comparison against samples taken from downgradient Monitoring Points.

3. Constituents of Concern (COCs) – those constituents likely to be in the waste, or derived from waste constituents in the event of a release from the impoundment.

4. Matrix Effect – refers to any change in the Method Detection Limit (MDL) or Practical Quantitation Limit (PQL) for a given constituent as a result of the presence of other constituents - either of natural origin or introduced through a spill or release - that are present in the sample being analyzed.

5. Method Detection Limit (MDL) – the lowest constituent concentration that can support a non-zero analytical result with 99 percent reliability. The MDL is laboratory specific and should reflect the detection capabilities of specific procedures and equipment used by the laboratory.

6. Monitored Media – water - bearing media monitored pursuant to this Monitoring and Reporting Program. The Monitored Media may include: (1) groundwater in the uppermost aquifer, in any other portion of the zone of saturation (as defined in Title 27, Section 20164) in which it would be reasonable to anticipate that waste constituents migrating from the surface impoundment could be detected, and in any perched zones underlying the impoundment, (2) any bodies of surface water that could be measurably affected by a release, (3) soil-pore liquid beneath and/or adjacent to the surface impoundment, and (4) soil-pore gas beneath and/or adjacent to the surface impoundment.

7. Monitoring Parameters – the list of constituents and parameters used for the majority of monitoring activity.

8. Monitoring Point – a device (e.g. well) or location (e.g. a specific point along a lakeshore) that is downgradient from the surface impoundment assigned by this MRP, at which samples are collected for the purpose of detecting a release by comparison with samples collected at Background Monitoring Points.

9. Practical Quantification Limit (PQL) – the lowest constituent concentration at which a numerical concentration can be assigned with a 99 percent certainty that its value is within 10 percent of the actual concentration in the sample. The PQL is laboratory specific and should reflect the detection capabilities of specific procedures and equipment used by the laboratory.

10. Reporting Period – the duration separating the submittal of a given type of monitoring report from the time the next iteration of that report is scheduled for submittal. Unless otherwise stated, the due date for any given report shall be 30 days after the end of its Reporting Period.

11. Sample Locations –

    a. For Monitoring Points – the number of data points obtained from a given Monitoring Point during a given Reporting Period – used for carrying out the statistical or nonstatistical analysis of a given analyte during a given Reporting Period.

    b. For Background Monitoring Points – the number of new and existing data points from all applicable Background Monitoring Points in a given Monitored Medium – used to collectively represent the background concentration and variability of a given analyte in carrying out a statistical or non-statistical analysis of that analyte during a given Reporting Period.

12. Uppermost Aquifer – the geologic formation nearest the natural ground surface that is an aquifer, as well as, lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.

13. Volatile Organic Constituents (VOCs) – the suite of organic constituents having a high vapor pressure. The term includes at least the 47 organic constituents listed in Appendix I to 40 CFR Part 258.

14. VOC – the composite monitoring parameter that includes all VOCs that are detectable in less than 10 percent of the applicable background samples. This parameter is analyzed, using the non-statistical method described in Part III.A.2. of this MRP, to identify releases of VOCs that are detected too infrequently in backgroundwater to allow for statistical analysis.

C. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analysis shall be performed according to the most recent version of Standard USEPA methods, and California ELPA rulings. Water and waste analysis shall be performed by a laboratory approved for these analyses by the California Department of Public Health. Specific methods of analysis must be identified. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and approval by the Regional Board Executive Officer prior to use. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurement. In addition, the Discharger is responsible for verifying that laboratory analysis of all samples from Monitoring Points and Background Monitoring Points meet the following restrictions:

1. Methods, analysis, and detection limits used must be appropriate for expected concentrations. For detection monitoring of any constituent or parameter found in concentrations that produce more than 90% non-numerical determinations (i.e. "trace" or "ND") in data from Background Monitoring Points for that medium, the analytical methods having the lowest "facility-specific method detection limit (MDL)", defined in Part I.B.5., shall be selected from among those methods that provide valid results in light of any "Matrix Effects" (defined in Part I.B.4.) involved.

2. Analytical results falling between the MDL and the PQL shall be reported as “trace”, and shall be accompanied both by the estimated MDL and PQL values for that analytical run, and by an estimate of the constituent's concentration.

3. MDLs and PQLs shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific equipment used by the lab. If the lab suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with an estimate of the detection limit and quantitation limit actually achieved.

4. All Quality Assurance/Quality Control (QA/QC) data shall be reported, along with the sample results to which it applies, including the method, equipment, and analytical detection limits, the recovery rates, an explanation of any recovery rate that is less than

80%, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recovery.

5. Upon receiving written approval from the Regional Board Executive Officer, an alternative statistical or non-statistical procedure can be used for determining the significance of analytical results for a constituent that is a common laboratory contaminant (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) during any given Reporting Period in which QA/QC samples show evidence of laboratory contamination for that constituent. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Regional Board staff.

6. In cases where contaminants are detected in QA/QC samples (i.e. field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.

7. The MDL shall always be calculated such that it represents a concentration associated with a 99% reliability of a non-zero result.

D. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the Discharger or laboratory, and shall be retained for a minimum of five (5) years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board. Such records shall show the following for each sample:

1. Identity of sample and of the Monitoring Point or Background Monitoring Point from which it was taken, along with the identity of the individual who obtained the sample;

2. Date and time of sampling;

3. Date and time that analyses were started and completed, and the initials of the personnel performing each analysis;

4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;

5. Calculations of results; and

6. Results of analyses, and the MDL and PQL for each analysis.

E. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Detection Monitoring Reports – For each Monitored Medium, all Monitoring Points and Background Monitoring Points assigned to detection monitoring under Part II.A.7 of this MRP shall be monitored **semiannually** for the Monitoring Parameters (Part II.A.4). A “Detection Monitoring Report” shall be submitted to the Regional Board in accordance with the schedule contained in the Summary of Self-Monitoring and Reporting Requirements, and shall include the following:

a. A Letter of Transmittal that summarizes the essential points in each report shall accompany each report submittal. The letter of transmittal shall be signed by a principal executive officer at the level of vice-president or above, or by his/her duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter of transmittal shall include:

i. A discussion of any violations noted since the previous report submittal and a description of the actions taken or planned for correcting those violations. If no violations have occurred since the last submittal, that should be so stated;

ii. If the Discharger has previously submitted a detailed time schedule or plan for correcting any violations, a progress report on the time schedule and status of the corrective actions being taken; and

iii. A statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

b. A Compliance Evaluation Summary shall be included in each Detection Monitoring Report. The compliance evaluation summary shall contain at least:

i. Velocity and direction of groundwater flow for each monitored groundwater body under and around the surface impoundment based upon the water level elevations taken during the collection of water quality data. A description and graphical presentation (e.g., arrow on a map) shall be submitted;

ii. Methods used for water level measurement and pre-sampling purging for each monitoring well addressed by the report including:

1. Method, time, and equipment used for water level measurement;

2. Type of pump used for purging, placement of the pump in the well, pumping rate, and well recovery rate;

3. Methods and results of field testing for pH, temperature, electrical conductivity, and turbidity, including;

a. Equipment calibration methods, and
b. Method for disposing of purge water

iii. Methods used for sampling each Monitoring Point and Background Monitoring Point, including:

1. A description of the type of pump, or other device used, and its placement for sampling;

2. A detailed description of the sampling procedure: number and description of samples, field blanks, travel blanks, and duplicate samples; types of containers and preservatives used; date and time of sampling; name and

qualifications of individual collecting samples, and other relevant observations;

c. A map or aerial photograph showing the locations of Monitoring Points, and Background Monitoring Points;

d. For each Detection Monitoring Report, provide all relevant laboratory information including results of all analyses, and other information needed to demonstrate compliance with Part I.C.;

e. An evaluation of the effectiveness of the run-off/run-on control facilities;

f. A summary of reportable spills/leaks occurring during the reporting period; include estimated volume of liquids/solids discharged outside designated containment area, a description of management practices to address spills/leaks, and actions taken to prevent reoccurrence.

2. Annual Summary Report – The Discharger shall submit to the Regional Board, an "Annual Summary Report" for the period extending from January 1 through December 31. The "Annual Summary Report" is due **March 15** of each year, and shall include the following:

a. A graphical presentation of analytical data for each Monitoring Point and Background Monitoring Point (Title 27, Section 20415(e)(14)). The Discharger shall submit, in graphical format, the laboratory analytical data for all samples taken within at least the previous five (5) calendar years. Each such graph shall plot the concentration of one (1) or more constituents over time for a given Monitoring Point and Background Monitoring Point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean value. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. On the basis of any aberrations noted in the plotted data, the Regional Board Executive Officer may direct the Discharger to carry out a preliminary investigation (Title 27, Section 20080(d)(2)), the results of which will determine whether or not a release is indicated;

b. A tabular presentation of all monitoring analytical data obtained during the previous two (2) Monitoring and Reporting Periods, submitted on hard copy within the annual report as well as digitally on electronic media in a file format acceptable to the Regional Board Executive Officer (Title 27, Section 20420(h)). The Regional Board regards the submittal of data in hard copy and on diskette CD-ROM as "...a form necessary for..." statistical analysis in that this facilitates periodic review by the Regional Board statistical consultant;

c. A comprehensive discussion of the compliance record and any corrective actions taken or planned, which may be needed to bring the Discharger into full compliance with WDRs;

d. A written summary of the groundwater analyses, indicating changes made since the previous annual report; and

e. An evaluation of the effectiveness of the run on/run-off control facilities, pursuant to Title 27, Section 20365.

3. Contingency Reporting

a. The Discharger shall report any spill of HTL or evaporation pond liquid by telephone within 48 hours of discovery. The reportable quantity for evaporation pond liquid is 150 gallons.

After reporting a spill, a written report shall be filed with the Regional Board Executive Officer within seven (7) days, containing at a minimum the following:

i. A map showing the location(s) of the discharge/spill;
ii. A description of the nature of the discharge (all pertinent observations and analyses including quantity, duration, etc.); and
iii. Corrective measures underway or proposed.

b. Should the initial statistical comparison (Part III.A.1.) or non-statistical comparison (Part III.A.2.) indicate, for any Constituent of Concern or Monitoring Parameter, that a release is tentatively identified, the Discharger shall immediately notify the Regional Board verbally as to the Monitoring Point(s) and constituent(s) or parameter(s) involved, shall provide written notification by certified mail within seven (7) days of such determination (Title 27, Section 20420(j)(1)), and shall conduct a discrete retest in accordance with Part III.A.3. If the retest confirms the existence of a release, the Discharger shall carry out the requirements of Part I.E.3.d. In any case, the Discharger shall inform the Regional Board of the outcome of the retest as soon as the results are available, following up with written results submitted by certified mail within seven (7) days of completing the retest.

c. If either the Discharger or the Regional Board determines that there is significant physical evidence of a release (Title 27, Section 20385(a)(3)), the Discharger shall immediately notify the Regional Board of this fact by certified mail (or acknowledge the Regional Board's determination) and shall carry out the requirements of Part I.E.3.d. for all potentially-affected monitored media.

d. If the Discharger concludes that a release has been discovered:

i. If this conclusion is not based upon “direct monitoring” of the Constituents of Concern, pursuant to Part II.A.5., then the Discharger shall, within thirty days, sample for all Constituents of Concern at all Monitoring Points and submit them for laboratory analysis. Within seven (7) days of receiving the laboratory analytical results, the Discharger shall notify the Regional Board, by certified mail, of the concentration of all Constituents of Concern at each Monitoring Point. Because this scan is not to be tested against background, only a single datum is required for each Constituent of Concern at each Monitoring Point (Title 27 Section 20420(k)(1));

ii. The Discharger shall, within 90 days of discovering the release (Title 27, Section 20420(k)(5)), submit a Revised Report of Waste Discharge proposing an Evaluation Monitoring Program meeting the requirements of Title 27, Section 20425; and

iii. The Discharger shall, within 180 days of discovering the release (Title 27, Section 20420(k)(6), submit a preliminary engineering feasibility study meeting the requirements of Title 27, Section 20430.

e. Any time the Discharger concludes - or the Regional Board Executive Officer directs the Discharger to conclude - that a liquid phase release from the surface impoundment has proceeded beyond the facility boundary, the Discharger shall so notify all persons who either own or reside upon the land that directly overlies any part of the plume (Affected Persons).

i. Initial notification to Affected Persons shall be accomplished within 14 days of making this conclusion and shall include a description of the Discharger's current knowledge of the nature and extent of the release; and

ii. Subsequent to initial notification, the Discharger shall provide updates to all Affected Persons, including any persons newly affected by a change in the boundary of the release, within 14 days of concluding a material change in the nature or extent of the release has occurred.

4. Surface Impoundment - Leakage Detection System (LDS), and Solids Monitoring

a. Sampling and reporting shall be conducted semi-annually.
b. Provide volume of solids removed from the holding pond each month for that reporting period, and transported to a waste management facility for disposal. Include name and location of waste management facility.
c. Conduct quarterly inspections of Leakage Detection System (LDS), and holding pond.

PART II
MONITORING REQUIREMENTS FOR GROUNDWATER

A. GROUNDWATER SAMPLING AND ANALYSIS FOR DETECTION MONITORING

1. Groundwater Surface Elevation and Field Parameters – Groundwater sampling and analysis shall be conducted semiannually pursuant to California ELAP rulings, and include an accurate determination of the groundwater surface elevation and field parameters (temperature, electrical conductivity, turbidity) for each Monitoring Point and Background Monitoring Point (Title 27, Section 20415(e)(13)). Groundwater elevation obtained prior to purging the well and sample collection, shall be used to fulfill the semi-annual groundwater flow rate/direction analyses required under Part I.E.1.b.i. Groundwater wells shall be gauged using an electronic sounder capable of measuring depth to groundwater within 100th of an inch. Following gauging, wells shall be purged according to EPA groundwater sampling procedures until:

a. pH, temperature, and conductivity are stabilized within 10 percent, and

b. turbidity has been reduced to 10 NTUs or the lowest practical levels achievable. The above identified parameters shall be recorded in the field, and submitted in the monitoring report. Sampling equipment shall be

decontaminated between wells. Purge water may be discharged to the brine pond; discharge to the ground surface is prohibited.

2. Groundwater Sample Collection - Groundwater samples shall be collected from all monitoring points and background monitoring points after wells recharge to within at least 80 percent of their original static water level. Groundwater samples shall be collected with a paristaltic pump that is decontaminated between sampling events. Samples shall be labeled, logged on chain-of-custody forms, and placed in cold storage pending delivery to a State certified analytical laboratory.

3. Five-Day Sample Procurement Limitation – To satisfy data analysis requirements for a given reporting period, samples collected from all Monitoring Points and Background Monitoring Points shall be taken within a span not exceeding five (5) days, and shall be taken in a manner that insures sample independence to the greatest extent feasible (Title 27, Section 20415(e)(12)(B)).

4. Groundwater Monitoring Parameters for Detection Monitoring – Groundwater samples collected from monitoring points and background monitoring points shall be analyzed for the following:

Parameter	Unit	Sample Type
Chloride	mg/L	Grab
Sulfate	mg/L	Grab
Total Dissolved Solids (TDS)	mg/L	Grab
pH	#	Grab
Specific Conductance	µohms/cm	Grab
HTF	Mg/L	Grab
Heavy Metals (Sb, As, Ba, Cd, Ca, Cr, Co, Cu, Pb, Hg, Ni, Se, Zn)	mg/L	Grab
Oil & Grease	mg/L	Grab

All Monitoring Points and Background Monitoring Points assigned to Detection Monitoring shall be sampled semi-annually in **June** and **December** of each year in accordance with Part I of this MRP. Monitoring results shall be reported in the semiannual Detection Monitoring Report.

5. Data Analysis – Statistical or non-statistical analysis shall be carried out as soon as the data is available, in accordance with Part III of this monitoring program. Monitoring Points and Background Monitoring Points – At a minimum of 90 days prior to the operation of the facility, the Discharger shall submit a proposed groundwater monitoring program, including background and detection monitoring locations, to the Executive Officer for review and approval.

6. Initial Background Determination: For the purpose of establishing an initial pool of background data for each Constituent of Concern at each Background Monitoring Point (Title 27, Section 20415(e)(6)):

a. Whenever a new Constituent of Concern is added to the Water Quality Protection Standard, including any added by the adoption of this Board Order, the Discharger shall collect at least one (1) sample **quarterly** for at least one (1) year from each Background Monitoring Point in each monitored medium and analyze for the newlyadded constituent(s); and

b. Whenever a new Background Monitoring Point is added, including any added by this Board Order, the Discharger shall sample the new monitoring point at least **quarterly** for at least one (1) year, analyzing for all Constituents of Concern and Monitoring Parameters.

7. Semiannual Determination of Groundwater Flow Rate/Direction (Title 27, Section 20415(e)(15): The Discharger shall measure the water level in each well and determine groundwater flow rate and direction in each groundwater body described in Part II.A.1. at least semiannually. This information shall be included in the semi-annual Detection Monitoring Reports required under Part I.E.1.

PART III
STATISTICAL AND NON-STATISTICAL ANALYSES

A. STATISTICAL AND NON-STATISTICAL ANALYSIS

The Discharger shall use the most appropriate of the following methods to compare the downgradient concentration of each monitored constituent or parameter with its respective background concentration to determine if there has been a release from the surface impoundment. For any given data set, proceed sequentially down the list of statistical analysis methods listed in Part III.A.1., followed by the non-statistical method in Part III.A.2., using the first method for which the data qualifies. If that analysis tentatively indicates the detection of a release, implement the retest procedure under Part III.A.3.

1. Statistical Methods. The Discharger shall use one (1) of the following statistical methods to analyze Constituents of Concern or Monitoring Parameters that exhibit concentrations exceeding their respective MDL in at least ten percent of the background samples taken during that Reporting Period. Each of these statistical methods is more fully described in the Statistical Methods discussion below. Except for pH, which uses a two-tailed approach, the statistical analysis for all constituents and parameters shall be a one-tailed (testing only for statistically significant increase relative to background) approach:

a. One-Way Parametric Analysis of Variance (ANOVA) followed by multiple comparisons (Title 27, Section 20415(e)(8)) – This method requires at least four (4) independent samples from each Monitoring Point and Background Monitoring Point during each sampling episode. It shall be used when the background data for the parameter or constituent obtained during a given sampling period, has not more than 15% of the data below PQL. Prior to analysis, replace all 'trace' determinations with a value halfway between the PQL and the MDL values reported for that sample run, and replace all "non-detect" determinations with a value equal to half the MDL value reported for that sample run. The ANOVA shall be carried out at the 95% confidence level. Following the ANOVA, the data from each downgradient Monitoring Point shall be tested at a 99% confidence level against the pooled

background data. If these multiple comparisons cause the Null Hypothesis (i.e., that there is no release) to be rejected at any Monitoring Point, the Discharger shall conclude that a release is tentatively indicated from that parameter or constituent; or

b. One-Way Non-Parametric ANOVA (Kruskal-Wallis Test), followed by multiple comparisons – This method requires at least nine (9) independent samples from each Monitoring Point and Background Monitoring Point; therefore, the Discharger shall anticipate the need for taking more than four (4) samples per Monitoring Point, based upon past monitoring results. This method shall be used when the pooled background data for the parameter or constituent, obtained within a given sampling period, has not more than 50% of the data below the PQL. The ANOVA shall be carried out at the 95% confidence level. Following the ANOVA, the data from each downgradient Monitoring Point shall be tested at a 99% confidence level against the pooled background data. If these multiple comparisons cause the Null Hypothesis (i.e., that there is no release) to be rejected at any Monitoring Point, the Discharger shall conclude that a release is tentatively indicated for that parameter or constituent; or

c. Method of Proportions – This method shall be used if the "combined data set" – the data from a given Monitoring Point in combination with the data from the Background Monitoring Points – has between 50% and 90% of the data below the MDL for the constituent or parameter in question. This method; (1) requires at least nine (9) downgradient data points per Monitoring Point per Reporting Period, (2) requires at least thirty data points in the combined data set, and (3) requires that $n * P > 5$ (where n is the number of data points in the combined data set and P is the proportion of the combined set that exceeds the MDL); therefore, the Discharger shall anticipate the number of samples required, based upon past monitoring results. The test shall be carried out at the 99% confidence level. If the analysis results in rejection of the Null Hypothesis (i.e., that there is no release), the Discharger shall conclude that a release is tentatively indicated for that constituent or parameter; or

d. Other Statistical Methods. – These include methods pursuant to Title 27, Section 20415(e)(8)(c-e).

2. Non-Statistical Method. The Discharger shall use the following non-statistical methods for all constituents that are not amenable to statistical analysis by virtue of having been detected in less than 10% of applicable background samples. A separate variant of this test is used for the VOC_{water} Composite Monitoring Parameters. Regardless of the test variant used, the method involves a two-step process: (1) from all constituents to which the test variant applies, compile a list of those constituents which equal or exceed their respective MDL in the downgradient sample from a given Monitoring Point, then (2) evaluate whether the listed constituents meet either of the test variant's two possible triggering conditions. For each Monitoring Point, the list described above shall be compiled based on either the data from a single sample taken during the Monitoring Period for that Monitoring Point, or (where several independent samples have been analyzed for that constituent at a given Monitoring Point) from the sample that contains the largest number of detected constituents. Background shall be represented by the data from all samples taken from the appropriate BackgroundMonitoring Points during that Reporting Period (at least one

(1) sample from each Background Monitoring Point). The method shall be implemented as follows:

a. VOC_{water} Composite Monitoring Parameter – For any given Monitoring Point, the VOC_{water} Monitoring Parameter is a composite parameter addressing all detectable VOCs including at least all 47 VOCs listed in Appendix I to 40 CFR 258 and all unidentified peaks. The Discharger shall compile a list of each VOC which (1) exceeds its MDL in the Monitoring Point sample (an unidentified peak is compared to its presumed (MDL), and also (2) exceeds its MDL in less than ten percent of the samples taken during that Reporting Period from that medium's Background Monitoring Points. The Discharger shall conclude that a release is tentatively indicated for the VOC_{water} composite Monitoring Parameter if the list either (1) contains two or more constituents, or (2) contains one constituent that exceeds its PQL;

b. Constituents of Concern: As part of the COC monitoring required under Part 2.A.5 of this MRP, for each Monitoring Point, the Discharger shall compile a list of COCs that exceed their respective MDL at the Monitoring Point, yet do so in less than ten percent of the background samples taken during that Reporting Period. The Discharger shall conclude that a release is tentatively indicated if the list either (1) contains two or more constituents, or (2) contains one constituent that exceeds its PQL.

3. Discrete Retest – In the event that the Discharger concludes that a release has been tentatively indicated (under Parts III.A.1. or III.A.2.), the Discharger shall, within 30 days of that conclusion, collect two (2) new suites of samples for the indicated Constituent(s) of Concern or Monitoring Parameter(s) at each indicated Monitoring Point, collecting at least as many samples per suite as were used for the initial test. Re-sampling of Background Monitoring Points is optional. As soon as the retest data is available, the Discharger shall use the same statistical method or non-statistical comparison separately on each suite of retest data. For any indicated Monitoring Parameter or Constituent of Concern at an affected Monitoring Point, if the test results of either (or both) of the retest data suites confirms the original indication, the Discharger shall conclude that a release has been discovered. All retests shall be carried out only for the Monitoring Point(s) for which a release is tentatively indicated, and only for the Constituent of Concern or Monitoring Parameter that triggered the indication there, as follows:

a. If an ANOVA method was used in the initial test, the retest shall involve only a repeat of the multiple comparison procedure, carried out separately on each of the two (2) new suites of samples taken from the indicating Monitoring Point;
b. If the Method of Proportions statistical test was used, the retest shall consist of a full repeat of the statistical test for the indicated constituent or parameter, carried out separately on each of the two (2) new sample suites from the indicating Monitoring Point;

c. If the non-statistical comparison was used:

i. Because the VOC Composite Monitoring parameters (VOC_{water}) each address, as a single parameter, an entire family of constituents which are likely to be present in any surface impoundment release, the scope of the laboratory

analysis for each retest sample shall include all VOCs detectable in that retest sample. Therefore, a confirming retest for either parameter shall have validated the original indication even if the suite of constituents in the confirming retest sample(s) differs from that in the sample that initiated the retest;

ii. Because all Constituents of Concern that are jointly addressed in the nonstatistical testing under Part III.A.2. remain as individual Constituents of Concern, the scope of the laboratory analysis for the non-statistical retest samples shall be narrowed to involve only those constituents detected in the sample which initiated the retest.

SUMMARY OF SELF-MONITORING AND REPORTING REQUIREMENTS
A. GROUNDWATER MONITORING

1. Groundwater monitoring wells shall be sampled/analyzed semi-annually for the following parameters/constituents:

Parameters & Type of Reporting Constituent Unit Sample Frequency

a. Chloride mg/L grab semiannual
b. Sulfate mg/L grab semiannual
Total Dissolved Solids (TDS) mg/L grab semiannual
c. PH # field measurement semiannual
d. Specific Conductance µohms/cm field measurement semiannual
e. HTF mg/L grab semiannual
f. Heavy Metals
(Sb,As, Ba, Cd, Ca, Cr, Co,
Cu, Pb, Hg, Ni, Se, Zn) mg/L grab semiannual
g. Oil & Grease mg/L grab semiannual

2. The collection, preservation, and holding times of all samples shall be in accordance with the U.S. Environmental Protection Agency approved procedures. All analyses shall be conducted by a laboratory certified by the California Department of Public Health to perform the required analyses.

B. SURFACE IMPOUNDMENT: Leakage Detection System (LDS), and Solids Monitoring Observation or Sampling Reporting Unit Frequency Frequency

1. Estimated volume of solid/liquid in holding pond ft^3 Monthly semiannual
2. Measurement of freeboard ft Monthly semiannual
3. Volume of solids removed and shipped to off site waste management facility tons Monthly semiannual.

C. MONITORING REORTS AND OBSERVATION SCHEDULE

“Reporting Period” means the duration separating the submittal of a given type of monitoring report from the time the next iteration of that report is scheduled for submittal. An annual report, which is a summary of all the monitoring during the previous year, shall also be submitted to the Regional Board. The submittal dates for Detection Monitoring Reports and the Annual Summary Report are as follows:

1. Detection Monitoring Reports

a. 1st Semiannual Report (January 1 through June 30) – report due by **August 1**
b. 2nd Semiannual Report (July 1 through December 31) – report due by **March 1**

2. Annual Summary Report

January 1 through December 31 – report due **March 15** of the following year.

3. The Detection Monitoring Reports and the Annual Summary Report shall include the following:

a. The Discharger shall arrange the data in tabular form so that the specified information is readily discernible. The data shall be summarized in such a manner as to clearly illustrate whether the facility is operating in compliance with WDRs.
b. Records of monitoring information shall include:

i. The date, exact place, and time of sampling or measurement;
ii. The individual performing the sampling or measurement;
iii. The date the analysis was performed;
iv. The initials of the individual performing the analysis;
v. The analytical technique or method used; and
vi. The result of the analysis.

c. Each report shall contain the following statement:

"I declare under the penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations."

d. A duly authorized representative of the Discharger may sign the documents if:

i. Authorization is made in writing by the person described in Part I.E.1.a;

ii. Authorization specifies an individual or person having responsibility for the overall operation of the regulated disposal system; and

iii. Written authorization is submitted to the Regional Board Executive Officer.

iv. Monitoring reports shall be certified under penalty of perjury to be true and correct, and shall contain the required information at the frequency designated in this monitoring report

C. CULTURAL RESOURCES

The potential for impacts to cultural resources depends upon whether such resources are present and whether they would actually be encountered during project development and construction activities. Cultural resource materials such as artifacts, structures, or land modifications reflect the history of human development. Certain places that are important to Native Americans or local national/ethnic groups are also considered valuable cultural resources. Analysis in this topic area pertains to the structural and cultural evidence of human development in the project vicinity, as well as appropriate mitigation measures should cultural resources be disturbed by project excavation and construction.

Cultural resources are categorized as buildings, sites, structures, objects, and districts under both federal law [for the purposes of the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA), § 106] and under California state law [for the purposes of the California Environmental Quality Act (CEQA)]. Three kinds of cultural resources, classified by their origins, are considered in this assessment: prehistoric, ethnographic, and historic.

When a cultural resource is determined to be significant, it is eligible for inclusion in the California Register of Historic Resources (CRHR). (Pub. Res. Code, § 5024.1; Cal. Code Regs., tit. 14, § 4850 et seq.) An archaeological resource that does not qualify as an historic resource may be considered a "unique" archaeological resource under CEQA (*see* Pub. Res. Code, § 21083.2.) In addition, structures older than 50 years (or less if the resource is deemed exceptional) can be considered for listing as significant historic structures. The Office of Historic Preservation's Instructions for Recording Historical Resources (1995) endorses recording and evaluating resources over 45 years of age to accommodate a five-year lag in the planning process.

The CEQA Guidelines define historical resources to include:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR,

(2) "A resource listed in a local register of historical resources or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code," or

(3) "Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant

> in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the agency's determination is supported by substantial evidence in light of the whole record." [Cal. Code Regs. tit. 14, § 15064.5(a).]

Historical resources that are automatically listed in the CRHR include California historical resources listed in or formally determined eligible for the National Register of Historic Places (NRHP) as well as California Registered Historical Landmarks from No. 770 onward. [Pub. Res. Code, § 5024.1(d).]

Under the CEQA Guidelines, a resource is generally considered to be historically significant if it meets the criteria for listing in the CRHR. These criteria are essentially the same as the eligibility criteria for the NRHP. In addition to being at least 50 years old, a resource must meet at least one of the following four criteria: it is associated with events that have made a significant contribution to the broad patterns of our history (Criterion 1); or, it is associated with the lives of persons significant in our past (Criterion 2); or, that the resource embodies the distinctive characteristics of a type, period, or method of construction, or that it represents the work of a master, or possesses high artistic values (Criterion 3); or, that it has yielded, or may be likely to yield, information important to history or prehistory (Criterion 4). (Pub. Res. Code § 5024.1.) In addition, historical resources must also possess integrity of location, design, setting, materials, workmanship, feeling, and association (Cal. Code Regs., tit. 14, § 4852(c); Pub. Res. Code § 5020.1 (j) or 5024.1). Even if a resource is not listed or determined to be eligible for listing in the CRHR, CEQA allows the lead agency to make a determination as to whether the resource is a historical resource.

The supporting evidence for this analysis is contained in the following exhibits: Ex. 1; 3; 7; 8; 21; 37; 38; 57; 62; 64; 403 ; 401; 403; 441; 513; 514; 515; 516; 601; 602; 603; 604; 605; 606; 607; 608; 609; 610; 611; 614; 615 ; 616; 617 (7/12/10 RT 28:11-14, 29:18-20, 33:23-25, 37:2-4, 39:10-14, 42:12-17, 46:18-20; 7/21/10 RT 222:23-25, 232:19-21, 238:5-6).

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Physical Setting

The GSEP site is located approximately 25 miles west of the city of Blythe, California, on BLM-administered lands. The site is south of the Palen/McCoy Wilderness Area and north of Ford Dry Lake and Interstate 10 (I-10). The

Applicant is seeking a Right-of-Way (ROW) grant with the Bureau of Land Management (BLM) for approximately 4,640 acres of lands. Construction and operation of the project would disturb a total of about 1,800 acres. As such, any difference between the total acreage listed in the Right-of-Way application (4,640) and the total acreage required for project construction and operation (approx. 1,800) would not be part of the ROW grant, if BLM decides to approve the project. (Ex. 403, pp. C.3-7 to C.3-9.)

The proposed GSEP consists of two independent, concentrated solar electric-generating facilities. Each facility would have a nominal electrical output of 125 megawatts (MW), for a total of 250 MW. The proposed power blocks and solar arrays would occupy approximately 1,360 acres while the evaporation ponds, access road, administration buildings, and other support facilities would occupy 440 acres. In all, the facility would occupy a total of 1,800 acres, with an additional 90 acres for a primary access road, natural gas pipeline, and a transmission line through which the proposed project would connect to California's electrical grid. . (Ex. 403, p. C.3-28.)

Topographically and geologically, the proposed GSEP site is within the central Chuckwalla Valley, an east-southeast-trending valley in California's Mojave Desert Geomorphic Province. This province is characterized by east-west-trending ranges separated by desert valleys with enclosed drainages and dry lakes. The project area of analysis is surrounded by the Palen Mountains to the north, the McCoy Mountains to the northeast, the Little Chuckwalla Mountains to the south, and the Chuckwalla Mountains to the west. The Chuckwalla Valley is a relatively stable tectonic region located between the seismically active Salton Trough to the west and southwest, and the Garlock Fault to the north. The nearest active seismic features, the San Andreas Fault and the Brawley Seismic Zone, are located approximately 47 miles to the southwest. The elevation of Chuckwalla Valley ranges from under 400 feet at its lowest point to approximately 1,800 feet along the valley flanks. The surrounding mountains reach between 3,000 and 5,000 feet in elevation. The project region is relatively flat and generally slopes from north to south with elevations of approximately 400 to 370 feet. (Ex. 403, p. C.3-17.)

The project site footprint and linear facilities corridor land is owned and managed by the Bureau of Land Management (BLM) as part of the Big Maria Colorado Desert Planning Unit. Other units include: Imperial, Santa Rosa, Orocopia, Twenty-nine Palms, Bristol/Cadiz, Palen, Turtle Mountain Whipple Mountain, Big Maria and Picacho. The Big Maria Unit is managed as part of an amendment to

the 25-million-acre California Desert Conservation Area (CDCA)—the Northern and Eastern Colorado Desert Coordinated Management (NECO) Plan—which encompasses 5.5 million acres in the southeastern California Desert (GSEP 2009a, p. 5.3-1). Under BLM's Multiple Use Classification system, the project site footprint and linear facilities corridor lays in Class M (Moderate Use) lands. These lands are managed to provide a variety of uses such as mining, livestock grazing, recreation, utilities, and energy development. Nearby BLM-managed lands with more sensitive classifications include the Palen-McCoy Wilderness, immediately to the north of the project site footprint and the Palen Dry Lake Area of Critical Environmental Concern (ACEC), designated to protect prehistoric cultural resources, adjacent to the southwest corner of the project site footprint. (Ex. 403, pp. C.3-7 to C.3-8.)

The Chuckwalla Valley is primarily undeveloped. Historically, its main role has been as an important trade and transportation route between the Pacific coast and the Colorado River. Other uses of the valley include mining, ranching, military training, and recreation. The project site footprint itself has recently been used for off-road vehicle races and domestic sheep grazing, but neither activity currently takes place. (Ex. 403, p. C.3-8.)

2. Historical Setting

Human populations have occupied the California desert for at least 10,000 years. The Paleo-Indian Period (about 10,000–8000 BC) occurred during the first half of the Early Holocene. Isolated fluted projectile points have been recovered from the Pinto Basin, Ocotillo Wells, Cuyamaca Pass, and the Yuha Desert. The Lake Mojave Complex (8000-6000 BC) occurred during the second half of the Early Holocene and is characterized by Great Basin Stemmed Series projectile points (Lake Mojave and Silver Lake types), abundant bifaces, steep-edged unifaces, crescents, and occasional cobble tools and ground stone tools. The Pinto Complex (8000-3000 BC) spans portions of the Early and Middle Holocene. Toolstone use, based on sites attributed to this complex, focus upon materials other than obsidian and cryptocrystalline silicate. Beginning roughly in 3000 to 2000 BC, conditions in the Mojave Desert were warmer and drier and few archaeological sites date to this period. This suggests population densities were very low and it is possible some areas were largely abandoned. The Gypsum complex (2000 BC–200 AD), spanning most of the Early Late Holocene, is characterized by the presence of corner-notched Elko Series points, concave-base Humboldt Series points, and well-shouldered contracting-stemmed Gypsum Series points. During the Rosespring Complex (200 AD – 1000 AD), cultural systems profoundly changed in the southern California deserts with the

introduction of the bow and arrow. During this time, a major increase in population is thought to have occurred, possibly resulting from a more productive environment and a more efficient hunting technology. During the Late Prehistoric Period (1000 AD–1700 AD), horticultural practices and pottery were introduced (most likely from the Hohokam area in southern Arizona or from northern Mexico), having its greatest impact along the Lower Colorado River. A complex cultural landscape composed of rock art and trails was developed during the Late Prehistoric period. (Ex. 403, pp. C.3-13 to C.3-15.)

Within the Chuckwalla Valley, prehistoric sites are clustered around springs, wells, and other obvious important features/resources. Sites include villages with cemeteries, occupation sites with and without pottery, large and small concentrations of ceramic sherds and flaked stone tools, rock art sites, rock shelters with perishable items, rock rings/stone circles, geoglyphs, and cleared areas, a vast network of trails, markers and shrines, and quarry sites. Possible village locations are present at Ford Dry Lake, McCoy Spring, Palen Lake, Granite Well, and Hayfield Canyon. (Ex. 403, p. C.3-16.)

A cluster of temporary habitation and special activity (task) sites occurs around a quarry workshop in the Chuckwalla Valley. The Chuckwalla Valley aplite quarry workshop complex probably was used throughout the Holocene. During this period, Chuckwalla Valley most likely was occupied, abandoned, and reoccupied by a succession of ethnic groups. In the Early Holocene (i.e., Lake Mohave complex times), the area may have been relatively densely inhabited. During the Middle Holocene (i.e., Pinto and Gypsum complexes period) it may only have been sporadically visited. The subsequent Late Holocene Rose Spring and Late Prehistoric periods probably witnessed reoccupation of the valley by Yuman and Numic-speaking peoples. (Ex. 403, p. C.3-16.)

Currently, it is unclear which historic Native American group or groups occupied or used the region in which the proposed project site is located, but the Chemehuevi, Serrano, Cahuilla, Mojave, Quechan, Maricopa, and Halchidhoma are the most likely. The record indicates that the Chuckwalla Valley was not clearly assigned to any Native American group on maps depicting group territories. The west end of the Chuckwalla Valley was near the intersecting boundaries of Cahuilla-Serrano-Chemehuevi territory. Possibly before 800 BC, the Chemehuevi may have expanded into Serrano territory, occupying the Chuckwalla Valley. No evidence suggested that the Cahuilla occupied the area. Given its east-west orientation and location, however, the Chuckwalla Valley may

have been neutral territory, occupied by no Native American group in particular, which served as an east-west trade and travel route. (Ex. 403, p. C.3-23.)

The Mojave Desert area, in which the GSEP is located, has remained one of the more sparsely populated regions of the American West. The harsh arid environment and paucity of natural water supply has presented a challenge to the development of trans-desert routes for the movement of people and goods, to the exploitation of resources in the area, and to the establishment of permanent settlement. The major historical themes for the Mojave Desert region and GSEP vicinity, in particular, are centered on the establishment of transportation routes, water access, mineral exploitation, and military uses. (Ex. 403, p. C.3-33.)

The desert region has produced a variety of mineral deposits, including gold, silver, fluorite, manganese, copper, gypsum, and uranium. The 1880s and 1890s were years of relative prosperity for mining regions of eastern Riverside County, and intermittent mining activity has occurred in the area since that time. Early mining activities played a significant role in stimulating early occupation and travel across the arid desert. Following the end of the Mexican period in 1848 and the onset of the California Gold Rush in 1849, a flood of gold-seeking emigrants began to pour into California, many of whom were unprepared and suffered extreme hardships during the overland trek through the desert. (Ex. 403, p. C.3-34.)

One of the earliest major trans-desert trail/wagon routes established in the vicinity of the GSEP was known as Frink's Route. Frink's Route was established in the mid nineteenth century (prior to 1856), connecting southern California supply points with mines and outposts along the Colorado River. Frink's Route appears to have passed south of the GSEP site footprint. Another important stage route was the Bradshaw Trail, an overland stage route pioneered by William Bradshaw in 1862. It began in San Bernardino and passed through San Gorgonio Pass, Palm Springs, and the north shore of the Salton Sea before reaching the Colorado River near Blythe. This route followed traditional Indian trails and was used between 1862 and 1877 to haul miners and other passengers to the gold fields at La Paz, Arizona (now Ehrenberg). Wiley's Well Road, which intersects the GSEP linear facilities corridor, was an offshoot of the Bradshaw Trail. The construction and expansion of the Southern Pacific Railroad between Phoenix and Los Angeles by way of Yuma in the late 1870s also brought travelers and supplies to more remote areas, enabling further development of mines and irrigation. (Ex. 403, p. C.3-34.)

Around the turn of the last century gypsum was found in the McCoy Mountains. A mining town, Midland, was established there. From 1925 to the 1960s, Midland was a company town owned by the U.S. Gypsum Co. The company had harvested vast amounts of gypsum found in the area. At its peak, the town had a population of approximately 1,000. The Arizona and California Railway, built between 1903 and 1907, was a 50 mile spur rail route connecting Blythe and Midland to the main Santa Fe Railway line at the town of Rice. There were daily trains along this line until the late 1930s. Midland was a thriving mining town until the 1960s when it was entirely abandoned. (Ex. 403, p. C.3-34.)

Automobile travel across and within the Colorado Desert area first developed using existing wagon roads. By the early twentieth century, the automobile became the preferred means of transportation, and in 1916, Congress approved an Act to identify safe travel routes and ensure protection of available water within the least documented regions of the desert. The Mecca-Blythe-Ehrenberg route, which approximates the current Interstate 10, is one such route identified under the Act and is located near the southern GSEP boundary. Travelers along these routes relied on natural water sources such as McCoy Spring and wells excavated by wagon road users. Most of the wells in eastern Riverside County were excavated by early prospectors and/or landowners and were often named for the men who dug them. Among the early known wells near the GSEP site footprint and linear facilities corridor include the Hopkins Well, Wiley's Well, and the Ford Well, which appear on the 1920 USGS Water Supply Paper Map, south of the GSEP limits. Portions of Wiley's Well Road, where it passes near McCoy Spring, may have been improved in the 1940s and 1950s to provide access to Midland after rail service ceased. (Ex. 403, pp. C.3-34 to C.3-35.)

The GSEP site footprint and linear facilities corridor falls within the limits of Gen. Patton's World War II Desert Training Center/California-Arizona Maneuver Area (DTC/C-AMA), which was in operation from 1942-1944. The area was chosen by Gen. George S. Patton, Jr. to prepare troops for the harsh conditions and environment of combat for the North Africa Campaign. At 12,000,000 acres, the DTC/C-AMA was the largest-ever military training center, stretching from west of Pomona, California, to Yuma, Arizona, and north into Nevada. The valley bordered by the Palen, Little Maria, and McCoy Mountains is considered one of the most extensive maneuver areas in the DTC/C-AMA. After two years in operation and the training of one million troops, the DTC/C-AMA was closed in 1944 as a result of the allied victory in North Africa and the need for trained troops elsewhere. Following the closure of the DTC/C-AMA dismantling and salvage efforts began and the land was ultimately returned to private and

government holdings. The remains of the DTC/C-AMA areas consist of rock features, faint roads, structural features, concertina wire, tank tracks, footprints of runway and landing strips, foxholes and bivouacs, concrete defensive positions, refuse, and trails. (Ex. 403, p. C.3-35.)

3. Cultural Resources at the GSEP Site

Applicant's records search included all known cultural resources within a one-half-mile radius of the plant site, laydown area, and appurtenant linear facilities. Sources checked comprised:

- The Eastern Information Center (EIC) of the California Historical Resources Information System (CHRIS);
- Previously documented cultural resources or archaeological studies in the project area;
- National Register of Historic Places (NHRP);
- California Register of Historical Resources (CRHR);
- California State Historical Landmarks;
- California Points of Historical Interest; and
- California Inventory of Historic Resources; and
- BLM Cultural Areas of Critical Environmental Concern (ACEC) (Ex. 403, p. C.3-38.)

The CHRIS literature and records search identified 30 previous cultural resources investigations within the search area: 22 surveys, 6 literature reviews, 1 set of miscellaneous field notes from the region, and 1 project whose nature is undefined. In their review, EIC staff found that 11 of these overlapped with the GSEP archaeological and built-environment Project Areas of Analysis (PAAs). Parts of three investigations took place on the project site. The first investigation was an intensive linear survey that cut a 123-meter wide corridor from southeast to northwest through much of the project site. The second investigation was a sample survey sponsored by the BLM that covered approximately 64 acres or 4 percent of the 1,800-acre project site. The third survey was part of an earlier stage of the GSEP. This BLM Class II survey covered a 20 percent random sample of 1,896 acres, including 520 acres within the proposed project site footprint and linear facilities corridor. After these three projects, approximately 68 percent of the project site remained unsurveyed prior to the preparation for the current proposed project. Seven additional surveys, associated with fiber optic

lines, geothermal resources, transmission lines, highway improvements, and gas line installation, crossed the proposed PAA for the GSEP proposed linear alignment. These surveys covered roughly 25 percent of the 90-acre proposed linear facilities corridor. (Ex. 403, p. C.3-38.)

A total of 312 previously identified cultural resources and 79 isolated finds were identified in the CHRIS records search area (**Cultural Resources Table 1**). These figures include the results of the Tetra Tech Class II survey and McCarthy's (1993) survey. Two-hundred ninety-two of these resources were prehistoric sites and 14 were historic-period sites. Four sites had both prehistoric and historic-period components. Two sites have undetermined time periods. Sixty-nine prehistoric isolates were identified: 59 lithics, 4 ceramics, 4 ground stone, 1 isolate with both lithics and ceramics, and 1 unspecified prehistoric artifact. Ten historic-period isolates were identified during the literature search: 7 glass isolates, 2 cans, and 1 metal artifact. As is common practice in cultural resources management, Commission staff has eliminated the isolated finds from consideration. (Ex. 403, p. C.3-44.)

CULTURAL RESOURCES Table 1
Summary of Previously Known Cultural Resources Identified in GSEP Vicinity

	Pre-historic Sites	Historic Sites	Multi-Component Sites	Unknown Sites	Built Environ-ment	Pre-historic Isolates	Historic Isolates	Total
McCarthy 1990s Survey	224	0	0	0	0	0	0	224
Previously Known Tetra Tech	22	9	1	2	0	35	1	70
Tetra Tech Class II	46	5	3	0	0	34	9	97
Total	292	14	4	2	0	69	10	**391**

Source: (Ex. 403, p. C.3-44, Table 3)

A total of 9 of the 312 previously identified sites are within the GSEP plant site footprint or linear corridor. Five previously identified prehistoric sites fell within or near the boundary of the GSEP plant site footprint: 1 large artifact scatter (CA-Riv-9084), three small lithic scatters (CA-Riv-9047, CA-Riv-9048, CA-Riv-9051), and one large temporary camp (CA-Riv-9072). All five of these sites were identified during the recent Tetra Tech Class II survey. Four previously identified sites fell within or near the GSEP linear corridor boundary: two large prehistoric temporary camps (CA-Riv-0260 and CA-Riv-0663), 1 small historic-era refuse scatter (P33-13598), and 1 medium-sized group of WWII-era foxholes and refuse

(P33-13656). Only one of the four linear corridor sites (CA-Riv-0663) was discussed by Tetra Tech in their updated report. (Ex. 403, p. C.3-44.)

Additional important locations in the region identified during the review of previous research in the area include:

- McCoy Spring National Register District (approximately 5 miles north of the proposed linear facilities corridor at Wiley's Well Road Rest Area);
- Palen Dry Lake, BLM cultural Area of Critical Environmental Concern (adjacent);
- Corn Springs, BLM cultural Area of Critical Environmental Concern (approximately 30 miles);
- Alligator Rock, BLM cultural Area of Critical Environmental Concern (25 miles);
- Camp Young-Desert Training Center, BLM cultural Area of Critical Environmental Concern and State Historical Landmark Riv-985, (marker in Desert Center);
- Colorado River Aqueduct Contractor's General Hospital, State Historical Landmark Riv-922, marker in Desert Center); and
- 1877 Thomas Blythe Canal Intake, State Historical Landmark Riv-948, (marker in Blythe). (Ex. 403, p. C.3-46.)

The archaeologists for the Applicant employed six phases of fieldwork to inventory the cultural resources in the GSEP site footprint and linear facilities corridor including: 2 geoarchaeological studies, 3 intensive pedestrian surveys, and 1 built-environment survey (**Cultural Resources Table 2**). Class III fieldwork identified 148 new cultural resources. These totals do not include Class II survey but do include the various GSEP linear alternatives. Some of the linear corridor sites will be avoided. (Ex. 403, p. C.3-55.)

CULTURAL RESOURCES Table 2
All Cultural Resources Identified in GSEP PAAs and Vicinity

	Pre-historic Sites	Historic Sites	Multi-Component	Un-known Sites	Built Environ-ment	Pre-historic Isolates	Historic Isolates	Total
McCarthy 1990s Survey	224	0	0	0	0	0	0	224
Previously Identified Tetra Tech	68	14	4	2	0	69	10	167
	Pre-historic Sites	Historic Sites	Multi-Component	Un-known Sites	Built Environ-ment	Pre-historic Isolates	Historic Isolates	Total
Tetra Tech Class III	26	20	2	0	2	72	26	148
Total	318	34	6	2	2	141	36	539

Source: (Ex. 403, p. C.3-56, Table 6)

The record indicates that 43 individual resources were identified within the GSEP Project Area of Analysis (PAAs)[1]. Fifteen of the prehistoric archaeological resources in the GSEP plant footprint and linear facilities corridor are not eligible for listing on the NRHP and the CRHR. These sites are all extremely small artifact scatters that appear to be random collections of isolates. (Ex. 403, pp. C.3-139 to C.3-140.)

There are presently 27 further resources in the proposed GSEP site footprint and linear facilities corridor that are eligible for listing in the CRHR for the purpose of the present siting case. These resources include 12 prehistoric sites, 14 historical archaeological sites, and the historic-period component of 1 multi-component site. Six of the prehistoric sites within the GSEP footprint and linear facilities corridor may be contributing elements to the Prehistoric Trails Network Cultural Landscape (PTNCL). All 15 of the historical archaeological sites have the potential to be contributing elements to the Desert Training Center California-Arizona Maneuver Area Cultural Landscape (Historic District). (Ex. 403, p. C.3-140.)

[1] This is made up of the project site plus additional areas Commission staff defines for each project as necessary for the analysis of project impacts on cultural resources. (Ex. 403, C.3-23.)

Staff recommends that 6 of these 43 resources are eligible for listing on the NRHP and the CRHR. These resources are, consequently, historical resources for the purposes of CEQA. They include:

1. World War II Desert Training Center California-Arizona Maneuver Area Cultural Landscape (DTCCL) (Historic District),

2. PTNCL (248 additional resources with indirect impacts),

3. Archaeological Resource CA-Riv-0260 (contributor to PTNCL),

4. Archaeological Resource CA-Riv-0663 (contributor to PTNCL),

5. Archaeological Resource CA-Riv-9072 (contributor to PTNCL), and

6. Built-environment Resource Wiley's Well Road.

The eligible portion of the Wiley's Well Road is not within the built-environment PAA, and is therefore it is anticipated it would not be impacted. (Ex. 403, p. C.3-140.)

Adequacy of Methodology for Determining Baseline

CURE argues that by failing to conduct Phase II excavation tests on the site, that the baseline for determining impacts to cultural resources is inaccurate (CURE 3rd Op. Br., p. 3, citing Ex. 512, p. 2; 7/21/10 RT 165:5-10). However, the RSA explains Staff's approach which did not evaluate the historical significance of each individual resource, but, rather, assumed that all of the known resources were eligible for the NRHP and the CRHR, with the exception of any resources for which Staff had sufficient information in hand to determine the resource's ineligibility for either register. Additionally, Staff assumed that the project's impacts to all assumed register-eligible resources would have to be mitigated by means of avoidance or data recovery. (Ex. 403, p. C.3-80.) Therefore, Staff created mitigation measures based upon a "worst case scenario." (7/21/10 RT 197:22-198:20).

We support Staff's conservative approach of assuming the worst case scenario for impacts analysis and mitigation, then verifying the results in subsequent surveys as required by conditions of certification (7/21/10 RT 196:14-20). (See *Riverwatch* v. *County of San Diego* (1999) 76 Cal.App.4th 1428, 1453). Indeed, as a result of this approach, the record shows that the Applicant has already redesigned the project to avoid 55 cultural resources. (Ex. 403 p. C.3-77, Ex.

441 Revised Conditions of Certification **CUL-10** and **CUL-11**; 7/21/10 RT 193:12-20).

Contacts with Native Americans

The applicant contacted the Native American Heritage Commission (NAHC) by email on October 17, 2007, in order to obtain information on known cultural resources and traditional cultural properties, and to learn of any concerns Native Americans may have about the GSEP. In addition, they requested a list of Native Americans who have heritage ties to Riverside County and who want to be informed about new development projects in the area. The NAHC responded on October 19, 2007, with the information that the Sacred Lands File (SLF) database failed to indicate the presence of Native American cultural resources in the immediate GSEP vicinity. The NAHC also forwarded a list of Native American groups or individuals interested in development projects in Riverside County. (Ex. 403, p. C.3-48.)

On November 26, 2007, the Palm Springs-South Coast Field Office of the BLM sent letters to 28 Native American groups, including the Chemehuevi Tribe and others identified by the NAHC, initiating government-to-government consultation for the proposed project. In addition, the letter invited comments or concerns regarding potential impacts to cultural resources or areas of traditional cultural importance within the vicinity of the proposed project. On November 23, 2009, BLM sent an additional letter to the Agua Caliente Band of Cahuilla Indians and informational copies to 12 other groups including the Chemehuevi Tribe, noting the Federal Register publication of the Notice of Intent (NOI) for the proposed project. The BLM letter stated that in compliance with the National Environmental Policy Act of 1969 (NEPA), as amended, and the Federal Land Policy and Management Act of 1976, as amended, the BLM Palm Springs-South Coast Field Office, together with the Energy Commission, intend to prepare an Environmental Impact Statement (EIS) and Staff Assessment (SA), which may also include an amendment to the California Desert Conservation Area (CDCA) Plan (1980, as amended) for GSEP. In this same notice the BLM announced that it intends to use the NEPA commenting process to satisfy the public involvement process for Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) as provided for in 36 CFR 800.2(d)(3). Publication of the NOI initiated the scoping process to solicit public comments and identify issues (BLM 2009a). The letter urged any concerned Native American groups to utilize the Section 106 process to provide comments or specific concerns. The record indicates that a

reply letter was received from Charles Wood, Chairman of the Chemehuevi Tribe. (Ex. 403, pp. C.3-48 through C.3-49.)

The record indicates that a number of contacts and meetings occurred between November 2007 and April 2010 in response to the NOI. The details of these contacts are listed in **Cultural Resources Table 3**.

CULTURAL RESOURCES Table 3
Details of Communications between BLM and Native American Groups

Date	Group	Communication Details
12/18/07	Quechan Tribe	Bridget Nash replied: Expressed concerns for the potential impacts affiliated with the Tribe. Requests a copy of the cultural report once it is completed.
12/21/07	Cabazon Band of Mission Indians	Judy Sapp replied: If there are substantial impacts, the Tribe will request an in-person meeting with Morongo Tribal Historian and BLM staff. She requested additional cultural resource information and for the BLM to provide a report when it becomes available.
01/29/08	Agua Caliente Band of Cahuilla Indians	Patty Tuck replied: The project is beyond both the Reservation lands and traditional use areas of the Tribe. Suggests contacting the Augustine Band of Cahuilla Indians, the Cabazon Band of Mission Indians, the Twentynine Palms Band of Mission Indians, and the Torres-Martinez Desert Cahuilla Indians.
06/23/08	Quechan Tribe	Bridget Nash requests archaeological reports.
04/29/09	Quechan Tribe	A telephone and e-mail conversation between Bridget Nash (Quechan Tribe) and Wanda Raschkow (BLM); Ms. Nash sends requested reports and Ms. Raschkow sends e-mail regarding project status.
05/20/09	Multiple Tribes	A meeting was held to discuss various solar energy projects and transmission lines in the Chuckwalla and Coachella Valleys. Attendees included BLM staff C. Dalu, R. Queen, and J. Kalish and representatives from the Agua Caliente Band of Cahuilla Indians, Morongo Band of Mission Indians, Cabazon Band of Mission Indians, Torres-Martinez Desert Cahuilla Indians, Pechanga Band of Luiseño Indians, Anza Cahuilla, Ramona Band of Mission Indians, Twentynine Palms Band of Mission Indians, and San Mañuel Band of Mission Indians.
05/21/09	Quechan Tribe	A letter was posted to Ms. Nash (Quechan Tribe) from BLM Palm Springs Field Office providing requested reports. C. Dalu sent Tetra Tech's archaeology reports.
05/29/09	Quechan Tribe	A package was posted to Ms. Nash (Quechan Tribe) from BLM Palm Springs Field Office providing requested reports.
06/05/09	Agua Caliente Band of Cahuilla Indians	Meeting with BLM and representatives of the Agua Caliente Band of Cahuilla Indians to discuss various solar projects.
06/09/09	Quechan Tribe	A telephone conversation between Bridget Nash (Quechan Tribe) and Wanda Raschkow (BLM); Ms. Raschkow reports status of project. Ms. Nash requests report. Ms. Raschkow indicates that a data-sharing agreement will be necessary before providing archaeological reports and other sensitive data.
11/05/09	Multiple Tribes	Meeting with BLM to discuss various solar projects. Attendees included BLM staff and representatives from the Agua Caliente Band of Cahuilla Indians, Morongo Band of Mission Indians, Cabazon Band of Mission Indians, Torres-Martinez Desert Cahuilla Indians, Pechanga Band of Luiseno Indians, Anza Cahuilla, Ramona Band of Mission Indians, Twentynine Palms Band of Mission Indians, and San Manuel Band of Mission Indians.Tribes request a monthly report regarding all projects. The Agua Caliente Band of Cahuilla Indians requests a site visit.

Date	Group	Communication Details
09/03/09	Quechan Tribe	BLM receives a letter from President Mike Jackson, Sr. commenting on the Programmatic Environmental Impact Statement regarding solar development being developed for the six southwestern states. Concerns expressed over cultural resources and traditional cultural properties.
12/09/09	Chemehuevi Reservation	A telephone conversation between C. Dalu and a representative of the Chemehuevi Reservation expressing concern about the impact of Genesis, Palen, and Blythe solar projects on cultural resources and traditional cultural properties.
12/23/09	La Cuna de Aztlan Sacred Sites Protection Circle	This is a group composed of members from multiple tribes dedicated to the protection of sacred sites in traditional territories in the Colorado and Mojave Deserts. Their comments were included in a formal letter from the CAlifornians for Renewable Energy (CARE) in response to the BLM/CEC request for comments on the GSEP NOI. Concerned about damage to cultural resources such as trails and springs, in particular McCoy Spring.
02/16/10	Quechan Tribe	BLM receives a letter from President Mike Jackson, Sr. commenting on the regulatory approval schedule for the solar "fast-track" projects including Genesis. Concerns expressed about the ability of BLM to consult appropriately with the Tribe in the time frame envisioned. Also suggests that a Section 106 PA is inappropriate for these projects.
04/23/10	Multiple Tribes	Meeting with BLM and CEC to discuss cultural resources impacts for the I-10 Corridor solar projects (Genesis, Blythe, Palen). Attendees included BLM and CEC cultural resources staff, CA SHPO, cultural resources specialists for the applicants, and representatives from the Agua Caliente Band of Cahuilla Indians, Cahuilla Band of Indians, and the Twentynine Palms Band of Mission Indians.

(Ex. 403, pp. C.3-53 to C.3-55.)

CARE contends that the Commission staff violated due process requirements when it failed to include any direct consultation with the affected tribal governments and therefore failed to make the draft SA/EIS [RSA Supplement or Exhibit 403] public for comment and review. (CARE Op. Br., p.5.)

At the commencement of the permitting process for the GSEP, the project was jointly coordinated between BLM and the Commission. This resulted in a jointly prepared SA/DEIS with BLM taking the lead on Native American contacts. Tables 4 and 5 of the Cultural Resources Section of the RSA Supplement document the initial outreach and contacts to the Native American community. (Ex. 403, p. C.3-48 through C.3-55). According to Staff's expert, traditional government to government consultation is required between the BLM, as the federal lead agency, and the Native Americans under Section 106 of the National Historic Preservation Act (NHPA). (7/21/10 RT 160:11-25.)

In addition to these contacts, the Commission followed all of its regulations in publishing numerous notices for public participation in over 15 public workshops and 3 evidentiary hearings and several Committee-conducted Status Conferences. The evidentiary record does not contain any evidence, nor do we find any basis to support an allegation that the Commission has failed to afford any party or member of the public due process in the conduct of these

proceedings. Therefore, we reject CARE's claim that the Commission has violated anyone's Due Process Rights.

4. Potential Impacts

Direct impacts to cultural resources are those associated with project development, construction, and co-existence. Construction usually entails surface and subsurface disturbance of the ground, and direct impacts to archaeological resources may result from the immediate disturbance of the deposits, whether from vegetation removal, vehicle travel over the surface, earth-moving activities, excavation, or demolition of overlying structures. Construction can have direct impacts on historic resources when those structures must be removed to make way for new structures or when the vibrations of construction impair the stability of historic structures nearby. New structures can have direct impacts on historic structures when the new structures are stylistically incompatible with their neighbors and the setting, and when the new structures produce something harmful to the materials or structural integrity of the historic structures, such as emissions or vibrations.

Generally speaking, indirect impacts to archaeological resources are those which may result from increased erosion due to site clearance and preparation, or from inadvertent damage or outright vandalism to exposed resource components due to improved accessibility. Similarly, historic structures can suffer indirect impacts when project construction creates improved accessibility and vandalism or greater weather exposure becomes possible.

The record indicates that the GSEP project would have a direct impact on 27 historically significant archaeological resources and indirect impact on 248 contributors to a historically significant cultural landscape. These impacts include:

- Direct impacts to 6 prehistoric-to-historic-period Native American archaeological sites;
- Direct impacts to 6 and indirect impacts to 248 prehistoric-to-historic-period Native American archaeological sites which are potential contributing elements to the prehistoric and ethnographic cultural landscape (historic district), herein referred to as the Prehistoric Trails Network Cultural Landscape (PTNCL);
- Direct impacts to 15 historic-period archaeological sites that are potential contributing elements to a historic-period cultural landscape (historic district), herein referred to as the World War II Desert Training Center California-Arizona Maneuver Area Cultural Landscape (DTCCL); and

- Direct and cumulative impacts to the PTNCL and the DTCCL, resulting from the GSEP's impacts to contributors to these regional resources that staff has determined register-eligible. (Ex. 403, p. C.3-1.)

The record indicates that the integrity of setting and integrity of feeling of all known built-environment resources, recommended register-eligible and located within the GSEP's impact block, would not be significantly impacted and adversely affected by the erection of the GSEP. (Ex. 403, p. C.3-142.)

To mitigate GSEP's direct and indirect impacts, Conditions of Certification **CUL-3** through **CUL-17**, were designed to mitigate direct and indirect impacts to the cultural resources specific to the project. **CUL-3** identifies the people who would implement the balance of the conditions, and **CUL-4** specifies the information the project owner will supply. **CUL-5** provides for the preparation and implementation of the Cultural Resources Monitoring and Mitigation Plan (CRMMP), which will structure and govern the implementation of the broader treatment program. **CUL-6** requires the preparation of a final report to analyze, interpret, and document the ultimate results of the whole GSEP cultural resources management program. **CUL-7** requires training of project personnel to identify, protect, and provide appropriate notice about known and new potential cultural resources in the project construction area. **CUL-8** and **CUL-9** requires construction monitoring and cultural resources discovery protocols. **CUL-10** through **CUL-13** and **CUL-17** are treatment conditions for direct impacts to historic-period and prehistoric resources. Staff concluded that the implementation of Conditions of Certification **CUL-3** through **CUL-17** will reduce the severity of GSEP impacts to less-than-significant. (Ex. 403, pp. C.3-1 to C.3-2.)

Staff also testified that **CUL-14** through **CUL-16** are designed to reduce some of the indirect impacts of the proposed project on PTNCL contributors to less-than-significant. However, the indirect impacts to the contributing elements of the PTNCL have only been partially identified. The record indicates that incidental indirect impacts, such as vandalism, to be relatively minor for most of the 248 contributors to the PTNCL. Many of them are either relatively distant from the GSEP site or protected by their location in the Palen-McCoy Wilderness. However, other indirect impacts, of a cultural or spiritual nature, can only be identified by members of the community who value the resources culturally and/or spiritually; in this case, Native Americans. The BLM is currently in the process of consulting with local Native American groups and others regarding impacts and potential mitigation for the GSEP project area. The results of these negotiations will be formalized in a Programmatic Agreement (PA), as required

by Section 106 of the National Historic Preservation Act, and included in BLM's Final Environmental Impact Statement (FEIS) for the GSEP. (Ex. 403, p. C.3-2.)

CURE argues in its 3rd Opening Brief that Staff did not adequately analyze significant impacts to cultural resources nor propose Conditions to adequately mitigate the significant impacts. CURE has two primary contentions. First, that Staff only proposed requirements that mitigated impacts for the value of scientific research (rather than ethnographic or spiritual values). Second, that Staff's mitigation approach goes straight to data recovery without requiring avoidance. (CURE 3rd Op.Br., pp. 6-10.)

Staff argues in their Reply Brief that research was not the only value being considered in evaluations of significance and proposed mitigation. For example, Table 8 (Ex. 403 p. C.3-67*)* contains a list of sites that were primarily considered for ethnographic (non-scientific) impacts. For mitigation of impacts to ethnographic resources or spiritual resources, Staff proposed Conditions of Certification, **CUL-1** and **CUL-16** to address potential impacts to these resources as currently identified. Condition **CUL-1** funds a regional study specifically to mitigate any potential contribution to a cumulative impact to the Prehistoric Trails Network as a cultural landscape. (7/21/10 RT 150: 15-21; 151: 2-7) (Staff's Reply Br. To Issues Raised at the 7/21/10 Hearings.)

Staff further argues:

> *Under Section 106 of the National Historic Preservation Act, the BLM must perform a government-to-government consultation with Native Americans. As a result of this process, additional ethnographic resources may be discovered which could be impacted by the project. The BLM's Programmatic Agreement is the appropriate mechanism to address impacts to ethnographic resources and to develop mitigation. The Applicant would be subject to any mitigation in the Programmatic Agreement and the mitigation required by Conditions of Certification,* ***CUL-1*** *and* ***CUL-16****. (7/21/10 RT 151:2-25; 152:1-25; 153:1-12). It should be noted that at this time, no specific formally identified traditional cultural property has been mentioned in or near Genesis by Native American groups and, therefore, no impacts have been identified. (7/21/10 RT 152:1-25)* (Staff's Reply Br. To Issues Raised at the 7/21/10 Hearings).

Staff's expert testified "once you've destroyed cultural resources, they're gone forever. And in the case of standard recommended mitigation, specifically only for archeological sites where we're recovering information, modern excavation

techniques can indeed recover some, but not all of this information. And unfortunately data recovery doesn't mitigate the loss of other kinds of values that would be part of these resources, spiritual values, and cultural values." (7/21/10 RT 147:21-148:12.)

Conclusion Re: Direct Impacts

We are left with the following observations: damage to cultural resources is often permanent and cannot be repaired. Further, cultural resources mitigation strategies such as archaeological excavation preserve some important values – such as data – while simultaneously destroying other values – such cultural or spiritual values. These contradictions have resulted in a common preference for avoidance as a primary mitigation strategy. For cultural resources in general, CEQA gives a priority to avoidance. CARE also advocates avoidance. However, there are many mitigation strategies that preserve the multiple kinds of values inherent in cultural resources. In addition to encouraging the applicant to avoid 55 known cultural resources, staff has also designed multiple mitigation strategies for the remaining 27 cultural resources that will be directly impacted by GSEP construction. Data recovery will reduce the loss of information in these resources to less-than-significant. However, at least six, and perhaps more, of the 27 resources have cultural or ethnographic values as well as information values. Staff has designed several mitigation strategies that will reduce the impacts to these cultural values, but we conclude that reducing them to a level of less-than-significant may be impossible.

It seems that everyone agrees that sacredness is in the eye of the beholder, and that damage to sacredness is difficult or impossible to mitigate. (7/21/10 RT 150:4-14; 175:12-19.)

Intervenor CARE, called as a witness Alfredo Figueroa, a member of the Chemehuevi Tribe, to testify regarding the ethnographic values of the GSEP site. Mr. Figueroa testified that the GSEP site is "very, very sacred. It's the most sacred area in the world." (7/21/10 RT 236:1-12, Ex. 617.) Several members of the public also commented on the high cultural values placed on the cultural resources found in the area around the GSEP. (7/21/10 RT 94:7-116:9.)

In light of the record, we find that although direct impacts to cultural resources at the GSEP site have been, and will be, substantially mitigated; the sites that are contributors to the PTNCL contain both archeological and ethnographic resources and although the impacts to these resources will be mitigated in some

ways, the impacts to the ethnographic resources may not be mitigated below the level of significance. (Ex. 403, p. C.3-76.)

5. Cumulative Impacts

A cumulative impact refers to a project's incremental effects considered over time and together with those of other nearby, past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the project. (Pub. Res. Code § 21083; Cal. Code Regs. tit. 14, § 15064(h), 15065(a) (3), 15130, and 15355.) The construction of other projects in the same area as the project could affect unknown subsurface archaeological deposits, both prehistoric and historic.

The GSEP impacts, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels. (Ex. 403, p. C.3-152.)

The majority of the proposed future projects examined in this analysis would likely undergo CEQA and/or NEPA review. Sites that could not be avoided would be tested to evaluate significance. National and California Historic Register-eligible sites would be subject to historical documentation or data recovery excavations to mitigate impacts. Although it is anticipated these measures would reduce many individual site impacts to less than significant levels, archaeological excavation and analysis cannot recover all the scientific values and other values of a site. (Ex. 403, p. C.3-152.)

This analysis estimates that more than 800 sites within the I-10 Corridor, and 17,000 sites within the Southern California Desert Region, will potentially be destroyed. The destruction of cultural resources and cultural landscapes results in the loss of information, but also to irreparable damage to cultural and spiritual values. In terms of the loss of information, mitigation can reduce the impact of this destruction, but not to a less-than-significant level. In terms of cultural and spiritual impacts, the nature of these impacts and potential mitigation measures can only be determined by members of the community who value the resources and landscapes, in this case Native Americans. Because only they can suggest possible mitigation, if any, this cumulatively considerable impact may be unmitigable. (Ex. 403, pp. C.3-152 through C.3-153.)

To reduce GSEP's impacts to the greatest extent possible, we will impose **CUL-1** and **CUL-2**. **CUL-1** and **CUL-2** would reduce GSEP's cumulative impact by funding programs to define, document, and possibly nominate to the National Register of Historic Places the two cultural landscapes that GSEP shares with two other nearby solar projects, thus protecting these landscapes from further development and degradation. The cost of these programs would be shared by the three projects based on the acreage they would occupy. While the implementation of these conditions will reduce the GSEP impacts to the greatest extent possible, remaining impacts will still be cumulatively considerable. (Ex. 403, p. C.3-153.)

6. Impacts to Native American Religious Practices

CARE claims that the proposed Genesis Solar Energy Project conflicts with local Native American tribes' freedom to practice their religions. CARE relies on the Religious Freedom Restoration Act of 1993 [42 U.S.C. §§ 2000bb et seq.] (Hereinafter, "RFRA").

In *Navajo Nation v. United States Forest Service* 535 F. 3rd. 1058 (9th Cir. 2008), the Ninth Circuit Court of Appeals sitting en banc, articulated a two-pronged standard to determine whether government action of approving a project interferes with Native American religious practices. In *Navajo Nation,* the United States Forest Service, after complying with NEPA and Section 106 of the NHPA, approved the use of a portion of a mountain side and recycled water to make artificial snow. Several Native American tribes claimed the mountain was sacred and the approval would interfere with their religious practices. The court held that in order for a party to establish a prima facie RFRA claim, a plaintiff must present evidence sufficient to allow a trier of fact to rationally find the existence of two elements. First, the activities the plaintiff claims are burdened by the government action must be an "exercise of religion." Second, the government action must "substantially burden" the plaintiff's exercise of religion. (*Navajo Nation v. United States Forest Service* 535 F. 3rd. 1058 (9th Cir. 2008) at page 1068).

In this matter, according to the testimony of Alfredo Acosta Figueroa: the Interstate-10 corridor 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 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, California.

CARE submitted testimony that claims that the proposed Blythe Solar Power Project (several miles to the east of the GSEP) is overlaid on more than 25 large geoglyphs called the Blythe Giant Intaglios. One trail traverses west through the south end of the McCoy Mountains to the McCoy Springs. 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. (Ex. 600.)

CARE submitted a digital video disc (DVD) entitled “La Cuna de Aztlan” featuring video of the Blythe Giant Intaglios with Mr. Figueroa describing the ethnographic history of the geoglyphs. (Ex. 615.) In his testimony at the hearing, Mr. Figueroa testified that the GSEP site, along the north edge of the Ford Dry Lake, was part of the Aztec's migration. He described the GSEP site as a “cross roads” and stated that the area is “very, very sacred.” (7/21/10 RT 236:1-12.)

CARE also submitted what appears to be a topographical map entitled “Francis J. & Patricia H. Johnston’s Map: University of California Archaeological Survey, April 1, 1957” (Ex. 608.) The legend of the map defines symbols used in the map, to wit, a straight line indicates “recorded trail,” a broken line indicates “reported trail,” a dot-dash line indicates “tribal boundary,” a round bullet indicates an “occupation site,” an “X” indicates “sherds or trail feature,” and a “+” indicates, “petroglyphs.” Superimposed over the black and white map, it appears that someone used a pink highlighter marker to indicate the approximate locations of the Palen, Genesis and Blythe power plant sites and a line that we can only infer was drawn to show the trail that Mr. Figueroa referred to in his testimony as the “Aztec’s migration.” (7/21/10 RT 236:1-12; Ex. 608.)

The pink highlight that appears to represent the location of the GSEP occurs northwest of “Ford Lake” just south of the intersection of the Desert Cahuilla and Chemehuevi tribal boundary. A broken line indicating a “reported trail” runs laterally through the rough rectangle representing the GSEP site. A straight line indicating a “recorded trail” crosses the broken reported trail near Sidewinder Well, goes around the GSEP site and terminates at “Ford Lake.” (Ex. 608.)

The Applicant contends that the prehistoric trail alleged by CARE is not present within the GSEP disturbance area. Applicant argues that there has never been any confirmation that this bisecting trail exists or ever existed. According to the Applicant, “[t]he field crews conducting the GSEP surveys were well aware of what prehistoric trails look like and how to record them. Prehistoric trails are generally only visible in this region, in areas of desert pavement that are

geologically stable. No trails were observed within the GSEP [disturbance area and buffer zones] during the pedestrian and geoarcheological field surveys. Although CARE made a video of the region and submitted it as evidence, the video does not show any trail within or near the GSEP site or disturbance area." (Applicant's Brief in Reply to CARE, p. 4.)

Indeed, the video shows impressive intaglios, but the evidence indicates that they are too far outside the GSEP impact area to be considered within the project area. (7/21/10 RT 245:4-20). The video does not show any trails within or near the GSEP site at all. As to the purported trail on the GSEP site, the record lacks competent evidence of its existence. The only evidence of the trail is Mr. Figueroa's testimony and the Johnston Map (Ex. 608). However, Mr. Figueroa's conclusory allegation that "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" is the only evidence of the location the trail in relationship to the GSEP in the record. (Ex. 600, p. 2.) The Johnston map by its own terms indicates that the trail highlighted in pink is "reported" not "recorded," and the pink highlight itself contains no foundation, authentication or any reference in the record. The inexactitude of and multiple layers of hearsay evidence contained in the Johnston map renders that evidence too untrustworthy to explain or supplement Mr. Figueroa's conclusion. (20 Cal. Code Regs., § 1212.) Therefore, we find that while a reported but unrecorded trail may have existed somewhere in the general area of the GSEP, CARE's mere allegation that a trail is on the GSEP site is not supported by evidence.

Given the record before us, we have very little evidence showing an "exercise of religion" under the first prong of the *Navajo Nation* case *(supra),* other than Mr. Figueroa's conclusory characterization of the area as "very, very sacred." (7/21/10 RT 236:1-12). We accept that the area is sacred to the local Native American population (7/21/10 RT 150:4-14; 175:12-19) and we have already found that the mere presence of the solar power plant in the area will have direct and cumulative adverse impacts to ethnographic cultural resources. But if there is any further exercise of religion beyond considering the area sacred, it is not in the record.

The second prong of *Navajo Nation* requires a showing that the government action places a "substantial burden" on the plaintiff's exercise of religion. The Supreme Court held in *Navajo Nation* that plaintiffs must show that they were either "coerced by the Government's action into violating their religious beliefs" or that the "governmental action penalized religious activity by denying [the

plaintiffs] an equal share of the rights, benefits, and privileges enjoyed by other citizens". (*Navajo Nation* at 449, 108 S.Ct. 1319.11.)

There is simply no evidence in the record whatsoever that would satisfy the second prong of *Navajo Nation.* Since the record does not establish the presence of any intaglios or trails on the GSEP site, there will be no destruction of or interference with any known sacred landmarks (7/21/10 RT 152:15-18). We find that CARE has not made a prima facie showing to support an RFRA claim.

7. Public Comment

We reserved a special time for public comment at the July 12, 13, and 21, 2010 hearings. Public comments made at the July 21st hearing on **Cultural Resources** are summarized and responded to below: (7/21/10 RT 94–115.)

CURE submitted “comments” which were essentially identical to the arguments made in their briefs. The Decision addresses CURE’s arguments, above.

Rachael Stellar, of Green Action, expressed her concern about the discriminatory impacts the project would have on Native Americans and their cultural resources. She suggested that GSEP would discriminate against Native Americans and she expressed her disappointment that Alfredo Figueroa was the only Native American to address the Committee. She also expressed concern that the project would destroy more of the little cultural history of Native Americans that remains untouched in this country. (7/21/10 RT 94:7–96:7.)

The Committee acknowledges these concerns but does not agree that the GSEP is discriminatory against any group. The Decision concludes that destruction of cultural resources caused by the GSEP will not be mitigated below significance. However, this is not to say that they will not be mitigated. The Conditions of Certification, below, mitigate the impacts to cultural resources to the extent possible. We especially believe the Prehistoric Trails Network Cultural Landscape funding would be particularly helpful to the Native Americans because it would add formal designation and protection from development to the trails adjacent to the project.

Patricia Pinon, introduced herself as champion of the Blythe Giant Intaglios and part of the La Cuna de Aztlan Sacred Sites Protection Circle. She expressed her concern about the impact from the proposed solar power plants along the I-10 corridor on sacred sites, including sacred trails and the giant geoglyphs. She

encouraged people to come and visit the sacred sites and stressed the importance of protecting the sites. (7/21/10 RT 96:19–99:14.) The Committee has seen the sites and the intaglios and has included Conditions of Certification **CUL-1, CUL-16, CUL-17,** and **CUL-18** in this Decision to protect ethnographical cultural resources.

Juan Gonzalez, Palo Verde College student and friend of Alfred Figueroa, discussed the importance of the sacred sites and cultural history in the Blythe area and Palo Verde Valley. He expressed his desire for the siting of the solar plants to avoid the sacred sites. (7/21/10 RT 99:19–100:25.) The record indicates that the GSEP would not impact any known sacred sites.

Robert Lundahl, CARE and producer of the La Cuna de Aztlan video submitted as part of the evidence, commented on the spiritual and sacred nature of the features that are present in the Ford Dry Lake area. He stressed the importance of understanding the entire region from an indigenous perspective and the meaning of the various features and locations and how they intersect. (7/21/10 RT 104:7–106:4.) The record indicates that the GSEP would not impact any known sacred sites and will not interfere with the free exercise of Native American religion.

Robert Gonzalez Vasquez, videographer with the La Cuna de Aztlan Sacred Site Projection Circle, expressed his concern about the neglect and abuse of cultural resources, namely the geoglyphs and petroglyphs in the Blythe area. He stressed the importance of preserving these cultural resources in the area that “rival any national park that deals with Native American artifacts.” (7/21/10 RT 106:11–108:19.)

The record indicates that the GSEP would not impact any known sacred sites and the conditions of certification address the neglect and abuse of cultural resources. However, the record does not contain evidence of geoglyphs and petroglyphs in the GSEP area.

Alfredo Acosta Figueroa introduced himself as the person in the La Cuna de Aztlan video and Chemehuevi Tribal Monitor of the sacred sites. He expressed his concern about the public participation process and the decision to hold hearings in Sacramento instead of Blythe. He complained that he did not receive notice of the informational hearing until the day before the hearing. He was also displeased that the bus did not drive onto the site during the site visit. He also reiterated his concerns about the impacts of the project on the sacred trails as

discussed in the La Cuna de Aztlan video. He commented on the long history of prejudice to Native Americans and reiterated that once the cultural resources are destroyed, they can never be replaced. (7/21/10 RT 109:14–115:24.) The record indicates that considerable efforts were undertaken to ensure the Native American community received notice of the proposed project and given the opportunity to fully participate.

The applicant contacted the NAHC by email on October 17, 2007, in order to obtain information on known cultural resources and traditional cultural properties, and to learn of any concerns Native Americans may have about the GSEP. In addition, they requested a list of Native Americans who have heritage ties to Riverside County and who want to be informed about new development projects there (Farmer et al. 2009, app. E). The NAHC responded on October 19, 2007, with the information that the Sacred Lands File (SLF) database failed to indicate the presence of Native American cultural resources in the immediate GSEP vicinity. The NAHC also forwarded a list of Native American groups or individuals interested in development projects in Riverside County.

On November 26, 2007, the Palm Springs-South Coast Field Office of the BLM sent letters to 28 Native American groups, including those identified by the NAHC, initiating government-to-government consultation for the proposed project. In addition the letter invited comments or concerns regarding potential impacts to cultural resources or areas of traditional cultural importance within the vicinity of the proposed project. On November 23, 2009, an additional letter was sent to the Agua Caliente Band of Indians and informational copies to 12 groups listed in Cultural Resources Table 3, noting the Federal Register publication of the NOI for the proposed project. The letter urged any concerned groups to utilize the Section 106 process to provide comments or specific concerns. (Exhibit 400 Staff Assessment C.3-56 to C.3-58**.**)

The record indicates a number of contacts and meetings between various tribes and the BLM early on in the process between November, 2007, and December, 2009. The details of these contacts are listed in Cultural Resources Tables 4 and 5. A number of tribes—Agua Caliente Band of Cahuilla Indians, Morongo Band of Mission Indians, Cabazon Band of Mission Indians, Torres-Martinez Desert Cahuilla Indians, Pechanga Band of Luiseño Indians, Anza Cahuilla, Ramona Band of Mission Indians, Twentynine Palms Band of Mission Indians, and San Mañuel Band of Mission Indians—attended meetings with BLM and Commission staff about various solar energy and transmission line projects in the region. (Exhibit 400 Staff Assessment C.3-58 to C.3-59**.**)

The record indicates that the GSEP will not impact any known sacred sites and the Conditions of Certification **CUL-1, CUL-16, CUL-17,** and **CUL-18** in this Decision mitigate the potential neglect and abuse of cultural resources by, among other things, adding legal protection to the Prehistoric Trails Network Cultural Landscape. However, the record contains evidence of geoglyphs and petroglyphs which are near the Blythe solar power plant but are not in the GSEP area, so the GSEP would have no direct effect on them.

FINDINGS OF FACT

Based on the uncontroverted evidence, the Commission makes the following findings and reaches the following conclusions:

1. Without mitigation, the GSEP project would have a significant direct impact on at least 27 known historically significant archaeological resources.
2. Without mitigation, the GSEP project has the potential to have a significant indirect impact on at least 248 known contributors to a historically significant cultural landscape.
3. The method used for determining baseline impacts to cultural resources is appropriate.
4. There are six known cultural resources presently in the GSEP site footprint and linear corridor that are eligible for listing on the NRHP and CRHR.
5. There are presently 23 known resources in the proposed GSEP site footprint and linear facilities corridor that staff assumes are eligible for listing in the NRHP and the CRHR.
6. The integrity of setting and integrity of feeling of all known built-environment resources, recommended register-eligible and located within the GSEP's impact block, would not be significantly impacted and adversely affected by the erection of the GSEP.
7. The Native American Heritage Commission did not identify any Native American sacred sites within the project's impact area.
8. Tribal governments have been contacted for a Section 106 consultation.
9. Archaeological recovery is inherently destructive, so avoidance is the preferred way to mitigate impacts to known cultural resources.
10. The GSEP has been redesigned to avoid 55 cultural resources, but its construction will still directly impact 27 cultural resources.
11. Data recovery mitigates scientific values but not ethnographic or cultural (spiritual) values.

12. Although direct impacts to cultural resources at the GSEP site will be substantially mitigated; the potential impacts to ethnographic or spiritual values may not be mitigated below the level of significance.

13. Conditions of Certification **CUL-1** through **CUL-17** ensure that all direct and indirect impacts to cultural resources discovered during construction and operation are mitigated to the greatest extent possible.

14. Even with the implementation of Conditions of Certification CUL-1 and CUL-2, GSEP's incremental contribution to cumulative impacts to cultural resources would be cumulatively considerable.

CONCLUSIONS OF LAW

1. With implementation of the Conditions of Certification below, the GSEP will conform to all applicable laws, ordinances, regulations, and standards relating to cultural resources as set forth in the pertinent portion of **Appendix A** of this Decision.

2. Notwithstanding the implementation of the Conditions of Certification below, the project may still have significant direct and indirect unmitigated environmental impacts on cultural resources.

3. Notwithstanding the implementation of the Conditions of Certification, the project may permanently change and/or result in the destruction of cultural resources, both known and as yet unknown, contributing to a cumulatively considerable impact which will be mitigated to the extent possible, but may not be fully mitigated.

CONDITIONS OF CERTIFICATION

CUL-1 PREHISTORIC TRAILS NETWORK CULTURAL LANDSCAPE (PTNCL) 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 PTNCL Documentation and Possible NRHP Nomination program presented in the cultural PTNCL Genesis Solar Energy Project (GSEP) Revised Staff Assessment (RSA).

The amount of the contribution shall be $35 per acre that the project encloses or otherwise disturbs. An additional contribution may be required to ensure the completion of the required documentation and possible NRHP nomination. Any additional contingency contribution is not to exceed an amount totaling 20% of the total 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 1/3 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.

Verification: The project owner shall make the required installment payment promptly upon receipt of an invoice from the Energy Commission or from the BLM. 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).

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 DTCCL Documentation and Possible NRHP Nomination program presented in the Cultural DTCCL Genesis Solar Energy Project (GSEPP Revised Staff Assessment (RSA).

The amount of the contribution shall be $25 per acre that the project encloses or otherwise disturbs. An additional contribution may be required to ensure the completion of the required documentation and possible NRHP nomination. Any additional contingency contribution is not to exceed an amount totaling 20% of the total 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 1/3 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.

Verification: The project owner shall make the required installment payment promptly upon receipt of an invoice from the Energy Commission or from the BLM. 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 Energy Commission's Compliance Project Manager, (CPM).

CUL-3 CULTURAL RESOURCES PERSONNEL

Prior to the start of ground disturbance (includes "preconstruction site mobilization", "ground disturbance," and "construction 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), one or more alternate CRSs, if alternates are needed, and the technical specialists identified below in this condition. The CRS can also serve in the role of one or more of the technical specialists if that person has the requisite qualifications.

The CRS shall manage all cultural resources mitigation, monitoring, curation, and reporting activities in accordance with the Conditions of Certification (Conditions). The CRS shall have a primarily administrative and coordinative role for the GSEP. The project owner shall ensure that the CRS implements the cultural resources conditions, providing for data recovery from known historical resources, and shall 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 impacted in an unanticipated manner. The CRS may obtain the services of field crew members and cultural resources monitors (CRMs), if needed, to assist in mitigation, monitoring, and curation activities. No ground disturbance shall occur prior to 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 resumes 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 3 of those years in California; and
3. At least 3 years of experience in a decision-making capacity on cultural resources projects, with at least 1 of those years in California, and the appropriate training and experience to knowledgably make recommendations regarding the significance of cultural resources.

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-10, 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 resume 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.

If mechanical excavation is required during the excavation of CA-Riv-9072, the project owner shall ensure that the CRS obtains the services of a specialist backhoe operator to conduct the subsurface mechanical excavation_described in **CUL-11**. This backhoe operator shall have a resume that demonstrates previous experience using a backhoe in coordination with an archaeologist. In addition the operator shall use a machine with a "stripping bucket" that is sensitive enough to remove even and consistent layers of sediment 5 cm thick.

The project owner shall ensure that the CRS obtains the services of a qualified ethnographer to conduct the research and activities specified in **CUL-16**, *if one is not hired* by the PTNCL PI for the overall duties as described in the PTNCL documentation and possible NRHP nomination program. The Project Ethnographer's (PE) training and background must meet the NPS standards for Anthropologist/Applied Ethnographer (GS-190, 11-12 or 13-15). The PE must have already established long-term relationships with Native American groups whose traditional territories are near GSEP.

The project owner shall ensure that the CRS obtains the services of a qualified historical archaeologist to conduct the research specified in **CUL-17**. 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 project owner shall ensure that the CRS obtains the services of a qualified geoarchaeologist to conduct the research specified in **CUL-8, CUL-10, and CUL-11.** The resume of the proposed Project Geoarchaeologist (PG) shall demonstrate that the PG's training and background meet the U.S. Secretary of Interior's Professional Qualifications Standards for prehistoric archaeology, as published in Title 36, Code of Federal Regulations, part 61, and show the completion of graduate-level coursework in geoarchaeology or Quaternary science.

The resumes of the CRS, alternate CRS, PPA, PE, PHA, and PG shall include the names and telephone numbers of contacts familiar with the work of these persons on projects referenced in the resumes 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.

Verification:

1. No less than 75 days prior to the start of ground disturbance, the project owner shall submit the resumes for the CRS, the alternate CRS(s) if desired, the PPA, the PE, the PHA, and the PG to the CPM and BLM, if desired by BLM, for review and approval.

2. At least 10 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, the PE, the PHA, and the PG will be available for on-site work and are prepared to implement the cultural resources Conditions **CUL-8, CUL-10, CUL-11, CUL-12,** and **CUL-17.**

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 resume of the proposed new CRS to the CPM and BLM, if desired by BLM, 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 3 days without a CRS. If cultural resources are discovered then ground disturbance will remain halted until there is a CRS or alternate CRS to make a recommendation regarding significance.

4. At least 15 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 15 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 5 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 DOCUMENTS FOR CULTURAL RESOURCES PERSONNEL

Prior to the start of ground disturbance, the project owner shall provide the CRS, the PPA, the PE, the PHA, and the PG with copies of the AFC, data responses, confidential cultural resources documents, the Revised Staff Assessment (RSA), and the RSA Supplement/Errata, if any, for the project. The project owner shall also provide the CRS, the PPA, the PE, the PHA, the PG, 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. Staff 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. Release of cultural resources information will be pending BLM approval.

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, the PG, 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 the CPM of any changes to the scheduling of the construction phases.

Verification:

1. 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), and RSA Supplement/Errata to the CRS, if needed, and to the PPA, the PHA, and the PG. The project owner shall also provide the subject maps and drawings to the CRS, PPA, PE, PHA, PG, 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 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 5 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, the PHA, and the PG. 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, the PE, the PHA, the PG, 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 Energy Commission 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 any 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.

3. A general research design shall be developed that:

   a. Charts a timeline of all research activities, including any coordinated under the PTNCL and DTCCL documentation and possible NRHP nomination programs;

   b. Recapitulates any 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 GSEP vicinity;

c. Poses archaeological research questions and testable hypotheses specifically applicable to the archaeological resource types known for the Chuckwalla Valley, based on any 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-3, CUL-10, CUL-11, CUL-12, CUL-16,** and **CUL-17** shall be specified for the data recovery from known prehistoric and historic-period archaeological resources.

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 under **CUL-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.
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 GSEP 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.

Verification:

1. 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 initiation 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 GSEP cultural resources activities and requiring curation. Any agreements concerning curation will be retained and available for audit for the life of the project.

CUL-6 CULTURAL RESOURCES REPORT (CRR)

The project owner shall submit the final Cultural Resources Report (CRR) to the CPM for review and comment and to the BLM Palm Springs archaeologist for review and approval. The final CRR shall be written by or under the direction of the CRS and shall be provided in the ARMR format, as specified by the California State Historic Preservation Office. 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.

Verification:

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 Field Office archaeologist for review and approval. 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 Field Office 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.

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 in consultation with local Native Americans and shall incorporate the traditions and beliefs of local Native American groups into the presentation. If consultation with local Native Americans is not possible, the CRS shall consult, instead, with an ethnographer, either the PTNCL Ethnographer or the GSEP PE, on the content of the presentation. The presentation may be conducted by any member of the archaeological team and a Native American, if possible (preferably the Native American serving as a construction monitor under **CUL-8**), and may be presented in the form of a video. A consulting fee or honorarium shall be negotiated with the local Native American consultants and presenter and paid to them for their participation. 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. 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. A discussion of what local Native American beliefs are, how those beliefs are related to archaeological resources that may be found in the area, and the appropriate respectful behavior towards sacred places and objects;

6. 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;

7. Instruction that employees are to avoid areas flagged as sensitive for cultural resources;

8. 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;

9. An informational brochure that identifies reporting procedures in the event of a discovery;

10. An acknowledgement form signed by each worker indicating that they have received the training; and

11. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

No ground disturbance shall occur prior to implementation of the WEAP program, unless such activities are specifically approved by the CPM.

Verification:

1. At least 30 days prior to the beginning 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 beginning of ground disturbance, the CPM will provide to the project owner a WEAP Training Acknowledgement form for each WEAP trained worker to sign.

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

Staff expects the Qoaf alluvium to be reached during grading across most of the site. The project owner shall ensure that the CRS, alternate CRS, or CRMs monitor full time all ground disturbance, if allowed by the BLM, until the CRS, alternate CRS, or CRMs certify that the sterile Qoaf alluvium has been reached. This will include ground disturbance at the project site, along the linear facilities routes, and at laydown areas, roads, and other ancillary areas, to ensure there are no impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner.

During utility trenching along the linear corridor, which is expected to reach a depth of 10 feet, the face of each trench shall be examined for features. While the utility trench is open, the owner shall arrange for a geoarchaeologist with qualifications described in **CUL-3** to observe the exposed stratigraphy. This specialist shall collect information and samples that will aid in the paleo-environmental reconstruction of Ford Dry Lake over the last 14,000 years, as specified in the PTCNL documentation and possible NRHP nomination program funded under **CUL-1**.

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 fifty feet from the location of active excavation, one monitor shall both observe the location of active excavation and inspect the dumped material.

In the event that the CRS believes that the required number of monitors is not appropriate in certain locations, a letter or e-mail detailing the justification for changing the number of monitors shall be provided to the CPM for review and approval prior to any change in the number of monitors.

The project owner shall obtain a Native American monitor to monitor ground disturbance if local Native American groups so request. 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. Staff 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.

On forms provided by the CPM, CRMs shall keep a daily log of any monitoring and other cultural resources activities and any instances of

non-compliance 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, including PTNCL sites monitoring, with Energy Commission technical staff.

Cultural resources monitoring activities, including PTNCL sites monitoring, 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.

Verification:

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. Within 15 days of receiving from a local Native American group a request that a Native American monitor be employed, the project owner shall submit a copy of the request and a copy of a response letter to the group notifying

them that a Native American monitor has been employed and identifying the Native American monitor.

3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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, PG, and the CRMs in the event of a discovery of a cultural resource over 50 years of age, or younger if determined to be exceptionally significant by the CPM. 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 BLM Palm Springs Field Office archaeologist, 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.
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.

Verification:

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, PG, 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.
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 DATA RECOVERY FOR SMALL SITES

Prior to the start of ground disturbance, the project owner shall ensure that the CRMMP includes a data recovery plan for the following sites: CA-Riv-9084, CA-Riv-9209, CA-Riv-9215, CA-Riv-9216, CA-Riv-9220, CA-Riv-9223 and CA-Riv-9227. This site list may be revised only with the agreement of the CRS and the CPM. When ground disturbance will start within 30 meters of the boundaries of these sites, the project owner shall ensure that the CRS, the PPA, 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. 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. Collects all artifacts after their locations are marked, and submits them for laboratory analysis;
3. Requests the PG to identify the specific landform for each site and its relationship to specific ancient lakeshores of Ford Dry Lake. If a lakeshore is present within 100 meters of the site boundary, it shall be included on the site map;
4. Excavates one 1-meter-by-1-meter unit in 10-centimeter levels until the unit reaches the top of the Qoaf alluvium, placing these units in the part of the site with the highest artifact density
5. Places, one 1-meter-by-1-meter excavation unit, as described above, in the center of each concentration if multiple artifact concentrations have been identified;
6. Tests the horizontal limits of the site by placing test units down to the upper boundary of the Qoaf alluvium with a shovel or hand auger, or other similar technique, at four spots equally spread around the exterior edge of each site;
7. Continues exploring the extent of the site using methods described in **CUL-11**, if features or other buried deposits are identified. Plans for this contingency shall be described in detail in the CRMMP. If no buried deposits are found, data recovery is complete;
8. Presents the results of the **CUL-10** 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

9. Updates 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; and
10. Presents the final results of data recovery at these prehistoric sites in the CRR, as described in **CUL-6**.

Verification:

1. At least 15 days prior to commencing data recovery on any of these sites, the project owner shall notify the CPM that data recovery for small 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.

CUL-11 DATA RECOVERY FOR LARGE SITES

Prior to the start of ground disturbance, the project owner shall ensure that the CRMMP includes a plan to recover data from those parts of site CA-Riv-9072 that the project will directly impact. When ground disturbance will start within 30 meters of the boundaries of this site, the project owner shall ensure that the plan is implemented, if allowed by the BLM. The sub-surface data recovery plan shall, at a minimum, include the following:

1. The research questions to be addressed by the data recovery at this potential PTNCL contributor, based on any context written by PTNCL staff as funded by CUL-1.
2. The accurate and conspicuous marking with lath and flagging of that portion of the site that is inside plant site boundaries and subject to destruction; this area shall constitute the study area for each site;
3. The detailed examination of the surface within the site study area;
4. The creation of a digital map using location recordation equipment using the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers); the map shall include at a minimum: the site boundary, local landforms, features, and the boundaries around artifact concentrations; point proveniencing on the map of all artifacts shall be used unless, in cases of high artifact density, alternative methods can be negotiated with the CPM. After

5. The testing of the horizontal limits of the site by placing test units down to the upper boundary of the Qoaf alluvium using hand excavation, augers, or other similar non-mechanical technique;
6. Use testing results to determine additional excavation that the CRS, the PPA, BLM, and the CPM shall agree upon and in order to explore the spatial variability in the physical and material character and the chronology of the site;
7. If mechanical excavation is used to identify buried deposits, a trenching plan shall be included in the **CUL-11** data recovery plan in the CRMMP, shall specify the location of the trenches and the strategy behind their placement at each site; at a minimum the trenching plan shall:

    a. Result in a 2.5 percent sample of the portion of the site expected to be destroyed, trench spacing between 10-m to 50-m, and a trench orientation from north-south, unless site specific conditions suggest better results using a different arrangement;
    b. Use backhoe trenches two feet wide and generally dug to depths no greater than 5 feet to conform to OSHA standards;
    c. Use stepped trenches or hydraulic shoring if a depth greater than 5 feet is required to investigate archaeological features, to comply with OSHA regulations;
    d. Require trench walls, excavated within the boundaries of the archaeological site, to be scraped with hand tools to provide a clear exposure of subsurface cultural remains;
    e. Require archaeological features identified in trench walls to be marked and assigned a number; and
    f. Require the completion of a trench record form for each trench that includes its essential characteristics (trench number, length, width, and depth), the locations and types of archaeological features, the stratigraphy and characteristics of exposed sediments, and locations of disturbances such as tree roots or animal burrows.

8. The requirements that:

    a. All identified features shall be documented through standardized forms, scaled profile drawings, plan view maps, and photographs;
    b. Between 50 and 100 percent of the features identified shall be fully or partially excavated, depending on their state of

preservation and the presence or absence chronologically relevant materials;

c. The proportion of excavated features shall be negotiated between the owner and the CPM, depending on the nature of the features identified, their rarity, and their information potential; and
d. Buried features shall be excavated by hand or by mechanical “stripping” with a backhoe bucket to remove sterile overburden until 20 centimeters above the limits of the feature, as identified in the trench wall, then excavating the remainder of the feature by hand, using the standard archaeological methods as outlined by the California SHPO; and
e. Samples such as flotation, pollen, and charcoal shall be methodically collected from appropriate contexts, and artifacts such as lithics, ceramics, groundstone, and shell shall be subject to the professionally appropriate laboratory analyses.

9. The determination of the age and function of the site, if possible;

10. A letter report, which shall serve as a preliminary report, written by the CRS, submitted to the CPM 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 the 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 excavation units, including topographic contours and the site landforms.
11. The updating of the existing DPR 523 site forms including new data on features, artifact analyses and the overall results of the data recovery and the landform;
12. The definitive determination as to whether the site evaluated is a contributing element to the PTNCL, made by the PTNCL PI using the data collected from the field work;
13. The completion of a final, comprehensive report, after all recovered data are analyzed, written by the CRS and/or the trench specialist, or under their direction;
14. The inclusion of the final version of this report in the CRR (**CUL-6**).
15. The inclusion of relevant portions of the information gathered in the National Register nomination for the PTNCL, if the nomination is done;
16. If the results would be of interest to the professional community, and BLM allows, a paper will be presented at a professional

conference incorporating the final results of all data recovery at CA-Riv-9072, in accordance with all applicable laws.

Verification:

1. At least 45 days prior to ground disturbance, the project owner shall notify the CPM that data recovery for large sites has ensued.
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.

3. At least 15 days before the presentation of the CA-Riv-9072 paper at a professional conference, the project owner shall submit to the CPM and BLM for review and approval the draft of the required research paper.

CUL-12 SURFACE COLLECTION WITH SAMPLING FOR SITE CA-RIV-9072

Prior to the start of ground disturbance, the project owner shall ensure that the CRMMP includes a plan to recover data from those parts of site CA-Riv-9072 that the project will both directly and indirectly impact. When ground disturbance will start within 30 meters of the boundaries of this site, the project owner shall ensure that the plan is implemented, if allowed by the BLM. The surface data collection plan shall include, but is not limited to the following:

1. Completing a surface collection in the part of site CA-RIV-9072 that is inside the plant site boundaries, and thus subject to destruction, prior to ground disturbance in the area; all diagnostic artifacts and features shall be mapped using location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers), and collected; if datable materials are present on the ground surface and in clear association with a feature, a sample of these materials shall be collected;
2. Completing additional surface collection transects or units, judgmentally placed in areas of highest artifact density, in total representing 10 percent of the overall site area outside of the plant site boundaries; the artifacts in these transects shall be mapped and then collected;
3. Analyzing the collected artifacts and the incorporate the results into the appropriate section of the CRR for CA-RIV-9072;
4. Writing and submitting to the CPM a letter report by the CRS and PPA, which shall serve as a preliminary report that details what was found atCA-RIV-9072. Letter reports may address one site, or multiple sites depending on the needs of the CRS; the results of the

surface collection may be incorporated into the results of the data recovery, required in **CUL-11**, at the same site, depending on the needs of the CRS;

5. Ensuring that the letter report is 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 collection units including topographic contours and the site landforms; and
6. Including the final results of the surface collection at CA-RIV-9072 into the CRR required under **CUL-6** and in the conference paper required under **CUL-11**.

Verification:

1. At least 15 days prior to surface collection on site CA-Riv-9072, the project owner shall notify the CPM that the surface collection has ensued.

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 surface collection portion of data recovery at each site has been completed.

CUL-13 FLAG AND AVOID

Prior to the start of ground-disturbing activities within 30 meters of sites CA-Riv-0260, CA-Riv-0663, and CA-Riv-9072, the project owner shall reduce or avoid impacts to these sites, if allowed by the BLM, by:

1. Ensuring that a CRS, alternate CRS, PPA, or CRM re-establish the portion of the boundary of each site which is within 30 m of the GSEP linear corridor or site footprint, add a 10-meter-wide buffer around this boundary, and flag the resulting space in a conspicuous manner;
2. Ensuring that a CRM enforces avoidance of the flagged areas during GSEP construction;

Verification:

While construction is on-going, the project owner shall ensure that the CRS or other archaeological crew member establish that the temporary site markers are visible and in place on a monthly basis. The status of these boundary markers will be reported on in the monthly monitoring summary report.

CUL-14 DELETED

CUL-15 DELETED

CUL 16 NATIVE AMERICAN ASSESSMENT OF IMPACTS AND MITIGATION RECOMMENDATIONS FOR ETHNOGRAPHIC RESOURCES

If the PTNCL documentation and possible NRHP nomination program do not include Native American consultation and site visit regarding to the McCoy Spring National Register Archaeological District and for four petroglyph sites (CA-Riv-0523, CA-Riv-3149, CA-Riv-4569, and CA-Riv-4699), then prior to the start of construction, the project owner shall have the PE consult with local Native American groups to determine what indirect GSEP impacts they identify for the McCoy Spring National Register Archaeological District and for four petroglyph sites (CA-Riv-0523, CA-Riv-3149, CA-Riv-4569, and CA-Riv-4699; this site list may be revised only with the agreement of the CRS and the CPM), and to determine what mitigation they recommend. These consultations shall include personal interviews if allowed by BLM and agreed to Native Americans. Additionally, the PE must invite interested Native Americans to visit and view the subject district and sites, if allowed by the BLM. The project owner shall facilitate these visits by providing the necessary equipment and information on the sites.

The Project owner shall:

With the approval of BLM, construct a security gate and/or guard at the south end of the access road to prevent unauthorized access.

Will include in the WEAP (CUL-7) training to ensure that all workers are aware that they are prohibited from going outside authorized work areas. Any worker found disturbing any resources will be subject to disciplinary action, including termination.

Prior to commencement of grading operations on the plant site, the project owner will provided documentation to the CPM demonstrating that the security gate and/or guard is in place.

See **CUL-7** for WEAP verification.

Verification:

At least 30 days prior to the start of construction, the project owner shall notify the CPM that the Native American consultation by the PE has been initiated.

At least 15 days prior to the start of construction, the project owner shall provide to the CPM and to the BLM Palm Springs Field Office archaeologist the results of the PE's consultation and site visits with local Native American groups concerning the impacts they identify for the PTNCL and what mitigation they recommend for these impacts.

CUL 17 HISTORIC-PERIOD SITE MAPPING AND IN-FIELD ARTIFACT ANALYSIS

Prior to the start of ground disturbance, the project owner shall ensure that a data recovery plan for the historic-period archaeological resources identified within the GSEP site footprint and linear corridor is included in the CRMMP. These sites include: P33-13508, CA-Riv-9063, CA-Riv-9203, CA-Riv-9204, CA-Riv-9205, CA-Riv-9211, CA-Riv-9213, CA-Riv-9214, CA-Riv-9228, CA-Riv-9246, CA-Riv-9258, CA-Riv-9259, CA-Riv-9262, and CA-Riv-9263. This site list may be revised only with the agreement of the CRS and the CPM. The project owner shall ensure that the plan is implemented when ground disturbance will start within 30 meters of the boundaries of these sites, if approved by BLM. The plan must include, but is not limited to, the following:

1. Research questions addressed by this field work shall be based upon any context developed by DTCCL staff, as funded by CUL-2
2. The project owner shall hire a PHA with the qualifications described in **CUL-3** to supervise the field work.
3. The project owner shall ensure that, prior to beginning the field work, the PHA and crew chiefs 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
4. The project owner shall ensure that, prior to beginning the field work, the field crew members are 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.
5. The project owner shall ensure that all ~~15~~ historic-period archaeological sites shall be revisited by the field crew. Using location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers), the original site map shall be updated to include at minimum: landform features such as small drainages, the location of each artifact, and the limits of any artifact concentrations or other features.
6. The project owner shall ensure that an in-field analysis of all artifacts shall be completed. The dimensions of each artifact and feature shall be recorded. 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.
7. The project owner shall ensure that each site shall be examined with a metal detector to determine if buried deposits are present. If such deposits are located, the size and shape of each feature shall be established and a sample of the materials each feature contains shall be

excavated by a qualified historical archaeologist. Details for this contingency shall be outlined in the CRMMP.

8. The project owner shall ensure that the details of what is found 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 the 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.
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.
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**).

Verification:

1. At least 15 days prior to ground disturbance within 30 meters of the boundaries of the subject sites, the project owner shall notify the CPM that historic-period site mapping and in-field artifact analysis has ensued.

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.

CUL-18 COMPLIANCE WITH BLM PROGRAMMATIC AGREEMENT

If provisions in the BLM Genesis Solar Energy Project 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.

D. GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

This section summarizes the record concerning the project's potential effects relating to geological and paleontological resources. The evidence evaluates whether project-related activities could result in exposure to geological hazards, as well as whether the facility can be designed and constructed to avoid any such hazard which could impair its proper functioning. These include faulting and seismicity, liquefaction, dynamic compaction, hydrocompaction, subsidence, expansive soils, and landslides. Of these, dynamic compaction, hydrocompaction, subsidence, and expansive soils are geotechnical engineering issues which do not typically raise public safety concerns. Next, the evidence assesses whether the project will impact any geologic or mineralogical resources. Finally, the analysis of record examines whether fossilized remains or trace remnants of prehistoric plants or animals are likely to be present at the site and, if so, whether the project's potential impacts to these resources are adequately mitigated. The parties did not dispute any matters in this discipline and there was no public commented on geological and paleontological resources (Exs. 1; 3; 11; 57; 60; 400; 7/12/10 RT 28:11-14, 33:23-25).

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Geologic Hazards

The proposed GSEP site would be situated on a broad alluvial plain within the northwest-trending Chuckwalla Valley between the McCoy Mountains to the northeast, the Palen Mountains to the northwest, and Ford Dry Lake to the south. Overall the proposed site slopes at very shallow grades south and southwest toward the local topographic low at Ford Dry Lake. (Ex. 400, p. D.2-7.)

Based on the evidence, the proposed GSEP site is located in either the southeastern portion of the Mojave Desert geomorphic province, or the northeastern quarter of the Colorado Desert geomorphic province, in the Mojave Desert of Southern California near the Arizona border. The region is more characteristic of the Mojave Desert geomorphic province in terms of geology, structure and physiography. (Ex. 400, p. D.2-6.)

The Mojave Desert is a broad interior region of isolated mountain ranges which separate vast expanses of desert plains and interior drainage basins. The physiographic province is wedge-shaped, and separated from the Sierra Nevada and Basin and Range geomorphic provinces by the northeast-striking Garlock Fault on the northwest side. The northwest-striking San Andreas Fault defines

the southwestern boundary, beyond which lie the Transverse Ranges and Colorado Desert geomorphic provinces. The topography and structural fabric in the Mojave Desert is predominately southeast to northwest, and is associated with faulting oriented similar to the San Andreas Fault. A secondary east to west orientation correlates with structural trends in the Transverse Ranges geomorphic province. (Ex. 400, pp. D.2-6 to D.2-7.)

Eolian sands, younger alluvium, and playa lake deposits were mapped over nearly the entire proposed GSEP site surface. Eolian sands consist of unconsolidated deposits of well sorted, wind blown sand in dunes and sheets. Younger alluvium is composed of sand, pebbly sand and sandy pebble-gravel, and is generally coarser grained closer to mountain ranges. Desert varnish is not well developed in the mostly unconsolidated and undissected sediments. Playa lake deposits are also unconsolidated, and are comprised of clay, silt and sand. Older alluvium is present at the surface along the northern edge of both the western (entire length) and eastern (west end only) portion of the proposed GSEP site. The exposures of older alluvium occur as north-south oriented ridges of material protruding into the site from the north, with the intervening areas occupied by drainages filled with younger alluvium. Older alluvium is composed of consolidated gravel and sand that is moderately dissected with moderately developed desert pavement and varnish. (Ex. 400, p. D.2-8.)

The preliminary geotechnical investigation at the GSEP site estimated current depths to ground water determined by geophysical methods and supported by a single boring 1.5 miles west of proposed construction ranges from 61 to 81 feet below ground surface (bgs). Ground water levels recorded in the nearest wells south of the site and in the vicinity of the southern end of the project linears ranges from 81 to 151 feet bgs. The geotechnical report also indicated that the granular soils encountered in borings were generally very dense. (Ex. 400, p. D.2-15.)

Commission staff independently reviewed available maps, reports, and related data pertaining to the site. (Ex. 400, p. D.2-13.) Ground shaking, expansive soils, and hydrocompaction represent the main geologic hazards. (Ex. 400, p. D.2-10.) The proposed GSEP plant site is not crossed by any known active faults or designated Alquist-Priolo Earthquake Fault Zone (EFZ, formerly called Special Studies Zones). (Ex. 400, p. D.2-9.)

Six Type A and Type B faults and fault segments are found within 63 miles of the site.[1] Of these, none are within 45 miles of the site. Four of the faults are Type A right-lateral, northwest-trending strike-slip fault systems that are subparallel to the San Andreas Fault System. The remaining two faults are Type B, are east-west to northeast striking, and are left-lateral strike-slip faults with characteristics similar to the Garlock Fault, which bounds the northwestern side of the Mojave Desert geomorphic province. (Ex. 400, p. D.2-14.)

The close proximity of the proposed GSEP site to the Mojave-Sonoran belt and relatively great distance from more seismically active areas to the west and northwest would suggest a relatively low to moderate probability of intense ground shaking in the project area. However, events such as the Landers earthquake (7.6 Mw), which occurred on June 28, 1992, approximately 90 miles northwest of the proposed site demonstrate that the proposed GSEP site could be subject to moderate levels of earthquake-related ground shaking in the future. The effects of ground shaking will be mitigated, to the extent practical, through structural designs required by the California Building Code (CBC) and a site-specific project geotechnical report outlined in Facility Design Condition of Certification **GEN-1** of this Decision. (Ex. 400, pp. D.2-14 to D.2-15.)

The estimated bedrock peak horizontal ground acceleration (Site Class B) for the power plant is 0.20 times the acceleration of gravity (0.20g). Based on weight averaged down hole shear wave velocities of 1210 feet/sec, and supported by Modified California penetration resistance blow counts, the soils at the proposed GSEP site were determined to be Site Class C. Buildings and structures are required to be designed with adequate strength to resist the effects of Design Earthquake Ground Motion, as defined by the 2007 CBC criteria. The potential for strong ground shaking will be addressed in Facility Design Condition of Certification **GEN-1** of this Decision. Proper design in accordance with this Condition, as well as with requirements presented in the site-specific, design-level geotechnical evaluation, should adequately mitigate seismic hazards to the current standards of practice. (Ex. 400, p. D.2-15.)

The preliminary geotechnical evaluation indicates near-surface soils at the proposed site are composed of granular soils with a low content of non-plastic fines, which are not considered to be expansive. However, expansive clay soils were encountered at relatively shallow depths in the single boring located 1.5

[1] These are identified in Exhibit 400, **Table 3**, p. D.2-14. Type A faults have slip-rates of $\geq$5 millimeters per year (mm/year) and are capable of producing an earthquake of magnitude 7.0 or greater. Type B faults have slip-rates of 2 to 5 mm per year and are capable of producing an earthquake of magnitude 6.5 to 7.0. (Ex. 400, p. D.2-13.)

miles west of proposed construction and could be present at shallow depths beneath the site. A site-specific, design-level geotechnical site investigation addressed in Facility Design Condition of Certification **GEN-5** of this Decision would further evaluate the presence of expansive soils within the proposed project site and along its linears and, if necessary, will provide routine design recommendations to mitigate expansive soil issues. (Ex. 400, p. D.2-17.)

The preliminary site geotechnical investigation indicates that subsurface alluvial deposits which underlie the proposed project linears contain soils that may experience hydrocompaction as well as a minor and localized dynamic compaction during an earthquake. A site-specific, design-level geotechnical site investigation addressed in **Facility Design** Condition of Certification **GEN-5** of this Decision would further investigate the potential for hydrocompaction and dynamic compaction within the proposed project site and along its linears and, if necessary, provide design parameters necessary to mitigate hydrocompaction and dynamic compaction issues. (Ex. 400, p. D.2-16.)

The evidence also shows that:

- The potential for liquefaction-induced settlement beneath the site during moderate seismic events is considered to be very low given that the ground water table is greater than 40 feet deep across the property, and the shallow granular soils are very dense. (Ex. 400, p. D.2-15.)
- Because the proposed GSEP site is not subject to catastrophic liquefaction-induced settlement, the potential for lateral spreading during seismic events would be negligible due to the low relief and very shallow slopes at the proposed site surface. (Ex. 400, p. D.2-16.)
- The potential for local or regional ground subsidence resulting from petroleum, natural gas, or ground water extraction is considered to be very low. (Ex. 400, p. D.2-16.)
- Landslides, flooding, and volcanic hazards pose insignificant risks. (Ex. 400, pp. D.2-17 to D.2-18.)

Furthermore, the evidence establishes that, assuming compliance with the required design standards set forth in the **Facility Design** section of this Decision, the potential is low that geologic hazards will impact the project during its practical design life. (Ex. 400, pp. D.2-1, D.2-10, D.2-36.)

2. Mineralogic and Paleontologic Impacts

There are no known viable geological or mineralogical resources at the project site. Thus, development will not result in the loss of a known mineral resource valuable to the region or the State, nor will it interfere with active mining claims or operations. (Ex. 400, pp. D.2-1, D.2-18.)

The evidence shows that Staff reviewed Applicant's paleontological resources assessment as well as literature and records searches from the Natural History Museum of Los Angeles County and the University of California of Paleontology at Berkeley. (Ex. 400, p. D.2-18.) There are no recorded fossil collection sites within the proposed project boundaries based on reports submitted by the NHMLA or the UCMP. The only known fossil remains on the proposed site and project linears were observed during a four-day field survey. Fragments of tortoise carapace and bones, which were partly replaced with calcite, gypsum and opaline silica, were found in stream beds. The fragmental condition indicates the specimens were transported a significant distance to their current location, probably post-mortem, and the mineralization suggests an age on the order of several thousand years. Microfossils, including diatoms and ostracods, were also found in sediments during a preliminary field survey. The evidence concludes that fossils observed on the proposed site are indicative of late Pleistocene/early Holocene environment. (Ex. 400, p. D.2-11.)

Several recorded fossil localities in Holocene to Pleistocene age alluvium and lakebed sediments are documented on and within 25 miles of the proposed GSEP site. Based on these recorded fossil finds and the age of the sediments which may be encountered during construction, the paleontological resource sensitivity of undisturbed Quaternary alluvium and lacustrine sediments varies from low at shallow depths to high at deeper depths. The depth to Pleistocene age sediments beneath Holocene deposits is unknown for most of the proposed site. All sedimentary units below a depth of 1.5 feet of the ground surface where Holocene age sediments are mapped should initially be treated as highly sensitive. (Ex. 400. p. D.2-18.)

Overall, the evidence establishes that the probability of encountering paleontological resources during construction is low. Should such resources be discovered, however, Conditions of Certification **PAL-1** to **PAL-7** provide adequate protection as they will mitigate any construction impacts to less than significant levels. This mitigation will occur through a worker education program

in conjunction with the monitoring of earthworks activities by a professional paleontologist. (Ex. 400, pp. D.2-12 to D.2-13.)

FINDINGS OF FACT

Based on the uncontroverted evidence, we make the following findings:

1. The proposed GSEP plant site is not crossed by any known active faults or designated Alquist-Priolo Earthquake Fault Zone (EFZ, formerly called Special Studies Zones).

2. Ground shaking, expansive soils and hydrocompaction are the main geologic hazards which could affect the Genesis Solar Energy Project.

3. Potential geologic hazards to the project are effectively mitigated by standard engineering design measures as specified in Conditions **GEN-1, GEN-5,** and **CIVIL-1** of the **Facility Design** section of this Decision.

4. Liquefaction, lateral spreading, dynamic compaction, hydrocompaction, landslides, flooding, and volcanic hazards pose low or negligible project risks.

5. There is no evidence of existing or potential geological or mineralogical resources at the project site or along the linear alignments.

6. There are no known paleontological resources on the project site.

7. The project owner will implement several mitigation measures to avoid impacts to paleontological resources, if discovered, including worker education, preparing a Paleontological Monitoring and Mitigation Plan, and having a Paleontologic Resource Specialist on-site.

CONCLUSIONS OF LAW

1. The Conditions listed below ensure that project activities will not cause significant adverse direct, indirect, or cumulative impacts to geological, mineralogical, or paleontological resources.

2. Compliance with the Conditions of Certification specified below will ensure that the Genesis Solar Energy Project conforms to all applicable laws, ordinances, regulations, and standards related to geological, mineralogical, and paleontological resources as identified in **Appendix A** of this Decision.

CONDITIONS OF CERTIFICATION

PAL-1 The project owner shall provide the Compliance Project Manager (CPM) with the resume and qualifications of its 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;

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. Paleontological Resource Monitors (PRMs) shall have the equivalent of the following qualifications:

- BS or BA degree in geology or paleontology and one year of experience monitoring in California; or
- AS or AA in geology, paleontology, or biology and four years' experience monitoring in California; or
- Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

Verification: (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.

(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 The project owner shall provide to the PRS and the CPM, for approval, maps and drawings showing the footprint of the power plants, 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 of 1 inch = 40 feet to 1 inch = 100 feet range. If the footprint of the project or its linear facilities change, the project owner shall provide maps and drawings reflecting those changes to the PRS and CPM.

If construction of the ISEGS project proceeds in phases, maps and drawings may be submitted prior to the start of each power plant. A letter identifying the proposed schedule of each project power plant shall be provided to the PRS, and CPM. Before work commences on affected power plants, 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.

Verification: (1) At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings to the CPM.

(2) If there are changes to the footprint of the project, revised maps and drawings shall be provided to the{RS CPM at least 15 days prior to the start of ground disturbance.

(3) If there are changes to the scheduling of the construction phases of each power plant, the project owner shall submit a letter to BLM's Authorized Officer and the CPM within 5 days of identifying the changes.

PAL-3 If after review of the plans provided pursuant to **PAL-2**, the PRS determines that materials with moderate, high, or unknown paleontological sensitivity could be impacted, 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 geological 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.

Verification: 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.

PAL-4 If after review of the plans provided pursuant to **PAL-2**, the PRS determines that materials with moderate, high, or unknown paleontological sensitivity could be impacted then, 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 during the project kick-off, for those mentioned above. Following initial training, a CPM-approved video 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 paleontological 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.

Verification:

(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 script and final video to the CPM for approval if the project owner is planning to use a video for interim 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 video) offered that month.

The MCR shall also include a running total of all persons who have completed the training to date.

PAL-5 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

geological 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 paleontological resource 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.

Verification: 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.

PAL-6 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.

Verification: 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 BLM Authorized Officer- and CPM-approved paleontological resource report (see **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 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.

Verification: Within 90 days after completion of ground-disturbing activities, including landscaping, the project owner shall submit the PRR under confidential cover to the CPM.

Certification of Completion
Worker Environmental Awareness Program
Genesis Solar Energy Project (09-AFC-8)

This is to certify these individuals have completed a mandatory California Energy Commission-approved Worker Environmental Awareness Program (WEAP). The WEAP includes pertinent information on cultural, paleontological, and biological resources for all personnel (that is, construction supervisors, crews, and plant operators) working on site or at related facilities. By signing below, the participant indicates that he/she understands and shall abide by the guidelines set forth in the program materials. Include this completed form in the Monthly Compliance Report.

No.	Employee Name	Title/Company	Signature
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Cultural Trainer: _____ Signature:_____ Date: ___/___/____

PaleoTrainer: _____ Signature:_____ Date: ___/___/____

Biological Trainer: _____Signature:_____ Date:___/___/____

VII. LOCAL IMPACT ASSESSMENT

The effect of a power plant project on the local area depends upon the nature of the community and the extent of the associated impacts. Technical topics discussed in this portion of the Decision consider issues of local concern including **Land Use, Noise, Socioeconomics, Traffic and Transportation, and Visual Resources.**

A. LAND USE

The land use analysis focuses on two main issues: (1) whether the project is consistent with local land use plans, ordinances, and policies; and (2) whether the project is compatible with existing and planned uses. Applicant disputed Staff's conclusions regarding the Genesis Solar Energy Project's (GSEP) impacts on land use (App. Op. Brief, pp. 3-4). (Exs. 1; 11; 15; 60; 400; 437; 7/12/10 RT 28:11-14, 33:23-25.)

SUMMARY AND DISCUSSION OF THE EVIDENCE

Because the GSEP project is subject to meet the requirements of both NEPA and CEQA, the methodology used for determining environmental impacts of the proposed project includes a consideration of guidance provided by both laws and NEPA Implementing Regulations (40 CFR Parts 1500-1508). Thresholds for determining significance in this section are based on Appendix G of the CEQA Guidelines (CCR 2006) and performance standards or thresholds identified by Energy Commission staff. In addition, environmental effects of the proposed project on land uses (i.e., those listed below) includes an assessment of the context and intensity of the impacts, as defined in the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the NEPA (CEQ NEPA Regulations) 40 CFR Part 1508.27. According to CEQA and NEPA guidelines, a project results in significant land use impacts if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.
- Conflict with existing zoning for agricultural use or a Williamson Act contract.

- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural uses.

- Directly or indirectly disrupt activities in established federal, state, or local recreation areas and/or wilderness areas.

- Substantially reduce the scenic, biological, cultural, geologic, or other important factors that contribute to the value of federal, state, local, or private recreational facilities or wilderness areas.

- Involve changes in the existing environment which, due to their nature or location, result in interference with BLM's management of Herd Areas (HAs) and Herd Management Areas (HMAs).

- Directly or indirectly divide an established community or disrupt an existing or recently approved land use.

- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction, or that would normally have jurisdiction, over the project adopted for the purpose of avoiding or mitigating environmental effects.
- Create individual environmental effects which, when considered with other impacts from the same project or in conjunction with impacts from other closely related past, present, and reasonably foreseeable future projects, are considerable, compound, or increase other environmental impacts. (Ex. 400, pp. C.6-2 to C.6-4.)

The GSEP site (1,800 acres) is located within the "Moderate Use" category of the BLM's California Desert Conservation Area (CDCA) Plan. **Appendix A** of this Decision provides a general description of the land use LORS applicable to the proposed project and surrounding lands. Because the proposed project site would be located solely on BLM-administered land and the only portion of the linear right-of-way (ROW) that would be outside of BLM boundaries would be limited to stringing conductor on existing transmission poles, no state or local LORS are applicable to the proposed project.

1. The Site

The proposed project site is located in eastern Riverside County, approximately 25 miles west of the City of Blythe and approximately 35 miles west of the California-Arizona border. The City of Desert Center is located approximately 27 miles west of the proposed GSEP site. The Ironwood and Chuckwalla State Prisons are located adjacent to each other approximately nine miles south of the

GSEP site. The surrounding area consists of undeveloped desert land surrounded by the McCoy Mountains to the east, the Palen Mountains (including the Palen/McCoy Wilderness Area) to the north, Ford Dry Lakebed to the south, and I-10 approximately two miles south of the southern border of the project site. (Ex. 400, p. C.6-5.)

The GSEP site currently consists of largely undisturbed desert land. Access to the GSEP facility would be provided via a new access road constructed to the site from the Wiley's Well Rest Area off of I-10. (Ex. 400, p. C.6-4.) But as indicated in this document's Cultural Resources Condition of Certification **CUL-16**, use of this new access road will be limited to the public by virtue of a gate to prevent illegal and unauthorized public access.

Construction and operation of the GSEP would include the following features and facilities:

- two independent 125-MW solar electric generating facilities utilizing parabolic trough technology and associated equipment and infrastructure;
- one 0.46-acre laydown area near Wiley Well rest area for transmission line construction;
- each 125-MW unit that would include a 700,000 gallon raw water/fire water tank, a 200,000 gallon treated water tank, and a 155,000 gallon wastewater tank; each 125-MW unit would have one, 5-acre double-lined evaporation ponds, totaling 10 acres of ponds for the two units (7/12/10 RT:145) approximately 6.5 of the miles of the 230-kV gen-tie transmission line routed in a southeasterly ROW connecting to the Blythe Energy Project Transmission Line (BEPTL) and ultimately terminating at the proposed, expanded Southern California Edison (SCE) Colorado River Substation.
- a common administration building and warehouse would be located between the two units and each unit would have a control building located in each power block, totaling approximately 0.89 acres;
- an approximately 2.5-acre, 230-kV switchyard near the power block of unit two;
- approximately 6.5-miles of natural gas pipeline roughly paralleling the proposed transmission line to connect with existing Southern California Gas (SCG) infrastructure one mile west of the Wiley Well Rest Area; and
- approximately 6.5-miles of paved access road, also following the proposed transmission line ROW, but extending out to Wiley Well Rest Area.

All of the facilities described above, with the exception of the transmission line, access road, and natural gas pipeline would be enclosed in an eight-foot high

chain-link security fence to restrict public access to the site. (Ex. 400, pp. C.6-4 to C.6-5.)

2. Potential Impacts

Agricultural Lands and Rangeland Management. The California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) mapping information is used to analyze impacts to important farmlands (i.e., Prime Farmland, Unique Farmland, or Farmland of Statewide Importance) in the state. FMMP designations for the proposed project site and linear ROW are unsurveyed and are not included in any other mapping category, such as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance. The record indicates that no farmland conversion impacts are expected as a result of proposed project or linear facilities' construction, and the project would not involve other changes in the existing environment which could result in conversion of farmland, to non-agricultural uses. (Ex. 400, p. C.6-10.)

In regards to rangeland management, the project site and linear ROW are located on the canceled Ford Dry Lake Pasture livestock grazing allotment. As the Ford Dry Lake Pasture allotment has been canceled, no livestock grazing would be adversely affected by construction or operation of the proposed project. (Ex. 400 , p. C.6-10.)

Wilderness and Recreation. Approval of the proposed project would directly remove approximately 1,800 acres from potential use for recreational opportunities such as backpacking, camping, hunting, or other activities. These activities are determined, in part, by the California Desert Conservation Area (CDCA) Plan. The record indicates that no recreational routes designated by the Northern and Eastern Colorado Desert Coordinated Management Plan Amendment (NECO) are within the project site and construction laydown site. One "open" route would be crossed by the proposed linear ROW. While the proposed project would remove recreation opportunities at the site, due to the remote nature of the site along with the BLM's existing restrictions on recreational activities in the area, direct impacts to recreation use of the proposed project site would be limited. While construction of the proposed transmission line would traverse an "open" route and result in disruptions to motorized vehicle use along this route, as the transmission line would be strung over the route on existing structures, it would not permanently disrupt use of the route. Any impacts on the route by the linear ROW would be temporary and short-term. (Ex. 400, p. C.6-10.)

The project would not be constructed on wilderness lands so it would not directly disrupt activities in a federal wilderness area. However, the Palen/McCoy Wilderness north of the project site attracts limited, annual visitors based on its scenic, biological, cultural, and recreational amenities. Observations by BLM and Law Enforcement Ranger staff indicate only 100 to 200 hikers per year within the wilderness area (Genesis FEIS, page 3.13-3) visitors based on its scenic, biological, cultural, and recreational amenities. The proposed project would not substantially reduce the scenic value of this wilderness area (see the **Visual Resources** section of this Decision). (Ex. 400, p. C.6-10.)

The 3,632-acre Palen Dry Lake Area of Critical Environmental Concern (ACEC) occurs southwest of the project site and is managed for protection of its prehistoric resources as a Multiple Use Class M (moderate) unit; the proposed project would not substantially reduce the cultural values of this wilderness area (see the **Cultural Resources** section of this Decision). (Ex. 400, p. C.6-11.)

The 2,273-acre Chuckwalla Valley Dune Thicket ACEC occurs approximately two miles southeast of the project site and is managed for Moderate Use Class M unit for its wildlife habitat use, specifically desert tortoise. The proposed project would not substantially reduce the cultural values of this wilderness area (see the **Biological Resources** section of this Decision). (Ex. 400, p. C.6-11.)

The evidence shows that from a land use perspective, the proposed project would not adversely affect wilderness areas in the area. (Ex. 400, p. C.6-11.)

Horses and Burros. The proposed project would not contain or traverse any established BLM HAs or HMAs. The nearest, the Chocolate-Mule Mountains HA/HMA, is located approximately two miles southeast of the proposed ROW in Riverside County near the California-Arizona border. In addition, following construction, fencing around the site would keep any burros outside of the proposed project location. Therefore, the proposed project would not result in any interference with BLM's management of an HA or HMA. (Ex. 400, p. C.6-11.)

Division of Existing Community. The proposed project would not physically divide an established community[1], because the proposed project and associated linear facilities would be located on undeveloped lands (and within existing utility ROWs) administered by the BLM. In addition, the proposed project would not be

[1] An established community usually refers to a residential community.

located within or near an established community. Neither the size nor the nature of the project would result in a physical division or disruption of an established community. In addition, no existing roadways or pathways within an established community would be blocked. Due to the temporary nature of construction activities, construction-generated nuisances such as dust and noise are not expected to adversely affect recreational uses in the area. Due to the intermittent nature of similar operation-related impacts, Staff concludes that any potential impacts would not adversely affect recreational uses. For a detailed analysis of construction and operation-related nuisance impacts, please see the **Air Quality** and **Noise** sections of this Decision. (Ex. 400, p. C.6-11.)

3. Consistency with Land Use LORS.

As required by California Code of Regulations, title 20, section 1744, Energy Commission staff evaluates the information provided by the project owner in the AFC (and any amendments), project design, site location, and operational components to determine if elements of the proposed project would conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project, or that would normally have jurisdiction over the project except for the Energy Commission's exclusive authority.

The Applicant has submitted an application to the BLM requesting a ROW to construct the proposed project and its related facilities. Pursuant to the California Desert Conservation Area (CDCA) Plan, sites associated with power generation or transmission not identified in the CDCA Plan are considered through a Land Use Plan Amendment process. Under Federal law, BLM is responsible for processing requests for ROWs to authorize such proposed projects and associated transmission lines and other appurtenant facilities on land it administers. The proposed project area is within the NECO area. The NECO is an update amendment to the CDCA Plan to make it compatible with Desert tortoise conservation and recovery. (Ex. 400, p. C.6-12.)

The evidence indicates that without mitigation the project would be a substantial contributor to the cumulatively significant loss of Biological Resources within the Chuckwalla Valley and the NECO area. Staff has recommended compensatory mitigation to offset direct, indirect, and cumulative impacts to desert tortoise and other special-status species, and to assure compliance with state and federal laws such as the federal and state endangered species acts and regulations protecting waters of the state; see the **Biological Resources** section of this Decision. (Ex. 400, p. C.6-13.)

A Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) will be required for the project as a Condition of Certification; see the **Biological Resources** section of this Decision. The BRMIMP comprehensively describes avoidance, minimization, and mitigation measures. With the effective implementation of specific species and habitat mitigation, active management and restoration practices on the WHMA portion of the project area, there would not be a project conflict with this CEQA criterion under this land use plan. (Ex. 400, p. C.6-13.)

As the proposed project would be located solely on BLM-administered land, there are no state, regional, county or other local land use LORS applicable to the proposed project. Staff's analysis of the proposed project's consistency with applicable federal land use LORS is presented in **LAND USE Table 2** at the end of this section. Based on Staff's independent review of applicable LORS documents, the proposed project would be consistent with applicable land use LORS. (Ex. 400, p. C.6-13.)

4. Cumulative Impacts

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. [Cal. Code Regs., title 14, § 15065(a)(3).]

The Energy Commission and the BLM have identified a total of 72 projects and 649,440 acres of solar energy and 61 projects and 433,721 acres of wind energy are currently proposed for development in the California desert lands. This represents a worst-case scenario and not all of these projects would be ultimately developed. One other energy application is proposed in areas surrounding the Chocolate-Mule Mountains HMA. (Ex. 400, p. C.6-32.)

The construction of the GSEP is expected to result in short term adverse impacts related to construction activities. It is expected that some of the cumulative projects described above which are not yet built may be under construction the same time as the GSEP. As a result, there may be substantial short term impacts during construction of those cumulative projects related to land use. These short-term impacts would include dust, noise, and traffic. Because the

project would not be constructed on wilderness lands the short-term construction impacts would not directly disrupt activities in a federal wilderness area, including the Palen/McCoy Wilderness north of the project site, the Palen Dry Lake ACEC southwest of the project site, and the Chuckwalla Valley Dune Thicket ACEC approximately two miles southeast of the Project site. (Ex. 400, p. C.6-32.)

Condition of Certification **TRANS- 1** encourages Applicants of the Palen, Blythe, and Genesis projects work to coordinate construction schedules in a manner that facilitates the movement of construction workers during overlapping construction periods in a manner that will minimize traffic on I-10 and transport workers to their respective job sites along I-10. (Ex. 400, p. C.6-32.)

The potential combined development of approximately one million acres of land in the southern California desert, would all combine to result in adverse effects on agricultural lands (one of the state's most important resources), and recreational resources. Although the development of renewable resources in compliance with federal and state mandates is important and required, the conversion of thousands of acres of open space (including areas with high soil quality and agricultural resources) would result in a significant and unavoidable impact. In general, the land conversion impacts to these lands would preclude numerous existing land uses including recreational activities, rangeland management, and open space. Because the GSEP would have no impacts on agricultural resources or rangelands, it would have no potential to contribute to cumulative impacts in this respect. The GSEP's potential to disrupt recreational activities would be limited and less than cumulatively considerable when considered in the context of past, present and reasonably foreseeable future projects. However, the GSEP would combine with other past and reasonably foreseeable future projects to substantially reduce scenic values of wilderness areas and recreational resources in the Chuckwalla Valley and southern California desert region and therefore, would result in a significant and unavoidable cumulative land use impact in this regard. (Ex. 400, pp. C.6-32 to C.6-33.)

FINDINGS OF FACT

Based on the uncontroverted evidence, the Commission makes the following findings:

1. As the proposed project would be located wholly on BLM administered land, no state, regional, or local land use LORS would be applicable to the project.

2. No farmland conversion impacts are expected as a result of linear facilities' construction, and the proposed project would not involve other changes in the existing environment which could result in conversion of farmland, to non-agricultural uses.
3. No conversion of rangelands would occur, nor would they be adversely affected by construction or operation of the proposed project.
4. While the proposed project would remove recreation opportunities at the site, due to the remote nature of the site along with the BLM's existing restrictions on recreational activities in the area, direct impacts to recreation use of the proposed project site would not be significant.
5. The proposed project would not substantially reduce the scenic, biological or cultural value of a wilderness area.
6. The proposed project would not result in any interference with BLM's management of an HMA or HA.
7. There is no evidence that the project will physically divide or disrupt an established community.
8. The GSEP is consistent with applicable land use LORS.
9. The GSEP would combine with other past and reasonably foreseeable future projects to substantially reduce scenic values of wilderness areas and recreational resources in the Chuckwalla Valley and southern California desert region and therefore, would result in a significant and unavoidable cumulative land use impact in this regard.

CONCLUSIONS OF LAW

1. No Conditions of Certification are required for this topic because no significant adverse direct land use impacts will occur as a result of construction and operation of the Genesis Solar Energy Project.

2. The record contains an adequate analysis of the land use laws, ordinances, regulations, and standards that are relevant to the project and establishes that the project will not create any unmitigated, significantly adverse direct land use effects as defined under the California Environmental Quality Act.

3. The GSEP would combine with other past and reasonably foreseeable future projects to substantially reduce scenic values of wilderness areas and recreational resources in the Chuckwalla Valley and southern California desert region and therefore, would result in a significant and unavoidable cumulative land use impact.

CONDITIONS OF CERTIFICATION

No Conditions of Certification are proposed for this project.

LAND USE Table 2
Project Compliance with Adopted Land Use LORS

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
Federal			
Federal Land Policy and Management Act, 1976 – 43 CFR 1600, Sec. 501. [43 U.S.C. 1761]	(a) The Secretary, with respect to the public lands … are authorized to grant, issue, or renew rights-of-way over, upon, under, or through such lands for: (4) systems for generation, transmission, and distribution of electric energy, except that the Applicant shall also comply with all applicable requirements of the Federal Energy Regulatory Commission under the Federal Power Act, including part I thereof (41 Stat. 1063, 16 U.S.C. 791a-825r) [P.L. 102-486, 1992]	YES	The FLPMA authorizes the issuance of a right-of-way grant for electrical generation facilities and transmission lines. In addition, based on Staff's review of the Federal Power Act, the requirements would not be applicable to the proposed project as they are not related to renewable resources, and are otherwise related to administrative procedures. Therefore, the proposed project would be in compliance with this policy.
Farmland Protection Policy Act, Section 658.1	As required by section 1541(b) of the [Farmland Protection Policy] Act, 7 U.S.C. 4202(b), Federal agencies are (a) to use the criteria to identify and take into account the adverse effects of their programs on the preservation of farmland, (b) to consider alternative actions, as appropriate, that could lessen adverse effects, and (c) to ensure that their programs, to the extent practicable, are compatible with State and units of local government and private programs and policies to protect farmland.	YES	As discussed above in detail in Section C.6.4.2 (under the subsection entitled "Agricultural Lands and Rangeland Management"), no farmland would be converted under the proposed project and impacts to rangelands would not be adverse. In addition, construction of the proposed project and its associated linear facilities would be temporary, and the project would not involve other changes in the existing environment which could result in conversion of farmland, to non-agricultural uses. Therefore, proposed project would be consistent with the FPPA.
Bureau of Land Management – California Desert Conservation Area (CDCA) Plan (Including the Northern and Eastern Colorado Desert Coordinated Management	Chapter 2 – Multiple-Use Classes MULTIPLE-USE CLASS GUIDELINES MULTIPLE-USE CLASS M Moderate Use Multiple-Use Class M 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	YES (with an approved BLM project-specific CDCA Plan Amendment)	Approximately 1,890 acres of the proposed project site is administered by the BLM and is managed under multiple use Class M (Multiple Use) categories in conformance with the CDCA Plan (GSEP 2009a). The proposed project consists of an electrical generating facility, a transmission line, a natural gas pipeline, an access road and ancillary facilities. As such, development of the proposed project is an allowed use under the Multiple-Use Class Guidelines.

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
Plan Amendment) (BLM 1980)	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. All types of electrical generation plants may be allowed in accordance with state, federal, and local laws. New gas, electric, and water transmission facilities and cables for interstate communication may be allowed only within designated corridors. Existing facilities within designated corridors may be maintained and upgraded or improved in accordance with existing rights of way grants or by amendments to right of way grants. Existing facilities outside designated corridors may only be maintained but not upgraded or improved.		In addition, the CDCA Plan, while recognizing the potential compatibility of solar generation facilities on public lands, requires that all sites associated with power generation or transmission not identified in the Plan be considered through the Plan Amendment process. Therefore, the BLM would undertake a project-specific CDCA Plan amendment along with the ROW grant for the proposed Genesis Solar Energy Project. Upon BLM's amendment of the CDCA plan for the Genesis Solar Energy Project, the proposed project would be fully compliant with the CDCA Plan. This Environmental Impact Statement (EIS) acts as the mechanism for meeting CEQ NEPA Regulation requirements, and also provides the analysis required to support a Land Use Plan Amendment identifying the facility within the Plan.
	Chapter 3 Wild Horse and Burros Element Goal 2. Protect wild horses and burros on public lands by conducting surveillance to prevent unauthorized removal or undue harassment of animals. Chapter 3 Energy Production and Utility Element Goal 1. Fully implement the network of joint-use planning corridors to meet projected utility needs to the year 2000. Specific electrical and natural gas right-of-way or power plant site applications made under the provisions of this element should be consistent with adopted California Energy Commission forecasts, which are reviewed biennially. Decision criteria are to:	YES YES	As noted in the "Setting and existing Conditions" subsection above, the proposed project site is not in the vicinity of an HA or HMA; therefore, the project site and surrounding area are not notable for the presence of wild horses or burros. Therefore, the proposed project would not result in any interference with BLM's management of an HA or HMA, and would be consistent with this element of the CDCA Plan. The proposed project's linear facilities would use existing and established utility ROWs to the greatest extent possible, connecting to existing access roads at Wiley Well and stringing transmission along the BEPTL poles. Therefore, the proposed project would utilize existing ROWs, and would be consistent with this element of the CDCA Plan.

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	(1) Minimize the number of separate rights-of-way by utilizing existing rights-of-way as a basis for planning corridors; (2) Encourage joint use of corridors for transmission lines, canals, pipelines, and cables; (3) Provide alternative corridors to be considered during processing of applications; (4) Avoid sensitive resources wherever possible; (5) Conform to local plans whenever possible; (6) Consider wilderness values and be consistent with final wilderness recommendations; (7) Complete the delivery-systems network; (8) Consider ongoing projects for which decisions have been made, for example, the Intermountain Power Project; and (9) Consider corridor networks which take into account power needs and alternative fuel resources.		
	Addendum B: Interim Management Guidelines Chapter III. Guidelines for Specific Activities Lands Actions – Disposal, Rights-of-Way, Access and Withdrawals 2. Rights-of-Way: Existing rights-of-way may be renewed if they are still being used for their authorized purpose. New rights-of-way may be approved only for temporary uses that satisfy the non-impairment criteria. 3. Right-of-Way Corridors: Right-of-way corridors may be designated on lands under wilderness review.	YES	The non-impairment standard, directs that "until Congress has determined otherwise" the lands under review be managed so as not to impair their suitability as wilderness (CRS 2004). As the proposed project would not traverse an established Wilderness Area, the project would be in compliance with this guideline of the CDCA Plan.

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
Federal Wilderness Act, 16 U.S.C. § 1131-1136	(a) Establishment; Congressional declaration of policy; wilderness areas; administration for public use and enjoyment, protection, preservation... provisions for designation as wilderness areas In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness.	YES	As the proposed project would not traverse an established Wilderness Area, the project would be consistent with this guideline.
Public Rangelands Improvement Act	Establishes and reaffirms the national policy and commitment to inventory and identify current public rangeland conditions and trends; manage, maintain and improve the condition of public rangelands so that they become as productive as feasible for all rangeland values in accordance with management objectives and the land use planning process; and continue the policy of protecting wild free-roaming horses and burros.	YES	In regards to rangeland management, as noted in the “Setting and Exiting Conditions,” the proposed project would be located on the canceled Ford Dry Lake Pasture livestock grazing allotment. As this livestock grazing allotment has been canceled, the proposed project would not convert any rangeland used for livestock grazing and so would be in compliance with this Act.
Wild and Free-Roaming Horse and Burro Act	Establishes BLM’s authority to protect, manage, and control wild horses and burros to ensure that healthy herds thrive on healthy rangelands. BLM determines the "appropriate management level" (AML) of wild horses and burros on the public rangelands.	YES	As discussed above in detail in Section C.6.4.2, the proposed project would not contain or traverse an established HA or HMA. As such, the proposed project would be consistent with this Act.

B. TRAFFIC AND TRANSPORTATION

This section addresses the extent to which the project will affect the local area's transportation network. The record contains an analysis of: (1) the roads and routings that are proposed to be used for construction and operation; (2) potential traffic-related problems associated with the use of those routes; (3) the anticipated encroachment upon public rights-of-way during the construction of the proposed project and associated facilities; (4) the frequency of trips and probable routes associated with the delivery of hazardous materials; and (5) the possible effect of project operations on local airport flight traffic. The evidence presented on this topic was uncontested and there was no public comment on traffic and transportation. (Exs. 1; 41; 51; 57; 60; 400; 7/12/10 RT 28:11-14, 33:23-25).

SUMMARY AND DISCUSSION OF THE EVIDENCE

The Genesis Solar Energy Project (GSEP) site is located in eastern Riverside County, approximately four miles north of Interstate 10 (I-10), 25 miles west of the city of Blythe and 27 miles east of the community of Desert Center. Regional vehicular access is provided by I-10 which is a four-lane, limited access, divided, east-west interstate highway. Access to the project site will be off I-10 via the Wiley's Well Road Interchange, which can be accessed by both eastbound and westbound traffic, and then north to a new six and half mile paved access road extending north and west from the existing Wiley's Well Road. According to the Department of Transportation (Caltrans) 2008 average annual daily traffic (AADT) counts, I-10 carries approximately 24,600 vehicles west of Wiley's Well Road and 27,000 vehicles east of Wiley's Well Road. (Ex. 400, p. C.10-3.)

The regional and local roadways in the area include United States 95 (US-95) and Wiley's Well Road. US-95 is a two-lane north-south highway that traverses from the Canadian border in Idaho to the Mexican border near Yuma, Arizona. According to the Caltrans 2008 AADT counts, US-95 carried approximately 3,500 vehicles (average annual daily traffic) north of I-10. Wiley's Well Road is a two-lane, arterial road accessed by eastbound and westbound traffic from the I-10 Wiley's Well Road Interchange. This road runs north of I-10 to serve the Caltrans Wiley's Well Road Rest Area and terminates and south of I-10 to the Chuckawalla Valley and Ironwood State Prisons and points south. (Ex. 400, pp. C.10-3 to C.10-4.)

Regional transit in the area is provided by the Palo Verde Valley Transit Agency (PVVTA) and the Sunline Transit Agency provides public transit for eastern Riverside County. The nearest transit line to the project site is the PVVTA Red Route 3 Express which provides weekday service from the city of Blythe, to the Ironwood and Chuckawalla prisons located off Wiley's Well Road south of I-10. National bus service is provided by Greyhound Lines, which has stations located in the city of Blythe, city of Palm Springs and city of Indio. There is no freight rail service in the project area. The Arizona and California Railroad Company (ARZC) had previously provided rail service to Riverside and San Bernardino Counties. However, ARZC sought permission to abandon service to these counties from the Federal Surface Transportation Board (STB.) Therefore, no rail service is available for the city of Blythe; the nearest siding to the GSEP is located in Vidal, California in San Bernardino County. In addition, no regional passenger railroad serves the project area. The nearest rail passenger service stations are Amtrak stations in Palm Springs, California and Yuma, Arizona. The Desert Center Airport is located approximately 13 miles to the west of the GSEP; it will not be affected by the project's construction or operation. Similarly, the Blythe Airport is located approximately 15 miles to the east and its operation will not be affected by the GSEP. (Ex. 400, pp. C.10-4 to C.10-5.)

Project impacts were evaluated according to Appendix G of the California Environmental Quality Act (CEQA) Guidelines and the National Environmental Policy Act.

1. Construction Traffic

The construction of GSEP will be completed in two phases over approximately 37 months. Phase 1 will consist of the Unit 1 powerblock, access road, gas and transmission line and Phase 2 will consist of the Unit 2 powerblock. The construction workforce will peak during month 23 with approximately 1,085 workers per day and average approximately 646 workers during the course of construction. (Ex. 400, p. C.10-6.)

A worst-case scenario, where all workers commute with only one occupant per vehicle, would yield a peak trip generation of approximately 1,085 inbound trips during the morning peak period and another 1,085 outbound trips during the evening peak period. Based on regional demographics, remoteness of the location and availability of skilled laborers, it is expected that the construction employees will be drawn from Riverside and San Bernardino Counties, the Los Angeles Basin Region, and greater Phoenix, Arizona. During construction, it is

anticipated that some of the construction workers and technical workers will reside in temporary housing during the week to be located in the cities of Blythe, California and Parker, Arizona. (Ex. 400, p. C.10-6.)

To reach the GSEP site, construction workers will likely travel from the east and west and will primarily use I-10. The record indicates that approximately 75 percent of construction workers will travel from the east and 25 percent from the west. The workers will access the site off I-10 via the Wiley's Well Road Interchange. (Ex. 400, p. C.10-6.)

Construction period parking demands are to be accommodated by a temporary on-site parking area of approximately nine acres, which will be relocated around the project site as needed during different stages of construction. In addition, a staging/laydown area will be provided at the Wiley's Well Road Rest Area for the construction of the generator tie line. (Ex. 400, p. C.10-6.) Condition of Certification **TRANS-3** requires the project owner to obtain an encroachment permit for GSEP's construction use of this location.

As shown in **Traffic and Transportation Table 1**, the Level of Service (LOS) in 2012 for the three study intersections without the project will remain at LOS A. With the addition of GSEP construction traffic, LOS will change from A to B at one intersection, the I-10 interchange at Wiley's Well Road east of the project site. LOS B is an acceptable level of service on interstate and California state highways. (Ex. 400, p. C.10-6.)

Traffic and Transportation Table 1
Comparison of Construction Year (2012) Roadway Segment Level of Service

	2012 Conditions without GSEP Construction Traffic [1]			***2012 Conditions with GSEP Construction Traffic [2]***		
Roadway Segment	***ADT***	***CAPACITY***	***LOS***	***ADT***	***CAPACITY***	***LOS***
I-10 at Wiley's Well Road, West of the Project Site	3,350	6,800	A	3,623	6,800	A
I-10 at Wiley's Well Road, East of the Project Site	3,700	6,800	A	4,520	6,800	B
US-95 at Hobsonway, North of Blythe,	450	2,000	A	655	2,000	A

1 – Year 2008 traffic volumes expanded to Year 2012 at historical rates from Year 2004 to 2008 (3.8 percent for Wiley's Well Road west; 6.8 percent Wiley's Well Road east and 8.6 percent for US-95)
2 – Month 23 peak construction traffic with 1,093 workers (Assumes 75 percent traveling from the east and 25 percent traveling from the west.)
(Ex. 400, p. C.10-7, **Table 1**.)

This decrease in the LOS at this intersection is consistent with the proposed construction traffic patterns as it is anticipated approximately 75 percent of the traffic will utilize the eastbound Wiley's Well Road Interchange. Traffic volumes will increase from 3,700 ADT to 4,520 ADT. As a result of this increase, vehicles could become stacked as drivers exit I-10. While traffic volumes will increase, the LOS at the study intersections and roadway segments will remain within the LOS thresholds identified by the state and local jurisdictions. All study roadway segments and intersections are expected to operate at LOS A and at LOS B at one intersection with the GSEP-related construction traffic as shown in **Traffic and Transportation Table 1**. Therefore, direct impacts on LOS from GSEP-related construction traffic will be less than significant and mitigation will not be required. (Ex. 400, p. C.10-7.)

While the GSEP will not create significant direct impacts related to traffic congestion, the construction of the GSEP may overlap with two other solar projects in the immediate vicinity, the Palen Solar Energy Project and the Blythe Solar Energy Project, and cause significant cumulative impacts. All three

projects will utilize I-10 and at peak construction employ approximately 3,000 employees. The Cumulative Impacts section discusses these three projects and proposed mitigation (see Condition of Certification **TRANS-1**). (Ex. 400, pp. C.10-7 to C.10-8.)

GSEP construction is expected to generate approximately 15 to 20 one way truck trips per day peaking at approximately 50 to 75 trucks per day. The peak truck travel will not coincide with the peak month 23 construction timeframe. In addition to the standard equipment, several pieces of equipment that exceed roadway or size limits will need to be transported to the GSEP site via I-10 during construction. This equipment includes the steam turbine generator and main transformers. The equipment will be transported using multi-axle trucks from US-95 to I-10. To transport this equipment along highway corridors, the Applicant must obtain special permits from Caltrans to move oversized or overweight materials. The Department of Transportation, District 8 indicated that GSEP will be required to obtain permits for vehicles/load exceeding limitations on size and weight. (Ex. 400, pp. C.10-7 to C.10-8.)

Oversized or overweight trucks with unlicensed drivers could be hazardous to the general public and/or damage roadways. Condition of Certification **TRANS-2** requires that the project owner comply with limits on vehicle sizes and weights and driver licensing regulations. Improper transportation of hazardous materials could also prove a danger to the general public, therefore, Condition of Certification **TRANS-4** requires the owner to secure permits and licenses for the transport of hazardous materials. Finally, even properly sized and licensed trucks could damage roadways. For this reason, Condition of Certification **TRANS-5** requires that the owner restore all roads damaged by construction activities. (Ex. 400, p. C.10-8.)

Potential construction impacts associated with the construction of the transmission line route and conductor installation include the movement of heavy equipment, trucks, and worker vehicles along access routes. Construction of the transmission line route and conductor installation will not directly impact traffic operations as staging areas will be established within existing rights of way. Several aspects of the transmission line tower construction and conductor installation could potentially result in impacts. These include: 1) Workforce related traffic and 2) Transmission line roadway crossings. These two issues are discussed below. (Ex. 400, p. C.10-10.)

The construction of the 6.5 mile transmission line leading up to the Blythe Energy Project Transmission Line (BEPTL) will require approximately 35 workers and consist of the following: preparation of the marshalling yards, access road and spur road construction (which will require approximately 25 workers), clearing and grading of pole sites, foundation preparation and installation of poles, conductor installation and lastly, cleanup and site reclamation. (Ex. 400, p. C.10-10.)

The construction of the natural gas pipeline will be the responsibility of Southern California Gas Company and will require approximately 46 workers over a three to six month period. The construction of the natural gas pipeline will consist of the following: trenching, stringing, installation and backfilling. (Ex. 400, p. C.10-10.)

The construction of these facilities will occur during peak periods however, the construction will not coincide with the peak of the plant site construction employment (during Month 23). (Ex. 400, p. C.10-10.)

The distribution of the transmission line construction workforce will be along the length of the route. The construction will be completed by several crews working simultaneously along the route to minimize impacts during the construction period. (Ex. 400, p. C.10-10.)

Two staging areas will be established for the transmission line construction group to store equipment and materials and to provide field offices: one at the proposed GSEP site and another at the Wiley's Well Road Rest Stop area. Employees will report to these staging areas at the beginning of their shift to receive work assignments and then distribute themselves as needed to various work sites along the transmission line route. (Ex. 400, p. C.10-10.)

Condition of Certification **TRANS-1** requires a Traffic Control Plan (TCP) for the three solar projects. In addition to the standard traffic measures contained in a TCP such as a flagperson and sinage notifying drivers of construction traffic, in lieu of coordinating construction schedules and park and ride for the three projects, each TCP contains the following two measures to address stacking on I-10:

- A work schedule and end-of-shift departure plan designed to ensure that stacking does not occur on 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; restricting travel to and departures from each project site to 10 or fewer vehicles every three minutes during peak travel hours on Interstate 10. The project owner may use any of the above traffic measures or any other measures if the project owner can demonstrate that the implemented measures would ensure that Interstate 10 operates at a Level of Service (LOS) C or higher during the peak travel hours.

- Provisions for an incentive program such as an employer-sponsored Commuter Check Program to encourage construction workers to carpool and/or use van or bus service

With implementation of these measures, the transportation related impacts will be less than significant. (Ex. 400, p. C.10-11.)

The transmission line route will cross I-10 and will require the use of heavy equipment. The Department of Transportation (Caltrans), District 8, commented that GSEP will be required to obtain permits for vehicles/load exceeding limitations on size and weight. Therefore, Condition of Certification **TRANS-3** will require the Applicant to obtain encroachment permits to encroach into public rights-of-ways. In addition, Condition of Certification **TRANS-5** requires that the applicant restore all roads damaged by construction activities. (Ex. 400, p. C.10-11.)

Given the distribution among the two staging sites and the coordinated Traffic Control Plan (Condition of Certification **TRANS-1**) and requirement for encroachment permits from the Department of Transportation (Caltrans) as well as the requirement to restore any damaged roads from construction activities, traffic impacts associated with workforce related traffic and transmission line roadway crossings are considered less than significant. (Ex. 400, p. C.10-11.)

2. Operation Impacts and Mitigation

Operation of the facility will require a labor force of up to 66 full-time employees operating round-the-clock. A worst-case scenario, where all workers commute with only one occupant per vehicle, will generate 132 employee commute trips spread over a 24-hour period. In addition, GSEP will generate approximately 38 truck trips per month (average of one to two truck trips per day) for delivery of materials and supplies. Approximately 15 of these truck trips per month will be for the delivery of hazardous materials. Delivery drivers and workers will use the Wiley's Well Road interchange from either eastbound or westbound I-10 to access the site. (Ex. 400, p. C.10-8.)

These trip additions of employees or deliveries will not cause a significant impact to the highways. It is anticipated the LOS will remain at LOS A. **Traffic and Transportation Table 2** includes information regarding the expected traffic volumes during standard operations with the base traffic volumes on the study roadway segments. The average daily traffic (ADT) volumes are expected to remain low. As indicated, the study roadway segments are expected to experience a nominal increase in GSEP-related traffic. Therefore, operations impacts from GSEP-related traffic are considered less than significant. (Ex. 400, p. C.10-8.)

Traffic and Transportation Table 2
Comparison of Standard Operations (Year 2012) Traffic on Study Roadways

	Standard Operations Year 2012 Without GSEP [1]		***Standard Operations Year 2012 With GSEP [2]***		***Percent Change Associated with GSEP***
Roadway Segment	***ADT***	***CAPACITY [3]***	***ADT***	***CAPACTIY [3]***	
I-10 at Wiley's Well Road, West of the Project Site	3,350	6,800	3,367	6,800	0.5%
I-10 at Wiley's Well Road, East of the Project Site	3,700	6,800	3,750	6,800	1.35%
US-95 at Hobsonway, North of Blythe	450	2,000	462	2,000	2.7%

1 - Year 2008 traffic volumes expanded to Year 2012 at historical rates from Year 2004 to 2008 (3.8 percent for Wiley's Well Road west; 6.8% for Wiley's Well Road east and 8.6 percent for US-95)
2 – Project operations with 66 employees (Assumes 75 percent traveling from the east and 25 percent traveling from the west; split shifts spread over a 24 hour period.)
3 – Two-way capacity in vehicles per hour
(Ex. 400, p. C.10-9.)

Traffic and Transportation Table 3 includes information regarding the level of service of the study roadway segments during standard operations. As shown, the study roadway segments are expected to operate at the same condition, LOS A, as in existing conditions. (Ex. 400, p. C.10-9.)

Traffic and Transportation Table 3
Standard Operations (Year 2012) Roadway Segment Level of Service Summary

Roadway Segment	***Standard Operations Year 2012 Without GSEP*** [1]		***Standard Operations Year 2012 with GSEP*** [2]	
	ADT	**LOS**	**ADT**	**LOS**
I-10 at Wiley's Well Road, West of the Project Site	3,350	A	3,367	A
I-10 at Wiley's Well Road, East of the Project Site	3,700	A	3,750	A
US-95 at Hobsonway, North of Blythe	450	A	462	A

1 - Year 2008 traffic volumes expanded to Year 2012 at historical rates from Year 2004 to 2008 (3.8 percent for Wiley's Well Road west; 6.8 percent for Wiley's Well Road east and 8.6 percent for US-95)

2 - Project operations with 66 employees (Assumes 75 percent traveling from the east and 25 percent from the west; split shifts over a 24 hour period.)

(Ex. 400, p. C.10-9.)

Both the construction and operation of the proposed GSEP will involve the transport of hazardous materials to the site. The transport vehicles are required to follow federal regulations governing the proper containment vessels and vehicles, including appropriate identification of the nature of the contents. In addition to the governing federal regulations, Condition of Certification **TRANS-4** requires the Applicant to obtain appropriate permits from the California Highway Patrol and Department of Transportation for the delivery of hazardous materials. In addition, Condition of Certification **HAZ-3** requires the Applicant to develop and implement a Safety Management Plan for the delivery and handling of liquid and gaseous hazardous materials. Please see the **Hazardous Materials Manangement** section of this Decision. (Ex. 400, p. C.10-12.)

The project will include a temporary parking area of approximately nine acres for construction workers, based on 350 square feet per vehicle. The parking area will be relocated around the site as construction progresses. An additional area will be required for staging and laydown of equipment, materials and supplies. This staging and laydown area will also be relocated around the site as construction progresses. The parking area will accommodate all construction workforce vehicles if workers commuted individually, however, based on the traffic control plan which will include staggered work hours and incentives for carpooling, such as employer-sponsored Commuter Check Program (per

Condition of Certification **TRANS-1**), this parking area will be oversized. (Ex. 400, p. C.10-13.)

During operations, employees will park on-site in a combined administration/parking area. Approximately 23,100 square feet will be required for the parking area, based on 350 square feet per vehicle which will accommodate approximately 66 vehicles. This will adequately accommodate the 66-employee workforce, as employees will not be on-site simultaneously as they will work different shifts to staff the GSEP 24 hours a day, 7 days a week. With the proposed construction parking area on-site as well as on-site parking for operational employees, the project will not result in any parking spill-over to sensitive areas or create any adverse impacts. (Ex. 400, p. C.10-11.)

3. Cumulative Impacts

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. *Cumulatively considerable* is interpreted to mean that the incremental effects of an individual project are significant when viewed in connection with the effects of (1) past projects; (2) other current projects; and (3) probable future projects (Cal. Code Regs., tit. 14, § 15130). According to the National Environmental Policy Act (NEPA), cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR §1508.7).

The record contains a discussion of proposed projects near the GSEP project site along the I-10 corridor in eastern Riverside County including: the Blythe Solar Power Project, Palen Solar Power Project and the GSEP. All three projects are in close proximity to one another and their construction schedules will overlap. Since the Blythe, Palen and Genesis projects will have overlapping construction schedules, traffic impacts could potentially be exacerbated locally along I-10 and each project's interchange/local intersections. Without mitigation, the traffic and transportation impacts of the Blythe, Palen and Genesis solar Projects have the potential to result in cumulatively considerable impacts to I-10 as well as to local streets, highways, and intersections in the vicinity of the project sites. Condition of Certification **TRANS-1** requires that traffic control plans be implemented for all three projects. The Blythe and Palen projects also include this Condition of Certification. The traffic plans will include staggered work schedule start times to ensure acceptable traffic levels of service on I-10 are maintained throughout the projects' construction periods. Condition of Certification **TRANS-5** ensures repair of any roadway damage caused by

construction equipment and supply delivery. The Blythe and Palen Projects also include this Condition. (Ex. 400, pp. C.10-18 to C.10-23.)

FINDINGS OF FACT

Based on the evidence, we make the following findings.

1. During the construction and operation phases, local roadway and highway demand resulting from the daily movement of workers and materials will not increase beyond significance thresholds established by Riverside County.

2. With the Conditions of Certification, the GSEP will comply with all applicable LORS related to **Traffic and Transportation**

3. The GSEP will not significantly degrade the level of service on I-10 or US-95.

4. Based on the GSEP's distance from the nearest airport, no impact on the Blythe Airport or Desert Center Airport will occur, and the project will not impact aviation safety.

5. Based on the GSEP's distance from the nearest rail and bus service, the project will not have an impact on these forms of transportation.

6. The GSEP as proposed with Conditions of Certification will not result in significant direct, indirect or cumulative traffic and transportation impacts, and therefore, no environmental justice issues.

7. Condition of Certification **TRANS-1** requires the owner to develop and implement a Traffic Control Plan. The Traffic Control Plan will include a plan for reducing peak construction workforce vehicle trips.

8. Condition of Certification **TRANS- 2** limits the vehicle size and weights to ensure compliance with limitations on use on roadways.

9. Condition of Certification **TRANS- 3** requires compliance with limitations on encroachment into public rights-of-ways.

10. Condition of Certification **TRANS- 4** ensures safe transport of hazardous materials.

11. Condition of Certification **TRANS-5** ensures all public roads, easements and rights-of-ways are restored to their original condition if damaged by project related construction.

CONCLUSIONS OF LAW

1. The Genesis Solar Energy Project will be consistent with the Circulation Element in the Riverside County General Plan, local circulation plans and policies and all other applicable laws, ordinances, regulations, and standards.

2. The project will not have a significant adverse impact on the local and regional road/highway network.

CONDITIONS OF CERTIFICATION

TRANS-1 Prior to start of construction of the Genesis Solar Energy Project (GSEP) the project owner shall prepare and implement a Traffic Control Plan (TCP) for the GSEP's construction and operation 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 Department of Transportation (Caltrans) District 8 office in the preparation and implementation of the Traffic Control Plan and shall submit the proposed Traffic Control Plan to the County of Riverside and the Department of Transportation (Caltrans) District 8 office in sufficient time for review and comment 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 project owner shall provide a copy of any written comments from the County of Riverside and the Department of Transportation (Caltrans) District 8 office and any changes to the Traffic Control Plan to the CPM prior to the proposed start of construction.

The Traffic Control Plan shall include:

- A work schedule and end-of-shift departure plan designed to ensure that stacking does not occur on 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; restricting travel to and departures from each project site to 10 or fewer vehicles every three minutes during peak travel hours on Interstate 10.

  The project owner may use any of the above traffic measures or any other measures if the project owner can demonstrate that the

implemented measures would ensure that Interstate 10 operates at a Level of Service (LOS) C or higher during the peak travel hours.

- Provisions for an incentive program such as an employer-sponsored Commuter Check Program to encourage construction workers to carpool and/or use van or bus service.
- Limitation on truck deliveries to the project sites to only off-peak hours to ensure adequate exit and entry at appropriate intersections.
- 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.
- Placement of signage, lighting, and traffic control device at the project construction site and laydown areas.
- Signage along eastbound and westbound appropriate roads and at the entrance of each of the I-10 northbound and southbound off-ramps at appropriate roads notifying drivers of construction traffic throughout the duration of the construction period.
- A heavy-haul plan designed to address the transport and delivery of heavy and oversized loads requiring permits from Department of Transportation (Caltrans) or other state and federal agencies.
- Parking for workforce and construction vehicles.
- Emergency vehicle access to the project site.

Verification: 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 traffic control plan to the County of Riverside and the Department of Transportation (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 Department of Transportation (Caltrans) District 8 office requesting review and comment.

At least 30 calendar days prior to the start of construction, the project owner shall provide copies of any comment letters received from either the County of Riverside and the Department of Transportation (Caltrans) District 8 office, along with any changes to the proposed traffic control plan to the CPM for review and approval.

TRANS-2 Oversized and Overweight Vehicles The project owner shall comply with limitations imposed by the Department of Transportation (Caltrans) District 8 office 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 the Department of Transportation (Caltrans) and all relevant jurisdictions for use of roadways.

Verification: 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 these permits and supporting documentation on-site for Compliance Project Manager (CPM) inspection if requested.

TRANS-3 Encroachment into Public Rights-of-Way The project owner or its contractor shall comply with the Department of Transportation (Caltrans) and other relevant jurisdictions limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from the Department of Transportation (Caltrans) and all relevant jurisdictions.

Verification: In the MCR's, 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.

TRANS-4 Securing Permits/Licenses to Transport Hazardous Materials The project owner shall ensure that permits and/or licenses are secured from the California Highway Patrol and Department of Transportation (Caltrans) for the transport of hazardous materials.

Verification: In the MCR's, 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.

TRANS-5 Restorations of All Public Roads, Easements, and Rights-of-Way 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 the CPM. Repairs and restoration of access roads may be required at any time during the construction phase of the project to assure safe ingress and egress.

Verification: 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, the affected local jurisdictions and the Department of Transportation (if applicable) with a copy of these images. The project owner shall rebuild, repair and maintain all public roads, easements, rights-of-way in a usable condition throughout the construction phase of the project.

Prior to the start of site mobilization, the project owner shall consult with the County of Riverside and the Department of Transportation (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 the Department of Transportation (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 Department of Transportation (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 a letter signed by the County of Riverside and the Department of Transportation (Caltrans) District 8 stating their satisfaction with the repairs to the CPM.

C. SOCIOECONOMICS

The first portion of the this topic focuses on pertinent demographic information within a six-mile radius of the project site, evaluates the effects of project-related population changes on local schools, medical and fire protection services, public utilities and other public services, as well as the fiscal and physical capacities of local government to meet those needs. The public benefits of the project are also reviewed. As part of this review, the analysis examines both the beneficial impacts on local finances from property and sales taxes as well as the potential adverse impacts upon public services. The evidence of record is undisputed on these matters. (Exs. 1; 57; 403; 7/12/10 RT 28:11-14, 33:23-25.)

This section also contains a discussion concerning the Environmental Justice aspects and the analysis conducted to determine whether project-related activities would result in disproportionate impacts on low income and/or minority populations.

SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Demographics, Services, and Finances

The construction phase is typically the focus of this stage of the Socioeconomics analysis because of the potential influx of workers into the area. Impacts are considered significant if a large influx of non-resident workers and dependents occurs in the project area, thus increasing demand for community resources.

The evidence indicates that the construction of the GSEP will result in the influx of temporary workers to the area during the 37-month construction period, there would be an average of approximately 646 daily construction workers, with a peak daily workforce of 1,085, depending on the month and the work required. Laborers would consist of craftspeople and supervisory, support, and construction management personnel on site during construction. The peak construction labor force of 1,085 total daily construction workers would occur during the 23rd month of construction. This maximum employment number is used to analyze worst-case construction population and employment impacts. (Ex. 400, p. C.8-7.)

The evidence establishes that there is more than adequate local availability of construction workforce within the Riverside/San Bernardino/Ontario Metropolitan Statistical Area (MSA) to serve the direct GSEP construction labor need. Based

on the evidence, construction workers within San Bernardino and Riverside counties regularly commute 2-hours each direction daily for work and it was concluded that the majority of construction workers will come from within this regional study area. (Ex. 400, p. C.8-8.)

Based on the evidence, there were 19 hotels with a total of 878 rooms within the local study area in 2008. These hotels were all located in Blythe, which is the only community with hotels or motels with 15 or more rooms within one hour's driving distance. The average annual occupancy rate for hotels in Riverside and San Bernardino Counties in 2007 was 70.8 percent. Applying this ratio (70.8 percent) to the total number of hotel rooms identified within one hour of the GSEP site suggests that, on average, a total of 256 unoccupied rooms were available for rent in Blythe in 2008. (Ex. 400, p. C.8-9.)

Fifty-seven hotels with a total of 8,285 rooms were identified in communities located from 1 to 1.5 hours drive from the GSEP site. These communities include Indio, Palm Desert, Indian Wells, and Rancho Mirage. Applying the 2008 average occupancy ratio (70.8 percent) suggests that, on average, 2,419 unoccupied rooms are available for rent within 1 to 1.5 hours drive of the GSEP site. A total of 129 hotels with 7,541 rooms were identified in communities within 1.5 to 2 hours drive from the GSEP site. These communities include Desert Hot Springs, Palm Springs, and Needles. Assuming an annual average occupancy rate of 70.8 percent, 2,202 unoccupied motel and hotel rooms were available for rent within 1.5 to 2 hours drive from the GSEP site. It should be noted that data was unavailable for local study area hotel/motel rooms located within Arizona, but is certainly available to workers. (Ex. 400, p. C.8-9.)

Based on current vacancy rates for the city of Blythe approximately 876 vacant housing units were available in 2008. The evidence indicates that approximately 1,594 local housing units were available within the cities of Ehrenburg and Quartzsite, Arizona. (Ex. 400, p. C.8-9.)

Based on the evidence, any construction workers seeking RV and campground lodging would likely find limited availability in the local study area during the winter months. However, as discussed above, ample local housing would be available to any construction worker seeking local housing. Based on the availability of short-term housing in the local study area when compared to a maximum temporary peak demand of up to 163 workers potentially seeking local housing during the workweek, construction of the proposed project would not temporarily induce substantial growth or concentration of population in the local

study area and construction of the GSEP would not encourage people to permanently relocate to the area due to temporary construction employment associated with the GSEP. It should be noted that the AFC indicates that in the event a shortage of spaces in RV parks in the Blythe area, as well as a potential shortage of hotel and motel rooms were to occur, the Applicant will work with the Blythe Area Chamber of Commerce and other appropriate officials to develop a housing plan, as needed. Because the possibility of this occurrence is unknown at this time, the extent of this housing plan proposed by the Applicant is unknown to Staff. (Ex. 400, p. C.8-10.)

The proposed GSEP is expected to require a total of 40 to 50 permanent full-time employees. The evidence shows that there is more than an adequate local workforce for project operation regardless of the specialized nature of the proposed project. Therefore, due to the labor force located within the Riverside/San Bernardino/Ontario MSA, the evidence concludes that the new operational employees required for the GSEP would be found locally. (Ex. 400, p. C.8-10.)

The evidence shows that 50 percent of workers would come from within the regional study area workforce, resulting in a potential influx of approximately 33 workers in communities within the proposed GSEP regional and local study areas. In the event these 33 permanent operational employees choose to live closer to the GSEP site, the most current published local study area vacancy rates for the cities of Blythe, CA; Ehrenberg, AZ; and Quartzsite, AZ are 16.1, 34.9, and 41.9 percent, respectively. These vacancy rates indicate ample local housing is available should these operational employees choose to relocate to the local study area. Additionally, evidence shows that power plant workers may commute as much as two hours each direction from their communities rather than relocate. Therefore, some of these 33 workers that may relocate to the area may choose to live outside of the local study area or will choose to commute from their current residence within the regional study area. The evidence indicates that the regional study area provides a high number of available housing opportunities. The addition of up to 33 workers to either the local or regional study area would not permanently induce substantial growth or concentration of population in excess of available housing or forecasted growth. (Ex. 400, p. C.8-101.)

The evidence shows that the GSEP will result in the generation of both indirect and induced employment. However, it is difficult to speculate as to the type, potential hiring practice/requirements, and potential for employee relocation as a

result of these indirect and induced jobs at the time of this publication. While it is possible that a portion of this indirect and induced employment would occur within the local study area (increase in food workers, etc.), a number of jobs could not occur within the local study area (solar power plant equipment manufacturing, etc.). A number of induced and indirect employment jobs could potentially occur outside of the local study area or California. Therefore, it is speculative to quantify what if any numbers of indirect and induced employees may seek permanent housing in the GSEP local study area. However, based on the number of projected indirect and induced employment, it is assumed that the vacancy rate of the local and regional study area could adequately provide housing for any potential portion of indirect and induced employment population that may permanently relocate to the GSEP local study area and this population would be within projections for the regional study area. (Ex. 400, pp. C.8-11 to C.8-12.)

Based on these conclusions, inducement of substantial population growth through permanent employment associated either directly or indirectly by the GSEP would be a less than significant impact. (Ex. 400, p. C.8-12.)

The capital costs for the GSEP are approximately $1,000 million; of this, construction materials and supplies are estimated at approximately $14.5 million. The total construction payroll is estimated at $165 million. (Ex. 400, p. C.8-32.)

The total sales tax estimated during construction is expected to be $ 1.3 million. The estimated annual property taxes (with solar tax credit) are expected to be $627,000 and the estimated annual property taxes (without solar taxes) are expected to be approximately $10,455,000 (Ex. 403, p.C.8-32.)

Socioeconomics Table 1 provides a summary of the economic effects of the GSEP.

SOCIOECONOMICS Table 1
Noteworthy Public Benefits
Related to Genesis Solar Energy Project

Fiscal Benefits	
Estimated annual property taxes	$627,000 per year (If the California property tax exemption for solar systems is not renewed when it expires during the 2015-2016 fiscal year, property taxes could be approximately $10,455,000)
State and local sales taxes: Construction	$1.3 million
State and local sales taxes: Operation	$44,000 per year
Non-Fiscal Benefits	
Total capital costs	$1,000 million
Construction payroll	$165 million
Operations payroll	$6 million
Construction materials and supplies	$14.5 million
Operations and maintenance supplies	$0.5 million per year
Direct, Indirect, and Induced Benefits	
Estimated Direct Employment	
Construction	An average of 646 jobs per month
Operation	40 to 50 full-time jobs
Estimated Secondary Employment	
Construction	446 jobs
Operation	124 jobs
Estimated Secondary Income	
Construction	$26.8 million
Operation	$3.0 million

(Ex. 400, p. C.8-32.)

The analysis of record characterizes the increase in employment and the increase in sales tax and generation of secondary jobs and income. The evidence further establishes that since the workforce will likely commute to the project, neither the construction nor the operation workers will place an undue stress upon available housing. Similarly, the evidence shows that existing educational, police, medical and emergency services will not be adversely impacted. (Ex. 400, pp. C.8-12 to 4.8-18.)

2. Cumulative Impacts

In a socioeconomic analysis, cumulative impacts could occur when more than one project in the same area has an overlapping construction schedule, thus creating a demand for workers that cannot be met locally. That increased demand for labor could result in an influx of non-local workers and their

dependents, resulting in a severe strain on housing, schools, parks and recreation, law enforcement, and medical services.

Foreseeable development in the project area includes primarily renewable energy electrical generation and transmission infrastructure projects. With the large number of renewable energy projects occurring within the GSEP regional study area, it is possible that some overlap of construction phasing could occur between the GSEP and the cumulative development projects. **Socioeconomics and Environmental Justice Table 2** presents the most recently published data (Year 2006-2016 projections) on labor force characteristics for the cumulative regional study area pertaining to electrical energy project construction labor skill sets and compares those to major cumulative projects located near the GSEP along the I-10 corridor, including the Palen Solar Power Project (PSPP), Blythe Solar Energy Project (BSPP), Rice Solar Energy Project (RSEP), and the Desert Sunlight PV Project (DSPV). (Ex. 400, pp. C.8-25 to C.8-26.)

All cumulative projects identified in **Socioeconomics and Environmental Justice Table 2** would be expected to draw on the large regional construction workforce in and Riverside/San Bernardino/Ontario MSA, and as shown the MSA offers sufficient regional labor by skill set to Staff all projects from within the regional study area. As indicated by **Socioeconomics and Environmental Justice Table 2**, cumulative development of these projects in a worst-case scenario of overlapping peak period months could result in the influx of 578 construction workers seeking local lodging within the area as a result of the large renewable energy projects being constructed. Based on the evidence, this scenario is unlikely due to construction scheduling and peak months shown in **Socioeconomics and Environmental Justice Table 2**, this assumption does not account for workers doubling up in local lodging situations. (Ex. 400, p. C.8-26.)

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 2
Cumulative Project Construction Employment Needs

TRADE	GSEP Total # of Workers for Project Construction by Craft – Peak Month (Month 16)	PSPP Total # of Workers for Project Construction by Craft – Peak Month (Month 17)	BSPP Total # of Workers for Project Construction by Craft – Peak Month (Month 16)	RSEP Total # of Workers for Project Construction by Craft – Peak Month (Month 12)	DSPV Total # of Workers for Project Construction by Craft – Peak Month (Months 6-8)	*TOTAL*	RIVERSIDE/SAN BERNARDINO/ ONTARIO MSA 2006	RIVERSIDE/SAN BERNARDINO/ ONTARIO MSA 2016
Surveyor	0	12	16	0	N/A	*28*	1,420	1,670
Operator	0	90	94	0	N/A	*184*	4,790	5,460
Laborer	198	185	229	52	N/A	*637*	27,930[1]	32,080[1]
Truck Driver	0	35	28	0	N/A	*63*	27,930[1]	32,080[1]
Oiler	0	4	4	0	N/A	*8*	27,930[1]	32,080[1]
Carpenter	44	100	77	50	N/A	*300*	28,850	32,390
Boilermaker	0	11	9	0	N/A	*20*	4,630[2]	5,330[2]
Paving Crew	0	0	0	0	N/A	*0*	630	720
Pipe Fitter	200	326	290	80	N/A	*968*	4,630	5,330
Electrician	105	150	81	56	N/A	*449*	6,740	7,600
Cement Finisher	4	100	80	6	N/A	*197*	4,110	4,690
Ironworker	70	59	42	32	N/A	*246*	19,460	20,800
Millwright	22	25	18	16	N/A	*153*	2,630[3]	2,960[3]
Tradesman	382[6]	10	8	105[7]	N/A	*544*	27,930[1]	32,080[1]
Project Manager	0	3	2	0	N/A	*5*	10,990[4]	12,380[4]
Construction Manager	0	3	2	5	N/A	*10*	4,380	5,110
PM Assistant	0	4	2	0	N/A	*6*	10,990[4]	12,380[4]
Support	0	4	2	0	N/A	*6*	120[5]	130[5]
Support Assistant	0	4	2	0	N/A	*6*	120[5]	130[5]
Engineer	60	10	7	36	N/A	*127*	1,370	1,600
Timekeeper	0	3	2	0	N/A	*5*	10,990[4]	12,380[4]
Administrator	0	6	5	0	N/A	*11*	10,990[4]	12,380[4]
Welder	0	1	1	0	N/A	*2*	3,960	4,640
Total Peak Month	*1,085*	*1,145*	*1,001*	*438*	*622*	*4,291*	--	--
Local Housing Need[10]	*163*	*172*	*150*	*0*[11]	*93*	*578*	--	--

Notes: [1] The "Construction Laborers" category was used; [2] The "Plumbers, Pipefitters, and Steamfitters" category was used; [3] The "Machinists" category was used; [4] The "Supervisors, Construction and Extraction Workers" category was used; [5] The "Helpers- Construction Trades" category was used; [6] Includes: insulators, painters, teamsters, and 'Solar Field Craft". The solar field craft workers include an estimated five solar field installation crews, with each crew including a Foreman, Equipment Operators, Laborers, Electricians, Ironworkers, Carpenters, Masons, and Pipefitter/Welders; [7] Includes Teamsters, Heliostat Assembly Craft, Construction Staff, Subcontractors, and Technical Advisors; [8] Includes Insulators; [9] Includes Painters, Sheetmetal Workers, and Teamsters; [10] Assumes 15 percent of peak month workforce may seek temporary local housing during workweek; [11] On-site worker camp is provided for RSEP, providing housing for up to 300 trailers, eliminating local housing need; N/A: labor by craft data not available from BLM.
Source: (Ex. 400, p. C.8-27.)

While this number could impact the amount of local hotel/motel rooms within the local and regional study area, as discussed above for the proposed GSEP a high number of short-term housing units are available within increasing radii commute sheds from the local study area. Furthermore, local housing is available within the cities of Ehrenburg and Quartzsite, AZ. Workers seeking short-term temporary housing during the workweek to avoid commuting from their homes in the regional study area could increase housing demand and population in the local area, the extent and quantification of these impacts is unknown and speculative. Similar to the GSEP, workers seeking RV and campsite lodging from cumulative projects will likely find no availability within the winter months. (Ex. 400, p. C.8-26.)

Based on the availability of local temporary housing within a one-hour commute shed (as discussed above for the GSEP), it is assumed that ample temporary short-term housing is available for any workers seeking short-term local lodging from a cumulative perspective. Therefore, cumulative project construction within the GSEP local study area would not significantly impact the population projections or require the need for new or expanded housing within the local study area. (Ex. 400, p. C.8-28.)

Furthermore, based on the evidence all workers associated with the cumulative projects identified within **Socioeconomics and Environmental Justice Table 2** will come from within the regional study area, with up to 15 percent of these workers potentially seeking short-term temporary housing during the workweek locally, cumulative construction activities would not require the need for new or expanded public services (police, schools, recreation, hospitals) serving the local study area as no permanent population increase would occur. While **Socioeconomics and Environmental Justice Table 2** indicates that cumulative development based on Staff assumptions could result in up to 578 workers staying within the local study area, as Staff concludes this number would fluctuate it is speculative to quantify any potential impacts this could have on local area public services. Therefore, construction of the GSEP would not contribute to adverse cumulative socioeconomic impacts. (Ex. 400, p. C.8-28.)

In addition, short-term construction-related spending activities of the GSEP project are expected to have cumulative economic benefits for the study area (refer above to **Socioeconomics and Environmental Justice Table 1**). The cumulative benefits would increase when revenues accrued as a result of the proposed GSEP are combined with spending, and any local revenues accrued as a result of current and future reasonably foreseeable cumulative development projects. (Ex. 400, p. C.8-28.)

Operation of the GSEP is expected to result in the potential permanent relocation of up to 33 workers into the local study area. **Socioeconomics and Environmental Justice Table 3** presents the most recently published data (Year 2006-2016 projections) on labor force characteristics for the cumulative regional study area pertaining to electrical energy project operational labor skill sets and compares those to

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3
Cumulative Project Operational Employment Needs

TRADE	GSEP Total # of Workers for Project Operation	PSPP Total # of Workers for Project Operation	BSPP Total # of Workers for Project Operation	RSEP Total # of Workers for Project Operation	DSPV Total # of Workers for Project Operation	*TOTAL*	RIVERSIDE/SAN BERNARDINO/ONTARIO MSA 2006	RIVERSIDE/SAN BERNARDINO/ONTARIO MSA 2016
Plant and System Operators	--	--	--	--	--	--	2,030	2,380
Power Plant Operators	--	--	--	--	--	--	310	370
Total	*50*	*134*	*221*	*47*	*15*	*467*	*2,340*	*2,750*
Local Housing Need[1]	*33*	*34*	*55*	*12*	*4*	*138*	--	--

[1] BSPP and PSPP use a 25 percent relocation assumption in their respective AFC's. As no assumed percentage was included in the RSEP AFC and DSPV information provided by BLM, this table assumes 25 percent of operational employees will permanently relocate to the cumulative project area. GSEP AFC specifically indicates that up to 33 workers would relocate.
Source: (Ex. 400, p. C.8-29.)

major cumulative projects located near the GSEP along the I-10 corridor, including the PSPP, BSPP, RSEP, and the DSPV. (Ex. 400, p. C.8-28.)

As shown in **Socioeconomics and Environmental Justice Table 3**, these cumulative projects are expected to result in a total of 138 workers permanently relocating to the local study area. Indirect and induced employment from all cumulative projects identified in **Socioeconomics and Environmental Justice Table 3** could result in limited demand for permanent housing in the local study area. However, Staff cannot speculate or quantify this potential at the time of publication. However, it is assumed that the vacancy rate of the local and regional study area could adequately provide housing for any potential portion of indirect and induced employment population that may permanently relocate to the local study area from cumulative development and this population would be within projections for the regional study area. (Ex. 400, p. C.8-30.)

Based on the evidence, the operation of the proposed GSEP would not contribute cumulatively to an increase in the local population or require the need for new or expanded law enforcement, school, recreational, or emergency medical facilities or Staff levels within the GSEP regional or local study areas. (Ex. 400, p. C.8-30.)

4. Environmental Justice Aspects

Section 65040.12 (e) of the Government Code defines “environmental justice” to mean “fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.” In addition, federal guidelines encourage governmental agencies to incorporate environmental justice principles in the environmental review of this project.

The steps recommended by these guidance documents to assure that environmental justice concerns are addressed include: (1) outreach and involvement; (2) a demographic screening to determine the existence of a minority or low-income population; and (3) if warranted, a detailed examination of the distribution of impacts on segments of the population.

The evidence of record contains a demographic screening conducted in accordance with information contained in two documents: *Environmental Justice: Guidance Under the National Environmental Policy Act* (Council on Environmental Quality, 1997) and *Final Guidance for Incorporating Environmental Justice Concerns in EPA’s NEPA Compliance Analyses* (National

Council on Environmental Quality, 1998). (Ex. SA, p. C.8-7.) The purpose of the demographic screening is to determine whether there exists a minority or low-income population within the potentially affected area. Minority populations exist, for purposes of an environmental justice analysis, where either:

- The minority population of the affected area is greater than 50 percent of the affected area's general population; or
- The minority population percentage of the area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis; or
- One or more U.S. Census blocks in the affected area have a minority population greater than 50 percent.

Minority individuals, for present purposes, are those who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. The below poverty-level-population was also based on the 2000 U.S. Census.

The evidence shows that Census 2000 information indicates a minority population by census block of 79.77 percent within a six-mile radius of the GSEP. The below poverty level population within the same area consists of no people or 0.0 percent of the total population. (Ex. SA, pp. C.8-7 to C.8-8.)

FINDINGS OF FACT

Based on the persuasive weight of the evidence, we find as follows:

1. The GSEP will draw primarily upon the local labor force from Riverside and San Bernardino counties for the construction and the operation workforce.
2. The project will not cause an influx of a significant number of construction or operation workers into the local area.
3. The project is not likely to have a significant adverse effect upon local employment, housing, schools, medical resources, or fire and police protection.
4. The project will have a construction payroll of approximately $165.5 million.
5. GSEP will result in local direct, indirect, and induced benefits – both fiscal and non-fiscal.
6. The project will likely result in generation of secondary jobs and income and increased revenue from sales taxes due to construction activities.

7. Construction and operation of the project will not result in any direct, indirect, or cumulative adverse socioeconomic impacts.
8. The analysis of record has been performed in conformity with Federal environmental justice guidelines.
9. Minority populations exist within a six mile radius of the site; however, the GSEP will not cause or contribute to disproportionate impacts upon minority or low income groups
10. Siting of the GSEP, and the analysis thereof, are consistent with the principles underlying environmental justice.
11. The GSEP's contribution to cumulative impacts, in conjunction with the impacts from other reasonably foreseeable projects, is adequately addressed in the evidence of record and in appropriate portions of this Decision.

CONCLUSION OF LAW

1. We therefore conclude that the project construction and operation activities will create some degree of benefit to the local area and will conform to principles of environmental justice.

2. No Conditions of Certification are required for this topic because no significant adverse socioeconomics impacts will occur as a result of construction and operation of the GSEP.

D. NOISE AND VIBRATION

The construction and operation of any power plant will create noise. The character and loudness of this noise, the times of day or night during which it is produced, and the proximity of the project to sensitive receptors combine to determine whether project noise will cause significant adverse impacts. In some cases, vibration may be produced as a result of construction activities such as blasting or pile driving; these activities have the potential to cause structural damage and annoyance. The evidence summarized below evaluates whether noise and vibration produced during project construction and operation will be mitigated sufficiently to comply with applicable law and avoid the creation of significant adverse impacts. The evidence on noise and vibration was undisputed (Exs. 1; 12; 51; 57; 60; 400; 7/12/10 RT 28:11-14, 33:23-25).

SUMMARY AND DISCUSSION OF THE EVIDENCE

The proposed Genesis Solar Energy Project (GSEP) would be constructed on a 1,800 acre site located approximately 25 miles west of the town of Blythe in Riverside County. The site is primarily on federal land managed by the BLM. The ambient noise regime in the project vicinity consists of aircraft traffic, highway traffic, wind and wildlife. There are no noise sensitive receptors within 9 miles of the project site; however, two state prisons are located just beyond the 9 mile radius southeast of the project site. The potential for noise impacts to wildlife on and around the GSEP site is discussed in the **Biological Resources** section of this Decision. (Ex. 400, pp. C.7-5 to C.7-6.)

Federal and State laws regulate worker noise exposure. (Ex. 400 C.7-3.) The Noise Element of the Riverside County General Plan contains standards, policies and procedures that are intended to minimize noise impacts to the community. The noise level standards for new projects, including non-transportation noise sources, employ the Community Noise Equivalent Level (CNEL) or Day-Night Level (L_{dn}). Specifically, the County Noise Element standards for residential land uses are: Normally Acceptable: CNEL or L_{dn} up to 60 dB; Conditionally Acceptable: up to 70 dB CNEL or Ldn. Riverside County has adopted restrictions affecting construction noise sources in Ordinance 847 of the Riverside County Code. Construction within one-quarter mile of an occupied residence is prohibited between the hours of 6 p.m. and 6 a.m., except as allowed with the written consent of the building official. (Ex. 400, p. C.7-5.)

CEQA Guidelines set forth characteristics of noise impacts that may indicate potentially significant effects from project-related noise, such as “a substantial

permanent increase in ambient noise levels in the project vicinity above levels existing without the project." (Cal. Code Regs., tit. 14, § 15000 et seq., Appen. G, Section XI.) In accordance with this standard, the Commission uses the significance threshold of 5 dBA when project-related noise emissions exceed existing ambient noise levels at the nearest sensitive receptor. We believe that an increase in background noise levels of up to 5 dBA in a residential setting is insignificant and that an increase of more than 10 dBA is clearly significant. An increase of between 5 dBA and 10 dBA may be considered adverse, but could be either significant or insignificant depending upon the particular circumstances of a given case. (Ex. 400, pp. C.7-1 to C-7-2.)

Criteria for determining significance in this section are based on Appendix G of the CEQA Guidelines and performance standards or thresholds identified by the Energy Commission staff. In addition, the environmental effects of the proposed project on land uses (i.e., those listed below) includes an assessment of the context and intensity of the impacts, as defined in the NEPA implementing regulations 40 CFR Part 1508.27. (Ex. 400, p. C-7-5.)

Factors considered in determining the significance of an adverse impact as characterized above include: (1) the resulting combined noise level; (2) the duration and frequency of the noise; (3) the number of people affected; (4) the land use designation of the affected receptor sites, and (5) public concern or controversy expressed at workshops or hearings or in correspondence. Noise due to construction activities is usually considered insignificant in terms of CEQA compliance if the construction activity is temporary, the use of heavy equipment and noisy activities is limited to day-time hours, and industry-standard abatement measures are employed. (Ex. 400, p. C.7-2.)

There are no noise sensitive receptors located within nine miles of the project site. The Energy Commission's siting regulations only require ambient noise measurements when it is likely that operational or construction noise from a project will increase the ambient noise levels at nearby noise sensitive receptors by 5 dBA or more. Given that there are no noise sensitive receptors located within nine miles of the project site, and that the ambient noise regime in the surrounding area includes highway traffic and aircraft traffic, it is extremely unlikely that the ambient noise at the nearest noise sensitive receptors (more than nine miles away from the project site) at the Chuckwalla Valley and Ironwood state prisons would be low enough that attenuated project noise would cause a 5 dBA increase in the ambient noise level. The record indicates that ambient noise monitoring is not required. (Ex. 400, p. C.7-6.)

1. Construction

Construction noise is a temporary event, in this case expected to occur over a period of about 37 months. Each unit of the project is expected to require approximately 25 months to be constructed, with the construction of each unit overlapping by 12 months (Ex. 400, p. C.7-6.) Construction of related linear facilities, such as the transmission line, proceeds rapidly, thus subjecting nearby receptors to increased noise levels for relatively short periods of time. (Ex. 400, C.7-7.)

The evidence shows that there will be no noise impacts due to project construction on the nearest sensitive receptors. Assuming an average construction noise of 93 dBA L_{eq} at 50 feet from the noise center (the upper range of noise levels for construction equipment), project construction noise would attenuate to 39 dBA at a distance of five miles from the acoustic center. Project construction noise would further attenuate to 34 dBA at the state prisons, 9 miles away. (Ex. 400, pp. C.7-6 to C.7-9.)

There are no LORS that limit construction noise levels for the project. The Riverside County Code prohibits noisy construction work to daytime hours when a project is within one-quarter mile of a noise sensitive receptor. Given the distance between the proposed project site and the nearest noise sensitive receptor, this limitation does not apply. No limit on construction hours needs to be enforced for the Genesis project. (Ex. 400, pp. C.7-6 to C.7-7.)

To protect construction workers from injury due to excessive noise, Condition **NOISE-1** requires the project owner to implement a noise control program consistent with OSHA and Cal/OSHA requirements. Finally, there is no indication in the evidence that vibration from construction activities will be perceptible at any appreciable distance from the project site, or that it will cause any impact. (Ex. 400, p. C.7-8.)

2. Operations

The noise emanating from a power plant is unique. It is generally broadband, steady state in nature. This noise contributes to, and becomes part of, the background noise level when most intermittent noises cease. (Ex. 400, p. C.7-9.) The project's primary new noise sources include the steam turbine generators, cooling tower, start-up boiler, and various pumps and fans. (Ex. 400, p. C.7-8.)

To mitigate potential operational impacts, the project will incorporate:

- Metal acoustical steam turbine enclosures; and
- 25-foot high solar mirror arrays surrounding the power block.

In addition, the Genesis Project will operate primarily only during day-time hours, typically 15 hours per day during the summer (with fewer hours during the fall, winter and spring), when sufficient solar insulation is available (Ex. 400, p. C.7-9.) The evidence shows that operating noise levels are expected to be less than 30 dBA at a distance of five miles from the project site, which would attenuate further at a greater distance. At the state prisons located nine miles from the project site, project operating noise would attenuate to less than 25 dBA, which is a very quiet level for daytime ambient even in rural areas. Given the distance, and thus the amount of noise attenuation, project noise levels would not be expected to be higher than ambient values at the prison or any noise sensitive receptors further away. No change in ambient noise would be expected to result from plant operation. (Ex. 400, pp. C.7-9 to C.7-10.)

One possible source of disturbance would be strong tonal noises. Tonal noises are individual sounds (such as pure tones) that, while not louder than permissible levels, stand out in sound quality. The Applicant plans to avoid the creation of annoying tonal (pure-tone) noises by balancing the noise emissions of various power plant features during plant design. Given the lack of noise sensitive receptors within the vicinity of the project, tonal noises would not be expected to cause annoyance. (Ex. 400, p. C.7-9.)

As with construction activities, operational and maintenance activities will meet OSHA and Cal/OSHA standards to protect workers (Condition of Certification **NOISE-2**). The evidence also establishes that operational vibration – whether ground borne or air borne - will be undetectable by potential receptors. (Ex. 400, p. C.7-10.)

Finally, the evidence establishes that there are no other projects in the vicinity which are close enough to result in cumulative noise impacts. (Ex. 400, p. C.7-14.)

FINDINGS OF FACT

Based on the evidence, we make the following findings.

1. There are no noise sensitive receptors located within nine miles of the project site.

2. Operation of the GSEP will not significantly increase noise levels above existing ambient levels at the nearest receptors.

3. Construction noise levels are temporary and transitory in nature and will be mitigated to the extent feasible by sound reduction devices, limiting construction to day-time hours, and providing a notice and complaint process to the public.

4. Impacts due to pile driving, if it should occur, would not be significant given the distance to the nearest sensitive receptor.

5. There are no noise sensitive receptors within nine miles of the project that would be impacted by construction noise; the impacts due to construction noise are considered insignificant.

6. The project owner will implement measures to protect workers from injury due to excessive noise levels during both construction and operation.

7. The GSEP will not create ground or air borne vibrations which will cause significant off-site impacts.

8. Implementation of the Conditions of Certification, below, ensure that project-related noise emissions will not cause significant adverse impacts to the closest noise receptors.

9. The noise from the GSEP will not create or contribute to a significant adverse cumulative impact.

CONCLUSIONS OF LAW

1. The Commission concludes that implementation of the following Conditions of Certification ensure that the Genesis Solar Energy Project will comply with the applicable laws, ordinances, regulations, and standards on noise and vibration as set forth in the pertinent portion of **Appendix A** of this Decision.

2. The project will not cause significant indirect, direct, or cumulative adverse noise impacts.

CONDITIONS OF CERTIFICATION

NOISE-1 At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within two miles of the project site boundaries and one-half mile of linears, by mail or 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 and include that telephone number in the above notice. If the telephone is not staffed 24 hours per 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 in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

Verification: 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, verifying that the telephone number has been established and posted at the site, and giving that telephone number.

NOISE COMPLAINT PROCESS

NOISE-2 Throughout the construction and operation of Genesis, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or CPM shall:

- Use the Noise Complaint Resolution Form (below), or a functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;
- Attempt to contact the person(s) making the noise complaint within 24 hours;
- Conduct an investigation to determine the source of noise related to the complaint;
- Take all feasible measures to reduce the noise at its source if the noise is project related; and
- Submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts, and if obtainable, a signed

statement by the complainant stating that the noise problem is resolved to the complainant's satisfaction.

Verification: Within five days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form with the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a three-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is implemented.

NOISE-3 The project owner shall submit to the CPM for review and approval a noise control program and a statement, signed by the project owner's project manager, verifying that the noise control program will be implemented throughout construction of the project. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal/OSHA standards.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall submit to the CPM the noise control program and the project owner's project manager's signed statement. The project owner shall make the program available to Cal/OSHA upon request.

NOISE-4 Following the project's first achieving a sustained output of 90 percent or greater of rated capacity, the project owner shall conduct an occupational noise survey to identify the 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 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 that will be employed to comply with the applicable California and federal regulations.

Verification: 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.

E. VISUAL RESOURCES

Visual resources are the features of the landscape that contribute to the visual character or quality of the environment. CEQA requires an examination of a project's visual impacts in order to determine whether the project has the potential to cause substantial degradation to the existing visual character of the site and its surroundings, substantially affect a scenic vista or damage scenic resources, or create a new source of substantial light or glare affecting day or nighttime views in the area. (Cal. Code Regs., tit. 14 § 15382, Appen. G.)

Significance under NEPA is defined in terms of a) context and b) intensity. Context means that the significance of an action must be analyzed in several contexts, such as society, the affected region, affected interests, and locale. Intensity refers to the severity of impact, and includes a variety of factors to be considered (40 CFR 1508.27). The record is disputed with Staff finding that while The Genesis Solar Energy Project's (GSEP) individual impact is insignificant, it will contribute cumulatively considerable significant impacts to visual resources (Staff Op. Brief, pp. 1-6). Applicant argues that the record supports a finding of neither individual nor cumulative visual impacts (App. Op. Brief, pp. 2-3). Intervenor Tom Budlong, argues that the Revised Staff Assessment ("RSA," which was received into evidence as Exhibit 400) fails to find significant direct individual impacts to visual resources from the GSEP (Budlong Brief on Visual Resources). The evidence regarding visual resources is found in Exhibits 1; 3; 12; 21; 57; 60; 63; 400; 437; 710; 7/12/10 RT 28:11-14, 33:23-25; 7/13/10 RT 2:16-20.

Key Observation Points (KOPs) represent the most critical locations from which the project will be seen. These reflect, in particular, those key sensitive viewer groups most likely to be affected by the project. Assessments of project impact are determined from these KOPs. (Ex. 400, p. C.12-3.)

KOPs are rated from low to high using the eight factors: visual quality, viewer concern, visibility, number of viewers, duration of view, contrast, dominance, and view blockage.

SUMMARY AND DISCUSSION OF THE EVIDENCE

The GSEP site is located in the Mojave Desert in eastern Riverside County, California. The 1,800 acre site is located in the center of Chuckwalla Valley, a northwest-southeast trending valley, roughly 40 miles long and 5 to 10 miles

wide. Valley elevations range from 350 feet at Ford Dry Lake just south of the Project site to about 800 feet. The small surrounding mountain ranges rise 3,000 to 5,000 feet above mean sea level (amsl): McCoy Mountains to the east, Palen Mountains to the north, Mule Mountains to the southeast, Little Chuckwalla Mountains to the south, and Chuckwalla Mountains to the southwest. Like the Mojave Desert in general, the Chuckwalla Valley is a highly visible landscape, affording wide, panoramic views of long duration and depth. Flat desert plains combine with sparse vegetation to allow distant views of mountain ranges that form a backdrop. **Visual Resources Figure 1** depicts a panoramic view of the GSEP site and vicinity looking northward from the Ford Dry Lake Road interchange on Interstate 10 (I-10). (Ex. 400, pp. C.12-4 to C.12-5.)

VISUAL RESOURCES - FIGURE 1
Genesis Solar Energy Project - Panoramic View of Site (Looking North from Ford Dry Lake Road Interchange)

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, JUNE 2010
SOURCE: William Kanemoto

There are no residences within 15 miles of the GSEP site. The nearest communities are Lake Tamarisk and Desert Center, over 20 miles to the west, and Blythe, over 20 miles to the east. None of these communities have views of the GSEP site due to distance and topography. (Ex. 400, p. C.12-4.)

The BLM manages several congressionally designated wilderness areas near the GSEP site: the Palen/McCoy Wilderness Area abuts the northern site boundary; the Little Chuckwalla Wilderness Area is six to twelve miles to the

southeast; and the Chuckwalla Wilderness Area is about five miles to the southwest. Other special designation areas in the area include several Areas of Critical Environmental Concern (ACECs). The Palen Dry Lake ACEC lies roughly five miles to the west. The Desert Lily Sanctuary ACEC is located off of Route 177 northeast of Desert Center. The eastern boundary of Joshua Trees National Monument is also located just west of Route 177. (Ex. 400, p. C.12-4.)

Use of Ford Dry Lake directly south of the GSEP site is limited to travel on designated routes; there are no camping facilities and no off-road travel allowed. There is an undeveloped camping area at the end of Corn Springs Road adjacent to the Chuckwalla Wilderness, approximately 18 miles southwest of the GSEP site. There are no facilities or designated trails within the Palen-McCoy Wilderness, although hiking access is possible via old, closed jeep trails. (Ex. 400, p. C.12-5.)

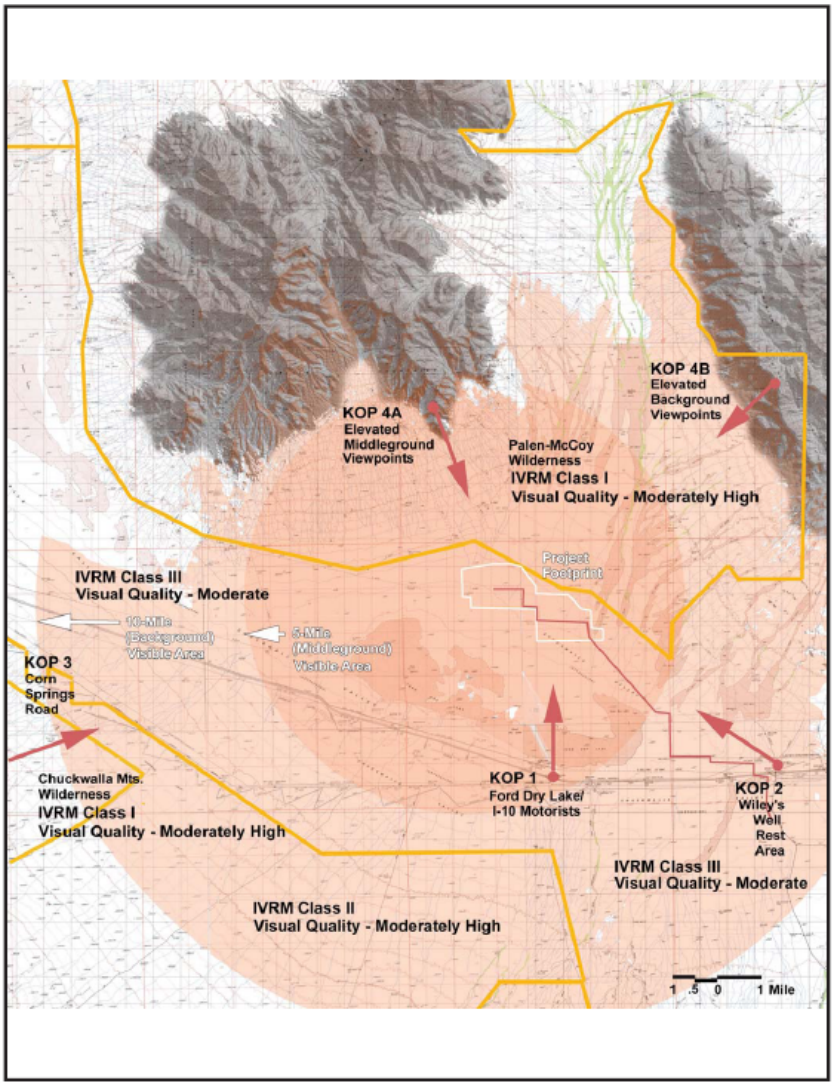
There is limited existing development in the vicinity of the site: I-10, roughly three miles south of the Project site, is the dominant man-made feature. Other developments include Chuckwalla Valley State Prison and Ironwood State Prison, 2-1/2 miles south of I-10 off of Wiley's Well Road. Both are roughly nine miles southeast of the GSEP site and are visible but visually very subordinate from I-10. Approximately one to three miles to the south of I-10, there are Western Area Power Administration (WAPA) and Southern California Edison (SCE) transmission lines and substations within BLM's Utility Corridor K. The Devers-Palo Verde transmission line runs east to west roughly one to three miles south of the highway but remains largely visually subordinate from the highway within most of the Chuckwalla Valley. Despite these man-made features the natural setting predominates and the existing landscape of the Chuckwalla Valley appears relatively intact, dominated by vast expanses of dry lake and scrub-covered valley floor, and vivid mountains behind them. (Ex. 400, p. C.12-5.)

As illustrated in **Visual Resources Figure 2**, which includes a computer-generated GIS viewshed map, the GSEP site will be visible to virtually all of the area within a 5-mile radius, and potentially visible to much of the area within a ten-mile radius, though mediated by distance. A characteristic feature of this desert landscape is the potential for large projects to be seen over great distances where even slightly elevated viewpoints exist, due to the large open areas of level topography and absence of intervening landscape features. Nearly all of the viewshed visible to the north of the GSEP site lies within the Palen-McCoy Wilderness Area, which borders the site immediately to the north. However, the flatness of the GSEP site and the level elevation relationships between the project, I-10, and low-lying viewpoints within the wilderness area,

result in very oblique vertical viewing angles that reduce the prominence of the site from these viewpoints. Only from elevated viewpoints will viewers be exposed to large expanses of the site. As indicated in the viewshed mapping, however, only a very small portion of these elevated viewpoints lie within a 5-mile middle-ground radius of the project, reducing its potential visual magnitude and dominance due to distance. **Visual Resources Figure 2** subdivides the project viewshed into broad landscape units delineating areas of broadly consistent scenic quality, viewer sensitivity, and distance zone (from viewers) as previously adopted by BLM. It also depicts the KOPs used as the basis for this analysis. (Ex. 400, p. C.12-6.)

VISUAL RESOURCES - FIGURE 2

Genesis Solar Energy Project - Existing Landscape Setting, Project Viewshed, and Key Observation Points (KOPs)



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, JUNE 2010
SOURCE: William Kanemoto

The baseline mapping of landscape units in this assessment, as depicted in **Visual Resources Figure 2,** is derived from the visual resource inventory and subsequent Interim Visual Resource Management (IVRM) Classes assigned with the involvement of BLM in the Devers-Palo Verde No. 2 Transmission Line EIR/EIS. In the baseline setting for that document, landscape units were delineated, assessed and rated following the BLM's Visual Resource Management (VRM) system, as documented in the visual resources analysis of that document. Following the VRM methodology, the inventory mapping and evaluation reflect an assessment of the landscape's *scenic quality*, *viewer sensitivity*, and *distance zone* of observers. While the application of the two agency methods differ in various ways, these categories are generally analogous to the three primary components of overall visual sensitivity - visual quality, viewer concern, and viewer exposure used in the Energy Commission staff method. (Ex. 400, p. C.12-6.)

In general, VRM inventories within the California Desert Conservation Area (CDCA) have historically regarded the entire CDCA as having a high viewer sensitivity level, in accord with the primary goals of the CDCA Plan, which include recognition and protection of the area's unique scenic value. The evidence found no inconsistencies between the delineation and evaluation of the project visual baseline in the Devers-Palo Verde study and a baseline or visual setting evaluation following the typical CEC visual assessment methods. (Ex. 400, p. C.12-7.)

The proposed GSEP will include an overall project footprint of approximately 1,800 acres (2.8 square miles), plus approximately 90 acres of linear facilities. Site elevation ranges from roughly 370 to 400 feet. This amount of fall (roughly 30 feet) over a minimum distance of over one mile results in a virtually flat site, with an overall 0.5 percent slope. Because the trough technology requires nearly level grades, the entire site will be benched and graded to two percent slope or less. (Ex. 400, p. C.12-13.)

The collector field consists of multiple single-axis parabolic trough solar collectors, aligned on a north-south axis. Each parabolic trough focuses the sun's rays on a linear, length-wise heat collection element at the parabolic focal point. In addition, the GSEP will include:

- Two power blocks, one per plant, including steam turbine generators and related equipment;
- Administrative building and warehouse between the two power plants; a control building within each power block; a water treatment building

and other structures with an overall area of approximately 39,000 square feet (0.9 acre);

- A 700,000 gallon raw water storage tank; a 265,000 gallon RO feed tank, a 200,000 gallon treated water storage tank; a 155,000 waste water storage tank; a 145,000 gallon demineralized water storage tank;
- An air-cooled condenser;
- A 270-by-400-foot switchyard ;
- 35 acres of paved area; and
- Two 24-acre of evaporation ponds (one per generation unit, locate between the two mirror fields.

Linear facilities will include:

- A six-mile long, eight-inch natural gas pipeline connecting to a Southern California Edison (SCE) pipeline north of I-10. The pipeline ROW will follow the proposed gen-tie transmission line alignment; and
- A gen-tie transmission line connecting to the SCE Colorado River substation, consisting of 75-foot tall single-pole towers. The line will cross I-10 from north to south at Wiley's Well Road and join the Blythe Energy Project Transmission Line a short distance south of I-10 along Wiley's Well Road. Length of the line is not described in the AFC but appears from figures to be approximately 7.5 miles off-site, and roughly 3.4 miles within the site. (Ex. 400, pp. C.12-13 to C.12-14.)

1. Direct/Indirect Impacts and Mitigation

a. Construction Impacts

Construction activities will occur over approximately 37 months. The construction laydown areas will be provided within the GSEP site or, for construction of the proposed transmission gen-tie line, at Wiley's Well Rest Area southeast of the site north of I-10. Laydown within the GSEP site will thus be potentially visible but will occupy a small portion of the overall project footprint itself. Laydown will thus have substantially lower impact than either site grading or the completed project itself. The larger impacts of site grading are considered to be less than significant, as analyzed under Operation Impacts, below. The lesser effects of the laydown area within the surrounding main project footprint will thus also be less than significant.

Laydown for construction of the proposed transmission line is proposed near the Wiley's Well Rest Area. Because of proximity, this laydown area could

potentially be visually prominent, and represent an adverse effect on the visual quality of the rest area for the high numbers of visitors to this facility over the period of transmission line construction. This could represent a substantial visual impact. In order to minimize these impacts, Condition of Certification **VIS-5**, Visual Mitigation and Revegetation of Staging Area, will include screening of the laydown area with earth berms, opaque fencing, and/or other measures to minimize visibility from within the main rest area, consistent with any cultural or biological resource constraints identified in those portions of this Decision; and restoration and revegetation of the laydown area after completion of construction, again consistent with cultural and biological constraints. Condition of Certification **VIS–6**, Reduction of Form, Line, and Texture Contrast, will minimize the contrast of laydown areas with associated graded landscapes, roads, and other infrastructures. With these recommended measures, impacts will be reduced to a less-than-significant level. (Ex. 400, p. C.12-22 to C.12-23.)

Site grading will potentially represent a substantial visual component of the proposed project during construction. Surface disturbance of the proposed GSEP site, as in most desert landscapes of the region, will result in high contrast between the disturbed area and surroundings, due to high contrast between the disturbed soil color and albedo, and the color and albedo of the existing undisturbed, vegetated surface. Furthermore, effectiveness of revegetation in this arid environment is difficult, often of limited effectiveness, and capable of recovery only over a very long-term time frame. Although grading impacts will be similar in extent to the completed project itself, impacts of the project were found to be less-than-significant from all KOPs. Therefore, grading impacts will also be less-than-significant. (Ex. 400, p. C.12-22 to C.12-23.)

b. Operation Impacts

Visual Resources Figure 2, above, shows the locations of the five KOPs selected for visual analysis which include: KOP 1 – Ford Dry Lake Bridge Over I-10; KOP 2 – Wiley's Well Bridge Over I-10; KOP 3 – Corn Springs BLM Road; and KOP 4a, 4b – Palen/McCoy Mountains Elevated Viewpoints. An additional location was evaluated, however it has no KOP. This location is the Palen-McCoy Wilderness Area Lowland Viewpoints.

Before considering individual KOPs, we consider generally whether the project will substantially affect a scenic vista or damage scenic resources, or create a new source of substantial light or glare affecting day or night time views in the area [Cal. Code Regs., tit. 14, Appen. G, §§ I, subds. (a), (b) and (d)]. A *scenic*

vista is defined as a distant view of high pictorial quality perceived through and along a corridor or opening. (Ex. 400, p. C.12-27.)

No specific designated scenic vista locations were identified in the GSEP viewshed. However, as discussed above, BLM considers that a primary purpose of the CDCA is to recognize and conserve the natural beauty and scenic recreational qualities of the California Desert. As described below, various KOPs with high levels of viewer concern for scenic values will be affected by the project, including motorists on Highway I-10, and visitors to the Palen McCoy Wilderness Area. Because these effects were determined to be less than significant, significant adverse effects on scenic vistas are not anticipated. (Ex. 400, p. C.12-27.)

The project is in proximity to Highway I-10, which is not listed as an eligible State Scenic Highway. Since there are no notable scenic features or resources are present on the site, the GSEP will not directly damage any specific scenic resources located within the project site. (Ex. 400, p. C.12-27.)

Reflected glare is an issue of concern for the GSEP, primarily due to the potential to accentuate project contrast and aesthetic impact. Potentially affected receptors will include motorists on I-10 and at Wiley's Well Rest Area, and visitors to the Palen McCoy Wilderness. Staff conducted an independent review of potential glare impacts. The results of this review are summarized in the discussion of Glare Impacts below. With recommended Condition of Certification **VIS-4**, impacts will be reduced to less-than-significant levels. (Ex. 400, p. C.12-27.)

Project lighting will be designed to provide 'minimum illumination needed to achieve safety and security.' However, night lighting of control room, warehouses, administration building, project roadways, or security lighting could all potentially contribute to nighttime light pollution. To minimize potential night lighting impacts to campers in the Palen McCoy Wilderness, Condition of Certification **VIS-2** will require that all exterior lighting be designed such that lamps and reflectors are not visible from beyond the project site; lighting does not cause excessive reflected glare; direct lighting does not illuminate the nighttime sky, except for required FAA aircraft safety lighting, if any; and illumination of the project and its immediate vicinity is minimized and kept to an 'as needed' basis wherever feasible consistent with safety. With the measures in this Condition, project night lighting will be reduced to a less-than-significant level. (Ex. 400, p. C.12-2.)

Since the evidence establishes that GSEP will not have a substantial adverse effect on a scenic vista, nor will it substantially damage scenic resources, nor will it create a new source of substantial light or glare which will adversely affect day or nighttime views in the area; the only question remaining is whether the project will substantially degrade the existing visual character or quality of the site and its surroundings. [Cal. Code Regs., tit. 14, Appen. G, § I, subd. (c).]

KOP 1 - Ford Dry Lake Bridge Over I-10 (VRI Class III)

Visual Resources Figures 3A and 3B depict the view of the site from KOP 1, at a middle-ground distance of approximately three miles looking northward, and is representative of the view of motorists on I-10 at their nearest point to the GSEP site. As depicted in **Figure 3B** (Phases 1 and 2), the GSEP will occupy a vast horizontal area, extending across the entire width of the field of view. However, as illustrated in the simulation, the proportion of the field of view at this distance remains very small due to the level viewing relationship, low facility height, and distance. Staff understands that frequently, the level of brightness of the mirror field could be much greater than depicted in the simulation, substantially increasing the project's level of contrast under certain conditions. In general, the thin horizontal line of the mirror field mimics the predominantly horizontal lines of the broad, level foreground lakebed. A small amount of vertical form contrast is visible from the power blocks, warehouses, cooling towers and other site buildings, but at this distance the contrast is minimal and largely attributable to color contrast. (Ex. 400, p. C.12-15.)

Visual Resources Figure 3A

Genesis Solar Energy Project - Existing Visual Conditions at KOP 1 (Ford Dry Lake Bridge over I-10)

Visual Resources Figure 3B

Genesis Solar Energy Project - Visual Simulation of Phase 2 at KOP 1 (Ford Dry Lake Bridge over I-10)

Spatial and scale dominance of the vast mirror fields is potentially great, but again greatly moderated by the very narrow portion of the view affected. Dominance will be accentuated during conditions of bright mirror reflection, which will draw attention to the facility. Overall, however, visual dominance of the project from this typical highway viewpoint will be moderately low under most conditions, to moderate during times of bright reflection. (Ex. 400, p. C.12-15.)

View blockage will be negligible. Taller structures such as the control building and transmission towers will intrude slightly into the view of background bajadas but will remain at a low level. This intrusion will be reduced greatly by Condition of Certification **VIS-1**, requiring painting of structures in colors selected to blend with the background characteristic landscape. (Ex. 400, p. C.12-15.)

Overall visual change to viewers on I-10 is thus considered moderately low or moderate during the brightest periods of diffuse glare. Visual change could rise to a moderately high level if viewers were exposed to bright point spread reflections of the sun. With implementation of Condition of Certification **VIS-4**, bright point reflections will be blocked, reducing glare to occasional episodes of moderate visual change from diffuse reflection from the mirror fields as a whole. With all recommended Conditions of Certification, overall visual change will thus

remain moderate. Depending upon lighting conditions, the GSEP will range from weak to moderate levels of visual change, will attract some attention but will not dominate the existing landscape. In the context of the setting's moderately high visual sensitivity, this moderate level of visual change will, with recommended Conditions of Certification, be less-than-significant. (Ex. 400, pp. C.12-15 to C.12-16.)

Implementation of Condition of Certification **VIS-1**, Surface Color Treatment of Non-Mirror Structures, will minimize form and color contrast of the taller project facilities. Condition of Certification **VIS-4**, Reflective Glare Mitigation, will minimize potential bright reflective glare effects. Implementation of Condition of Certification **VIS-6,** Reduction of Form, Line, and Texture Contras, will reduce other visual contrasts from roads, structures, buildings, and support infrastructure. (Ex. 400, p. C.12-16.)

KOP 2 -Wiley's Well Bridge Over I-10 (VRI Class III)

Visual Resources Figures 4A and 4B, below**,** depict the view from KOP 2, Wiley's Well Rest Area, approximately five miles southeast of the GSEP site. It is also representative of the views of motorists on I-10 as they enter the middle-ground distance zone from background distance. The photograph actually depicts views from atop the Wiley's Well over-crossing bridge and is slightly elevated above the main highway and rest area. Actually, the project mirror fields will not generally be visible from the rest area itself due to foreground anomalies in terrain, which block views to the site from the rest area. (Ex. 400, p. C.12-16.)

Visual Resources Figure 4A

Genesis Solar Energy Project - Existing Visual Conditions at KOP 2 (Wiley's Well Bridge over I-10)

Visual Resources Figures 4B

Genesis Solar Energy Project - Visual Simulation of Phase 2 at KOP 2 (Wiley's Well Bridge over I-10)

As shown in the simulation of KOP 2, visual contrast of the mirror fields at background and far-middle-ground viewpoints similar to this will be low. On occasions of greatest reflective brightness, contrast could rise to moderate levels. With implementation of Condition of Certification **VIS-4**, bright spot

reflections of the sun will not be anticipated, as discussed further below. (Ex. 400, p. C.12-16.)

The proposed transmission line and towers will be visible in the foreground from Wiley's Well Road and vicinity, including I-10. The portions of the transmission line following Wiley's Well Road to the interconnection with the Blythe Project Transmission Line will not be a concern because views southward toward this segment include a very prominent communication tower adjacent to the interchange, the Blythe transmission line at a distance of roughly 1-1/4 mile, and Chuckwalla Valley and Ironwood State Prisons at a distance of roughly three miles to the south. However, towers and lines paralleling I-10 will introduce a moderately prominent discordant element into the freeway foreground, with strong vertical line and form contrast for a roughly two-mile segment of highway. **Visual Resources Figure 4C** depicts the portion of I-10 in which the proposed transmission line will parallel the highway at foreground distance, as viewed from the Wiley's Well Road overcrossing. (Ex. 400, p. C.12-16.)

Visual Resources Figure 4C

Genesis Solar Energy Project - View of Project Gen-Tie Transmission Line Poles, Looking Northwest from Wiley's Well Road

At this distance and horizontal viewing angle, the mirror fields' spatial and scale dominance will remain low, occupying a small portion of the field of view. The segments of the proposed transmission line in the I-10 foreground will exert moderately strong contrast and dominance. (Ex. 400, p. C.12-17.)

View blockage due to the mirror fields will be negligible. The transmission line will intrude into the foreground of northward views from the highway toward the Palen Mountains, degrading the quality of those views for a distance of roughly two miles. Overall visual change of the mirror fields from this location and others at a similar distance zone will thus be low and impacts relatively minor. (Ex. 400, p. C.12-17.)

The proposed transmission line, including 75-foot single-pole transmission towers, however, will be an obtrusive element in the foreground of views for roughly two miles of I-10 and, in the context of moderately high viewer sensitivity, could represent a substantial impact. Condition of Certification **VIS-1**, Surface Color Treatment of Non-Mirror Structures, will lower color contrast of the proposed transmission poles and blend with the visual background; and Condition of Certification **VIS-3**, Realignment and Visual Mitigation of Proposed Transmission Line, will reduce the contrast of transmission towers by use of monopole towers, and minimize the portion of the ROW within foreground viewing distance of I-10 by ½-mile setbacks from the highway. Setbacks of transmission lines, however, will be determined consistent with any cultural or biological constraints. With these measures, portions of the new line beyond foreground distance will exert moderately low overall visual change under most viewing conditions. Foreground portions of the line will remain obtrusive but will be substantially reduced in extent. With these measures, impacts to motorists and rest area visitors will be adverse, but less-than-significant. (Ex. 400, p. C.12-17.)

To minimize adverse impacts of proposed transmission poles, Condition of Certification **VIS-1** and **VIS-6** will be applied to the proposed gen-tie transmission poles; and Condition of Certification **VIS-3** will reduce the visual contrast of towers and the length of the segment of transmission line within foreground distance of Highway I-10. (Ex. 400, p. C.12-17.)

KOP 3 - Corn Springs BLM Road

Visual Resources Figures 5A and 5B depict KOP 3, the view from Corn Springs Road, an unpaved BLM road leading to a campground and trailhead approximately 14 miles southwest of the GSEP site adjoining the Wilderness Area. This KOP was selected by BLM staff as representative of an actively used recreational destination within the project viewshed. However, at this far background distance, project visibility will be limited, despite the elevated viewing position in relation to the project. (Ex. 400, pp. C.12-17 to C.12-18.)

Visual Resources Figure 5A

Genesis Solar Energy Project - Existing Visual Conditions at KOP 3 (Corn Springs BLM Road)

Visual Resources Figure 5B

Genesis Solar Energy Project - Visual Simulation of Phase 2 at KOP 3 (Corn Springs BLM Road)

Overall visual sensitivity from this viewpoint is considered to be moderately high. The KOP is located within an area designated as VRM Class I, since it is within the Chuckwalla WA. Nearby areas outside the WA were assigned VRI/IVRM Class II. (Ex. 400, p. C.12-18.)

As depicted in **Visual Resources Figures 5A and 5B,** the elevated location within the Chuckwalla Mountains presents a panoramic view of a vast expanse of the valley floor. However, at this far background distance the GSEP, while visible, will exhibit a low level of overall contrast. The simulation depicts hazy conditions that reduce visibility of the GSEP, and those conditions will not always be the case. The project will be evident to viewers, drawing attention by its textural and color contrast, and the valley floor will lose its existing highly intact, undisturbed character. That level of contrast will be greater periodically, during instances of higher reflected glare, particularly in the afternoon. However, the project at this distance will have low form and line contrast with its setting and will remain visually subordinate to the background mountains, valley floor, and Palen and Ford Dry Lakes. (Ex. 400, p. C.12-18.)

Spatial and scale dominance of the project at this distance will be low, subordinate to other features dominating the view, particularly the Palen Mountains. The project will occupy a small portion of the overall view. View blockage will be negligible. The low project features will not intrude into views of the mountains or other scenic elements. (Ex. 400, p. C.12-18.)

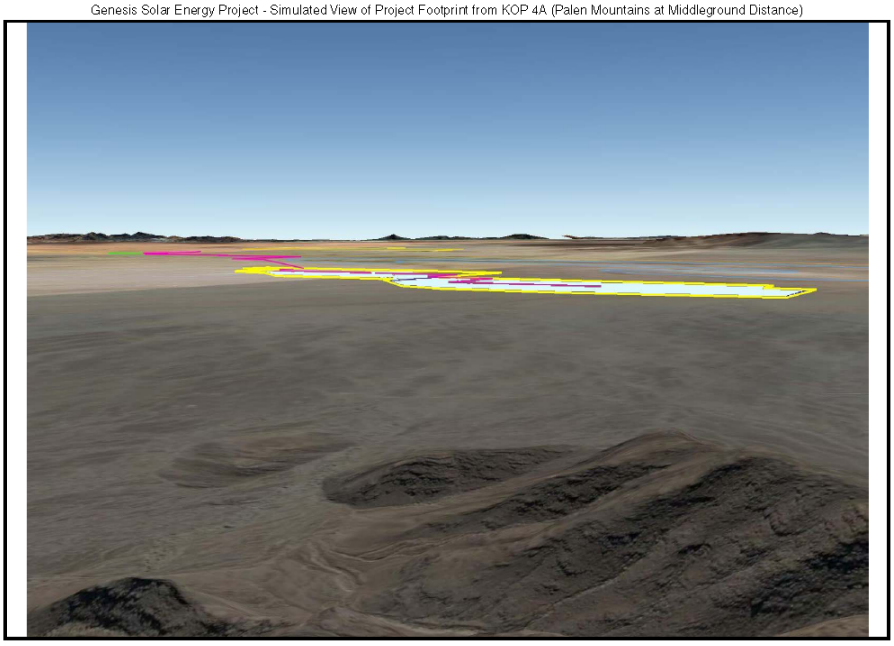
Overall visual change from the GSEP at this distance will thus range from low to moderately low depending upon brightness of reflected glare. In the context of moderately high visual sensitivity, this will represent a less-than-significant impact. (Ex. 400, p. C.12-18.)

KOP 4a, 4b – Palen/McCoy Mountains Elevated Viewpoints

Visual Resources Figure 6A is a virtual view created with Google Earth to simulate views toward the GSEP site from the nearest ridges of the Palen Mountains at a distance of roughly 3.75 miles to the nearest boundary of the project site. Elevation is approximately 1,475 feet or roughly 1,100 feet above the project site. It is representative of a small area of the nearest ridge of the Palen Mountains north of the project site with views of the project that fall within the middle-ground distance zone (under five miles). This one ridge is the only elevated location with views to the project site from middle-ground distance. **Visual Resources Figure 6B** is a similar virtual view from the McCoy Mountains at a background distance of roughly 6.6 miles and elevation of 2,250 feet. It is representative of the more extensive portions of the McCoy and Palen Mountains from which the project will be visible at background distance (over five miles) as depicted in viewshed mapping in **Visual Resources Figure 2.** (Ex. 400, p. C.12-18.)

Visual Resources Figure 6A

Genesis Solar Energy Project - Simulated View of Project Footprint from KOP 4A (Palen Mountains at Middleground Distance)



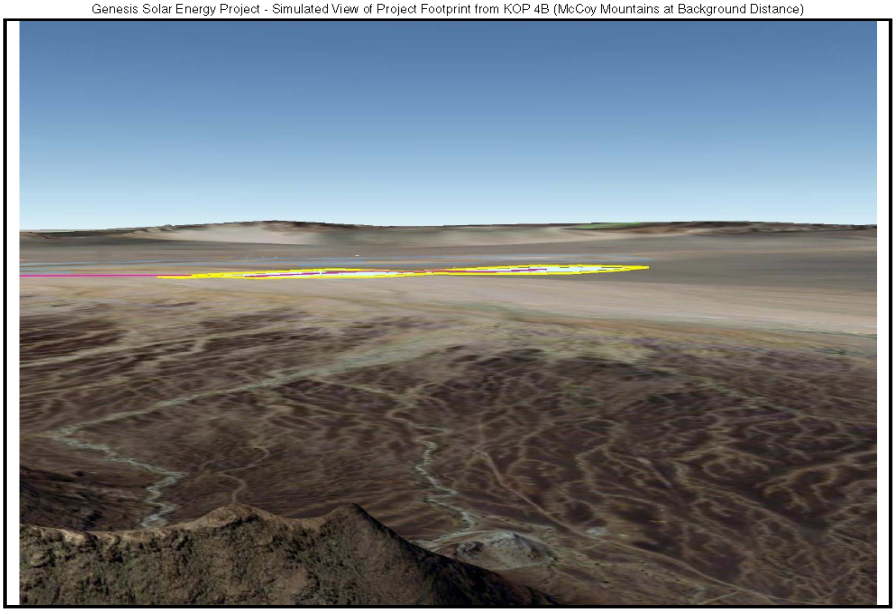
KOP 4a (Elevated Middle-Ground). As suggested in **Visual Resources Figure 6A,** from elevated middle-ground viewpoints in the Palen Mountains, the vertical angle of view is such that visual exposure of the mirror fields will exhibit moderate rectilinear form contrast, as well as strong color and texture contrast with the setting. The latter, however, will vary greatly according to changing brightness levels of diffuse reflected sunlight. At this height and distance, the project will appear as more than a thin contrasting line, as it will in views from the valley; however, the angle of view also remains sufficiently oblique that the proportion of the overall view occupied by the mirrors is moderate. Taller project structures will present some vertical form contrast, but will be seen against the background of the mirror fields, reducing character contrast. At this distance, the relative contrast and dominance from the non-mirror structures will be subordinate to the mirror fields, and will be reduced by painting to blend with the surrounding landscape under staff-recommended Condition of Certification **VIS-1** and **VIS-6**. The project will block viewsowever, based on the evidence, the overall visual change from the project will vary from moderate to moderately strong levels according to time of day and brightness of diffuse reflection. (Ex. 400, pp. C.12-18 to C.12-19.)

In the context of moderate visual sensitivity, this could represent an adverse visual impact under conditions of bright reflection. However, taking into account both the episodic nature of bright reflections, and the very low number of viewers

from this middle-ground portion of the viewshed, the level of impact is considered to be less-than-significant. (Ex. 400, p. C.12-19.)

Visual Resources Figure 6B

Genesis Solar Energy Project - Simulated View of Project Footprint from KOP 4B (McCoy Mountains at Background Distance)



KOP 4b (Elevated Background). **Visual Resources Figure 6B** is representative of background distance zone viewpoints within the Palen and McCoy Mountains. It is a virtual view of the project footprint from the ridge above McCoy Springs, a short distance from a jeep trail at the spring, roughly 6.6 miles from the project site at an elevation of approximately 2,250 feet or roughly 1,800 feet above the project site. As suggested in the figure, from this high point of the first ridge facing the project site, the project footprint appears relatively oblique, with moderately low rectilinear form and line contrast. Taller project structures will present some vertical form contrast, but at background distance, this component of project contrast will be relatively low. Color and texture contrast of mirror fields will again vary from moderate to strong levels depending upon light conditions. Overall, contrast will be moderate. (Ex. 400, pp. C.12-19 to C.12-20.)

At this distance, the project occupies a moderate proportion of the field of view and remains subordinate to the visual foreground and the expanse of the valley floor. The project will block views of the portion of the valley floor it occupies, but only to a very limited degree due to the very oblique vertical viewing angle. (Ex. 400, p. C.12-20.)

Overall visual change from the project at such elevated background viewpoints will thus be moderate. The project will be very evident and begin to attract attention, but will remain subordinate within the existing setting. In the context of moderate overall visual sensitivity, this could represent an adverse visual impact, particularly under episodic conditions of bright reflection, but is considered to be less-than-significant. As distance to viewpoints increased, the level of impact will decline further. (Ex. 400, p. C.12-20.)

Palen-McCoy WA Lowland Viewpoints (No KOP)

As indicated in the viewshed mapping of **VISUAL RESOURCES Figure 2,** the GSEP will be visible from nearly the entire radius of the valley floor around it within the middle-ground distance zone (less than five miles), including a large portion within the Palen-McCoy Wilderness Area to the north and northeast of the site. A large area of lowlands within the Wilderness Area at background distance (beyond five miles) will also have views of the site. (Ex. 400, p. C.12-20.)

The evidence indicates that from valley viewpoints north of the project site, the relatively level terrain relationship between viewers and site will be very similar to those depicted in KOPs 1 and 2. Due to the very level viewer-to-site relationships, the project, which is low in height, will appear as a thin horizontal line in all but foreground (1/2-mile and under) views. As from KOP 1, the project will extend over a vast horizontal extent of the view from middle-ground viewpoints. However, the proportion of the overall field of view occupied by the mirror fields will be small due to the level viewing conditions and low project height, appearing as a thin contrasting line. The field of view will be strongly dominated by an expansive visual foreground, and visually dominant mountains in the middle-ground and background. As from KOP 1, project contrast and dominance in the middle-ground distance zone will range from moderately low to moderate depending upon brightness of reflective glare. However, with Condition of Certification **VIS-4**, bright spread reflection as seen from valley floor viewpoints will be screened by slatted fencing at the project perimeter. Glare-related contrast and dominance will consequently be kept to moderately low levels. Project structures will also exert some vertical form contrast. However as noted under the discussion of KOP 1, at distances of roughly 2-1/2 or three miles, structure contrast is subordinate within the overall view and attributable primarily to color contrast. With implementation of Condition of Certification **VIS-1**, color contrast will be substantially reduced to blend with the darker visual background and reduce form and line contrast. The project will not block or intrude into scenic views except from foreground locations. Overall visual

change with recommended mitigation will thus be moderately low. (Ex. 400, pp. C.12-20 to C.12-21.)

The number and duration of views within foreground and very-near-middle-ground viewpoints where the project could have high contrast is considered to be very low and thus of minor concern. Therefore, notwithstanding a moderately high level of viewer sensitivity, this will represent a less-than-significant level of impact. (Ex. 400, p. C.12-21.)

2. Project Glare

The primary source of potential glare from the GSEP is the mirrored surfaces of the solar collector arrays. The evidence confirms that during certain times of day the mirror units can produce substantial glare and that such glare can be experienced by the public from locations in the GSEP vicinity as intrusive nuisances and may be a distraction, but generally do not pose a visual hazard except for persons within 60 feet of the plant perimeter fence, the distance at which staff determined that project glare could exceed a level deemed safe for the human eye. Public exposure to the GSEP at this distance is not anticipated. There are no known quantitative thresholds for determining unacceptable levels of nuisance or discomfort glare. (Ex. 400, p. C.12-21.)

In order to substantially reduce the brightness of such spread reflections of the sun for valley floor viewers, Condition of Certification **VIS-4**, Reflected Glare Mitigation, requires slatted perimeter fencing. Based on available data, implementation of this measure will prevent bright spot reflections for viewers at ground level on the valley floor, including motorists on Highway I-10. (Ex. 400, p. C.12-21.)

Nighttime light pollution as a result of the project is a concern in the project vicinity. The existing Chuckwalla Valley within the project viewshed is essentially dark at night. The pristine, unlit night sky is an important part of the camping experience for visitors to remote areas such as the nearby Wilderness Areas. Unmitigated night lighting of the project could represent a substantial impact to the experience of campers in these wilderness areas. (Ex. 400, p. C.12-21.)

To minimize potential nighttime light pollution, address potential impacts from construction lighting, and further minimize potential night lighting impacts to campers in the Palen-McCoy Wilderness, Condition of Certification **VIS-2**. will require that all exterior lighting be designed such that lamps and reflectors are

not visible from beyond the project site; lighting does not cause excessive reflected glare; direct lighting does not illuminate the nighttime sky, except for required FAA aircraft safety lighting, if any; and illumination of the project and its immediate vicinity is minimized to an 'as needed' basis wherever feasible consistent with safety. (Ex. 400, p. C.12-22.)

Intervenor Tom Budlong argued that Condition of Certification **VIS-2** "does not prescribe standards for determining what constitutes 'minimizing' illumination of the project, or set out any nighttime objective illumination standards at all." (Budlong Brief on Visual Resources, fourth unnumbered page). However, we find that the standard is clear: no visible lamps or reflectors beyond the project site including the buffer zone; no excessive reflected glare, and no illumination of the night sky other than as required for aircraft safety. In the absence of further evidence to the contrary, we find that Mr. Budlong did not meet his burden of showing that Condition of Certification **VIS-2** requires modification. (20 Cal. Code Regs., § 1748(e).) The evidence shows that, with the implementation of Condition of Certification **VIS-2,** impacts from temporary and permanent lighting at the GSEP will be less than significant. In addition, Condition **VIS-2** requires the applicant to prepare a lighting mitigation plan for review by the CPM and Riverside County. The CPM will apply published professional standards and criteria to determine compliance with the Condition VIS-2 at that time. (Ex. 400, p. C.12-22.)

Mr. Budlong also argued that the impacts from all of the KOPs analyzed should be "aggregated" so Staff's conclusion that the individual impacts from the separate KOPs should be elevated from insignificant to significant. Mr. Budlong offers no authority for aggregating impacts from multiple KOPs, nor did he offer any evidence that would enable a finding that an individual viewer can experience different multiple viewsheds simultaneously (Budlong Brief on Visual Resources, penultimate and last unnumbered pages). Nevertheless, we believe that Mr. Budlong's concerns regarding aggregate effects of the GSEP are subsumed in the cumulative impacts discussion below.

3. Cumulative Impacts and Mitigation

Section 15355 of the CEQA Guidelines (14 Cal. Code Regs.,) defines a cumulative impact as the result of a combination of projects under consideration together with other existing or reasonably foreseeable projects causing related impacts. Cumulative impacts can result from individually minor but collectively significant impacts taking place over a period of time. The significance of a

cumulative visual impact depends on the degree to which the geographic area including the project is visually exposed and (1) the visual character of a viewshed is altered; (2) scenic features are impaired or removed; (3) scenic views are impaired or obstructed; or (4) visual character and quality of the cumulative viewshed is diminished; (5) substantial adverse sources of glare are introduced.

The Revised Staff Analysis concludes that the GSEP in combination with past and foreseeable future local projects in the Chuckwalla Valley, and past and foreseeable future region-wide projects in the southern California desert is considered cumulatively significant and unmitigable. (Ex. 400, p. C.12-1).

Applicant makes the following argument:

> Staff concluded correctly that the GSEP would not result in direct significant visual impacts when viewed from these locations. Staff then opines, when using the same KOPs, that the GSEP somehow contributes considerably to a cumulative impact to visual resources. For Staff's opinion to be supported, one would first have to believe that KOPs 4a and 4b were appropriate and then would have to demonstrate that a hypothetical viewer would be able to see the GSEP and some other project(s) at the same time. Neither one of those assertions are factually supported. (Applicant's Op. Brief, p. 3).

First, the record supports our determination that KOPs 4a and 4b were appropriately considered (Ex. 400, pp. C.12-18 to C.12-20; Ex. 710). While the record indicates that the numbers of viewers from the Wilderness Areas near the Genesis Project site appears to be relatively low, the number of viewers is one, but not the sole measure, of visual sensitivity, either under the Energy Commission Staff analysis (Ex. 400, pp. C.12-2-C.12-3), or under the BLM Visual Resource Management ("VRM") method. (Ex. 400, p. C.12-2.) Furthermore, it is BLM's policy that all areas within the California Desert Conservation Area have inherent scenic value and high viewer sensitivity. (Ex. 400, p. C.12-7.)

Secondly, the Applicant's brief implies that the conclusion of significant cumulative impacts within the Chuckwalla Valley are dependent solely on views from KOPs 4a and 4b. However as presented in staff's analysis (Ex. 400 pp. C.12-35) cumulative impacts would occur from a variety of viewpoints, including Highway I-10, Corn Springs Road, and portions of the Chuckwalla Wilderness, from which existing and foreseeable future projects would be visible in conjunction with the proposed project.

Thirdly, the law is well settled that a project whose individual impacts are less than significant may still contribute to create a cumulatively considerable impact. (Cal. Code Regs., tit. 14, § 15355; *City of Long Beach v. Los Angeles Unified School Dist.* (2nd, Dist., 2009) 176 Cal. App. 4th 889; *Kings County Farm Bureau v. City of Hanford (1990) 221 Cal.App.3d 692.*)

The record is clear that GSEP as a single project is quite a distance from the freeway and will have insignificant individual visual impacts. Nevertheless, by being built across some 1,800 acres and requiring transmission lines that will stretch for miles, GSEP will cumulatively contribute to the large scale solar development that will change the overall look of Chuckwalla Valley for decades to come. (Ex. 400, p. C.12-35).

The anticipated operational visual impacts of the GSEP in combination with past and foreseeable future projects in the local viewshed of Chuckwalla Valley are considered potentially significant from some sensitive viewpoints, particularly within the Chuckwalla Wilderness and from Highway I-10. The record establishes that anticipated cumulative operational impacts of past and foreseeable future region-wide projects in the southern California desert are considered cumulatively considerable and potentially significant. We agree with Staff's conclusion that the cumulative impacts of the GSEP significant and unmitigable. (Ex. 400, p. C.12-37.)

4. LORS compliance

California Desert Conservation Area Plan (CDCA Plan)

The CDCA Plan represents the Resource Management Plan (RMP) for the area required under FLPMA. The CDCA Plan did not contain VRM mapping as in most RMPs. However, VR Inventory mapping and Interim VRM Classes were assigned to the study area prior to this project by BLM. The analysis in this assessment is consistent with the VRI mapping and IVRM Class mapping previously conducted, although the VRM methodology was not utilized.

The GSEP site is classified in the CDCA Plan as Multiple-Use Class (MUC) M (Moderate Use). Multiple-Use Class M calls for "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."

Under the CDCA Plan Electrical Power Generation Facilities, including Wind/Solar facilities, may be allowed within MUC Class M if NEPA requirements are met.

State Scenic Highway Program (CA. Streets and Highways Code, Section 260 et seq.)

The State Scenic Highway Program promotes protection of designated State scenic highways through certification and adoption of local scenic corridor protection programs that conform with requirements of the State program.

Highway I-10 within the project viewshed is not an eligible or designated State scenic highway. To become eligible will require listing by act of the state legislature. Eligibility is a pre-requisite to state designation.

Riverside County General Plan
Multipurpose Open Space Element

The GSEP is located entirely on BLM lands and is thus not subject to County General Plan jurisdiction.

FINDINGS OF FACT

Based on the evidence of record, we find and conclude as follows:

1. Construction will occur over approximately 37 months.
2. The project's temporary construction activities' impact on visual resources will be mitigated to a less than significant impact with the effective implementation of Conditions of Certification **VIS-5** and **VIS-6**.
3. There are no federal, state, or local government designated scenic vistas identified in the proposed project viewshed.
4. GSEP's new source of substantial light to nighttime views will be less than significant with the effective implementation of the Applicant's specified mitigation measures and Condition of Certification **VIS-2**.
5. There is no identified scenic resource on the project site or in the vicinity of the project site that the proposed project will substantially damage.
6. Condition of Certification **VIS-1** will require painting of structures in colors selected to blend with the background characteristic landscape.

7. In order to substantially reduce the brightness of such spread reflections of the sun for valley floor viewers, Condition of Certification **VIS-4**, Reflected Glare Mitigation, requires slatted perimeter fencing.

8. All GSEP equipment other than the solar arrays will have non-reflective surfaces and neutral colors such that the project structures will not be a source of substantial glare that could adversely affect daytime views.

9. The project's potential impacts on visual resources were analyzed from five identified key observation points (KOP) at different locations surrounding the project site.

10. GSEP will not result in a significant visual impact from any of the KOPs.

11. The project owner will provide landscaping to screen some project features from view.

12. To minimize adverse impacts of proposed transmission poles, Condition of Certification **VIS-1** and **VIS-6** will be applied to the proposed gen-tie transmission poles; and Condition of Certification **VIS-3** will reduce the visual contrast of towers and the length of the segment of transmission line within foreground distance of Highway I-10.

13. Anticipated cumulative operational visual impacts of past and foreseeable future region-wide projects in the southern California desert are cumulatively considerable and significant.

CONCLUSIONS OF LAW

1. Implementation of the following Conditions of Certification will result in the project causing no significant direct or indirect impacts to visual resources.

2. Anticipated cumulative visual impacts of past and foreseeable future region-wide solar projects in the southern California desert are considered cumulatively considerable and potentially significant.

3. The project will comply with all applicable laws, ordinances, regulations and standards regarding project design, architecture, landscaping, signage, and other requirements related to Visual Resources.

CONDITIONS OF CERTIFICATION

Surface Treatment Of Non-Mirror Project Structures And Buildings

VIS-1 The project owner shall treat all non-mirror surfaces of all project structures and buildings visible to the public such that a) their colors minimize visual intrusion and contrast by blending with the existing dark brown color of the background bajadas and mountain slopes as seen from the highway or, in the case of foreground transmission

poles, the lighter tan color of the valley floor; 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. This measure shall include coloring of security fencing with vinyl or other non-reflective coating; or with slats or similar semi-opaque, non-reflective material, to blend to the greatest feasible extent with the background soil.

The project owner shall submit for 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;

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 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 the CPM. Subsequent modifications to the treatment plan are prohibited without CPM approval.

Verification: At least 30 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 the CPM for review and approval and simultaneously to Riverside County for review and comment. If the CPM determine that the plan requires revision, the project owner shall provide to and the CPM a plan with the specified revision(s) for review and approval by the CPM before any treatment is applied. Any modifications to the treatment plan must be submitted to the CPM for review and approval.

Upon completion of construction of specific facility structures, the project owner shall notify the CPM that surface treatment of that structure or building has been completed and is ready for inspection and shall submit to each one set of electronic color photographs of the structure.

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.

TEMPORARY AND PERMANENT EXTERIOR LIGHTING

VIS-2 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; 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 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. To the greatest feasible extent, project lighting shall be used on an 'as needed' basis and turned off at other times.

Verification: At least 90 days prior to ordering any permanent exterior lighting or 30 days prior to temporary construction lighting, the project owner shall contact 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 the CPM for review and approval and simultaneously to the County of Riverside for review and comment a lighting mitigation plan. If the CPM determines that the plan requires revision, the project owner shall provide to the CPM a revised plan for review and approval by the CPM.

The project owner shall not order any permanent exterior lighting until receiving CPM approval of the lighting mitigation plan.

Prior to commercial operation, the project owner shall notify the CPM that the lighting has been completed and is ready for inspection. If after inspection, 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 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 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 the CPM within 48 hours after completing implementation of the proposal. A copy of the complaint resolution form report shall be submitted the CPM within 30 days.

VIS-3 Deleted

REFLECTIVE GLARE MITIGATION

VIS-4 In order to reduce brightness of spread reflections of the sun to off-site viewers, the perimeter chain link fencing proposed by Applicant shall include opaque privacy slats of a minimum 8 feet in height. The slats shall be of a dark tan or earth-tone color selected to blend with the visual background of the site.

Verification: At least 90 days prior to start of construction of the fence, the project owner shall present to the CPM a plan describing the fencing measures and materials proposed for mitigating off-site glare. The plan shall include color samples of slatted fencing proposed for use. If the CPM determine that the plan requires revision, the project owner shall provide to the CPM a revised plan for review and approval by the CPM.

The project owner shall not begin construction of the fence until receiving CPM approval of the revised plan.

Within 48 hours of receiving a glare complaint, the project owner shall provide 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 the CPM within 48 hours after completing implementation of the proposal. A copy of the complaint resolution form report shall be submitted to the CPM within 30 days.

VISUAL MITIGATION AND RE-VEGETATION OF STAGING AREA

VIS-5 In order to minimize the visual prominence of the proposed staging area to visitors at Wiley's Well Rest Area on I-10, the project owner shall provide a revised site plan for staging that includes screening of the proposed laydown area with earth berms, opaque fencing, and/or other measures to minimize visibility from within the main rest area, and restoration and revegetation of the laydown area after completion of construction. The revised staging plan shall be consistent with any cultural or biological resource constraints identified elsewhere in this Staff Assessment/DEIS. Restoration shall include re-grading to original contours in order to appear natural and undisturbed; revegetation shall employ appropriate locally native species only, again in accordance with conditions identified in the cultural and biological resource analyses of this report. The project owner shall provide a re-vegetation plan describing how the staging site will be restored following construction. The plan shall call for beginning of restoration of the site within the shortest feasible time following completion of construction.

Verification: At least 90 days prior to start of construction, the project owner shall present to the CPM a revised staging area site plan. If the CPM determines that the plan requires revision, the project owner shall provide to the CPM a revised plan for review and approval by the CPM. The project owner shall not begin construction until receiving CPM approval of the revised plan.

At least 60 days prior to start of operation, the project owner shall present to the CPM a revegetation plan for the staging area. If the CPM determine that the plan requires revision, the project owner shall provide to the CPM a revised plan for review and approval by the CPM. The project owner shall not begin operation until receiving CPM approval of the revised plan.

REDUCTION OF FORM, LINE, AND TEXTURE CONTRAST

VIS-6 To the extent possible, the project owner will use applicable design principles to reduce the visual contrast of the project with 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 as applicable and feasible in this case:

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. 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.

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. Use natural appearing forms to complement the characteristic landscape. Screen the structure from view by using natural land forms and vegetation.

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.

Verification: 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 construction, 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 determine 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.

VIII. OVERRIDE FINDINGS

Our analysis of the Genesis Solar Energy Project (GSEP) finds that it will have one significant direct environmental impact and three significant cumulative unmitigated environmental impacts. Before approving the project, the California Environmental Quality Act (CEQA) requires that we make certain findings. We address the requirement as follows:

The applicable CEQA requirement is contained in Public Resources Code Section 21081:

> "21081. Pursuant to the policy stated in Sections 21002 and 21002.1, no public agency shall approve or carry out a project for which an environmental impact report has been certified which identifies one or more significant effects on the environment that would occur if the project is approved or carried out unless both of the following occur:
>
> (a) The public agency makes one or more of the following findings with respect to each significant effect:
>
> > (1) Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.
> >
> > (2) Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.
> >
> > (3) Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report.
>
> (b) With respect to significant effects which were subject to a finding under paragraph (3) of subdivision (a), the public agency finds that specific overriding economic, legal, social, technological, or other benefits of the project outweigh the significant effects on the environment."

1. Significant Direct Impact to Cultural Resources

The record shows that 27 significant cultural resources were deemed to be present on the GSEP site footprint and linear corridor. Staff employed a "worst case scenario" to determine the presence of the 27 significant cultural resources.

Twelve of the 27 cultural resources were prehistoric and the remaining 15 were historical archaeological sites.

The Applicant avoided 55 known cultural resources and designed multiple mitigation strategies for the remaining 27 cultural resources that will be directly impacted by GSEP construction. Data recovery will reduce the loss of information in these resources to less-than-significant. However, at least six, and perhaps more, of the 27 resources have cultural or ethnographic values as well as information values. The record contains several mitigation strategies designed to reduce the impacts to these cultural values, but we conclude that reducing them to a level of less-than-significant may be impossible. Specifically, mitigation to reduce impacts to ethnographic values to levels below significance is likely infeasible as impacts may be the result of proximity to the project site. Therefore the Committee found an unmitigable direct impact.

We acknowledge that these assumed impacts to cultural resources containing ethnographic values may only exist hypothetically. Nevertheless, we found that while impacts to cultural resources containing ethnographic values will be mitigated to the fullest extent, it is possible that they may not be mitigated below the level of significance. This is the only basis for our finding of significant direct impacts to cultural resources containing ethnographic values on the GSEP site. Except for the significant direct impact noted above, all GSEP direct impacts will be mitigated to less than significant levels, as identified and discussed in the specific topic sections of this Decision.

2. Significant Cumulative Project Impacts

We found that GSEP will have the following cumulative environmental impacts.

- **Cultural Resources**. The project may permanently change and/or result in the destruction of cultural resources, both known and as yet unknown, contributing to a cumulatively considerable impact which will be mitigated to the extent possible, but may not be fully mitigated.

- **Land Use**. No significant adverse direct land use impacts will occur as a result of construction and operation of the GSEP; however, the contribution of GSEP, in combination with the other renewable energy projects proposed in the region, to the loss of desert lands, is cumulatively significant. Lands formerly available for multiple uses—habitat, open space, grazing, and recreation—would no longer be available for those uses once these future power plants are constructed.

- **Visual Resources**. The GSEP project would result in the installation of a large, industrial facility in the I-10 corridor. As indicated in the view shed mapping record, however, only a very small portion of these elevated viewpoints lie within a 5-mile middle-ground radius of the project, reducing its potential visual magnitude and dominance due to distance from KOPs. (Ex. 400, p. C.12-6.) The record is clear that GSEP as a single project is quite a distance from the freeway and will have insignificant individual visual impacts. Nevertheless, by being built across some 1,800 acres and requiring transmission lines, GSEP will, in combination with the other renewable energy projects proposed in the region, cumulatively contribute to the large scale solar development that will change the look of Chuckwalla Valley for decades to come. (Ex. 400, p. C.12-35).

3. Project Benefits

The GSEP, if constructed and operated as proposed, will provide the following benefits to California and its residents:

- GSEP will provide 250 MW of renewable energy power, which will assist in meeting California's Renewable Portfolio Standard, which specifies that retail sellers of electricity serve 20 percent of their load with renewable energy by 2010. (Pub. Util. Code, § 399.11 et seq.) Gubernatorial Executive Orders increase the requirement to 33 percent by 2020. (Governor's Executive Order S-14-08.)

- Producing electricity from renewable resources provides a number of significant benefits to California's environment and economy, including improving local air quality and public health, reducing global warming emissions, developing local energy sources and diversifying our energy supply, improving energy security, enhancing economic development and creating jobs. (2009 CEC Integrated Energy Policy Report, page 231)

- Scientific studies quantify the negative impacts of global climate change to California's and the world's population, environment, food supplies, flora and fauna, coastal regions, and public health. In order to reduce the impact, the State has adopted goals to reduce greenhouse gas emissions through renewable energy development.

- GSEP will assist the state in meeting its ambitious greenhouse gas reduction targets by generating 250 MW of electricity with lower greenhouse gas emissions than existing fossil fuel burning generating facilities.

- In its June 2010 California Air Resources Board (CARB) Staff Report on California's <u>Renewable Electricity Standard, Initial Statement of Reasons,</u> CARB staff estimates the environmental benefits from achieving a 20 percent renewable energy goal in 2020. These include:

- GHG reductions from California's electricity sector by at least 12 million metric tons of carbon dioxide equivalent ($MMTCO_2E$) in 2020, making renewable energy development one of California's largest GHG emission reduction strategies.

- Specifically, the overall GHG emission reduction from adding wind and solar generation is 830 lbs CO_2e per MWh (GHG emissions from displaced generation) minus emissions from CTs used to backup wind and solar generation.

- Reductions in statewide criteria pollutant emissions by five to 10 percent. These criteria pollutants under the Clean Air Act include reactive organic gas (ROG), NOx,SOx, CO, and $PM_{2.5}$. Most of the pollutant reductions result from decreased generation by existing natural gas plants. These reductions, in turn, should lead to reductions in the incidence of a variety of adverse health impacts.

- Decreased statewide emission of toxic air contaminants (TACs) as fossil-fuel power generation is displaced by renewable generation.

- By generating electricity with the use of a minimal amount of fossil fuels, GSEP will reduce California's dependence on fossil fuels.

- GSEP will provide construction jobs for an average and peak workforce of 646 and 1085, respectively, and approximately 40 to 50 jobs during operations. Most of those jobs will require highly trained workers.

- Construction and operation of GSEP will provide a boost to the economy from the purchase of major equipment, payroll, and supplies, increased sales tax revenue, and annual property taxes of $627,000 per year (with solar property tax exemption).

- Additional indirect economic benefits, such as employment in local service industry jobs and induced employment, will result from these expenditures as well.

- The 250 MW Genesis Solar Energy Project is estimated to generate 580,000 MWh annually, according to their Application for Certification (09-AFC-8). Greenhouse gas emission reductions associated with this project are approximately 0.25 MMT of CO2E out of the total estimated 12 MMT of CO2E reductions from the Renewable Electricity Standard.

4. Comparison of Project Alternatives

As is discussed in the Alternatives section, none of the project alternatives will significantly reduce the project impacts while still meeting the defined project objectives. The no-project alternative, which would eliminate the project's impacts, would also eliminate its benefits. The distributed solar energy (photovoltaic or thermal) generation and other renewable technologies are required *in addition to* large scale projects such as this in order to meet our renewable energy and GHG policy goals; the two complement, rather than compete with, each other.

The Gabrych Alternative would have less severe cultural resources impacts, as it is located on disturbed lands used for agriculture. However, it is inferior to the proposed site in the resource areas of: hazardous materials, land use, noise, visual resources, and transmission line safety and nuisance. The Gabrych Alternative would result in a significant impact to agriculture. Furthermore, due to the number of separate parcels that would have to be acquired, obtaining site control in a timely manner would be difficult and transmission interconnection would require additional time for this site to be developed. As a result this alternative would not meet the project objective articulated by both the Applicant and the Commission Staff requiring that a decision be made in 2010.

5. Site Characteristics

The proposed project site is located in eastern Riverside County, approximately 25 miles west of the City of Blythe and approximately 35 miles west of the California-Arizona border. The Community of Desert Center is located approximately 27 miles west of the proposed GSEP site. The Ironwood and Chuckwalla State Prisons are located adjacent to each other approximately nine miles south of the GSEP site. Interstate 10, and existing electricity infrastructure, including major transmission lines, and an existing natural gas-fired power plant are all in close proximity to the site.

6. Testimony of Terry O'Brien

Terry O'Brien, Deputy Director of the California Energy Commission Siting, Transmission and Environmental Protection Division, representing the Energy Commission Staff, submitted written testimony entitled "Staff Comments Regarding a Possible Energy Commission Finding of Overriding Considerations for the Genesis Solar Energy Project." (Ex. 437)**.**). Dr. Beth Bagwell and Mike Monasmith also offered testimony in support of an override relating to the area of

Cultural Resources. (7/21/10 RT 148:13-25; 149:1-15,156:3-25, 157:1-25, 158:1-25, 159:1-12).

Mr. O'Brien's written testimony stated that "[n]otwithstanding the unmitigable impacts, consideration needs to be given to the fact that the project is a solar power plant that will help California meet its renewable portfolio standard (RPS) of 33 percent in 2020 and AB 32 greenhouse gas emission reduction goals. As such, it will provide critical environmental benefits by helping the state reduce its greenhouse gas emissions, and these positive attributes must be weighed against the project's adverse impacts. It is because of these benefits and the concerns regarding the adverse impacts that global warming will have upon the state and our environment, including desert ecosystems, that staff believes it would be appropriate for the Commission to approve the project based on a finding of overriding considerations, consistent with CEQA Guideline Section 15093 and section 1755 of the Commission's siting regulations, if the Commission adopts staff's proposed mitigation measures contained in the conditions of certification."

7. Official Notice

In arriving at the following findings, we have taken official notice of the following documents:

- The California Renewables Portfolio Standard was created in 2002 under Senate Bill 1078 and further accelerated in 2006 under Senate Bill 107. The RPS program requires electric corporations to increase procurement from eligible renewable energy resources by at least 1 percent of their retail sales annually, until they reach 20 percent by 2010.

- EXECUTIVE ORDER S-21-09 Governor Arnold Schwarzenegger establishing the 33 percent Renewable Electricity Standard.

- Climate Action Team Report to Governor Schwarzenegger and the Legislature. CalEPA, March 2006.

- AB 32 Scoping Plan. CARB, December 2008.

- Integration of Renewable Resources. CAISO, Nov. 2007.

- 2007 Integrated Energy Policy Report. CEC, Nov. 2007.

- 2009 Integrated Energy Policy Report. CEC. Nov. 2009.

- California Air Resources Board Staff Report on California's Renewable Electricity Standard, Initial Statement of Reasons, June 2010.

- Draft Final Opinion on Greenhouse Gas Regulatory Strategies:

    - Joint Agency Proposed Final Opinion. CPUC/CEC 2008.

- Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California. CEC (MRW and Associates). May 2009.

- State of California Employment Development Department, July 16, 2010 Labor Market Information Division: Riverside County Unemployment 14.5 percent

8. Summation

On balance, the grand scale benefits derived from the GSEP convincingly outweigh the substantially mitigated impacts identified herein. Based upon the above evidence and Staff recommendations, we find that overriding considerations warrant the approval of the project as mitigated through the Conditions of Certification we adopt herein. We further find that the project is required for public convenience and necessity and that there are no more prudent and feasible means of achieving such public convenience and necessity. The Committee also finds that specific overriding economic, legal, social, technological, or other benefits of the project outweigh the cumulative significant effects on the environment.

FINDINGS OF FACT

Based on the evidence and the conclusions drawn in other sections of this Decision, we make the following findings and conclusions

1. Climate change poses a serious threat to the economic well-being, public health, natural resources, and the environment of California.

2. The proposed project will have the following impacts which cannot be mitigated to insignificant levels:

    a. Direct impacts to cultural resources containing ethnographic values will be mitigated to the fullest extent, but may not be mitigated below the level of significance.

    b. The GSEP would combine with other past and reasonably foreseeable future projects to result in a significant and unavoidable cumulative land use impact in the Chuckwalla Valley and southern

California desert region. Lands formerly available for multiple uses—habitat, open space, grazing, and recreation—would no longer be available for those uses once a power plant is constructed.

c. Permanent change and/or potential destruction of cultural resources, both known and as yet unknown, contributing to a cumulatively considerable impact which will be mitigated to the extent possible, but may not be fully mitigated.

d. Cumulatively considerable changes to scenic vistas for motorists, recreationists, hikers, and others from various points in the Chuckwalla Valley, McCoy Mountains, and I-10 corridor.

3. This Decision mitigates all direct project impacts for GSEP, except direct impacts to cultural resources that may contain ethnographic values, and imposes all feasible mitigation measures to reduce the significant impacts of the project to the lowest possible levels.

4. This Decision mitigates all cumulative project impacts for GSEP and imposes all feasible mitigation measures to reduce the significant impacts of the project to the lowest possible levels for the cumulative impacts of past, and reasonably foreseeable future projects.

5. The project will provide the following benefits:

a. Contribution of 250 MW of renewable energy power toward meeting California's Renewable Portfolio Standard and our renewable energy and GHG policy goals.

b. A significant reduction in greenhouse gas emissions when compared with existing fossil fuel-burning generating facilities.

c. Other important benefits to California's environment and economy include improving local air quality and public health, developing local energy sources, and diversifying our energy supply.

d. Reduction of California's dependence on fossil fuels.

e. Provide a boost to the economy from the purchase of major equipment, payroll, and supplies, increased sales tax revenue, and property taxes. Additional indirect economic benefits, such as indirect employment, and induced employment, will result from these expenditures as well.

f. Help to reduce the high unemployment rates in the local area: In June 2010, Riverside Co had a 14.5 percent rate; San Bernardino is 14.3 percent unemployment rate.

g. GSEP will provide construction jobs for an average and peak workforce of 646 and 1085, respectively, and approximately 40 to 50 jobs during operations. Most of those jobs will require highly trained workers.

6. The GSEP is in the vicinity of, existing development, including two state prisons, Interstate 10, and existing electricity infrastructure, including major transmission lines, and an existing natural gas-fired power plant.

7. The project is required for public convenience and necessity and that there are no more prudent and feasible means of achieving such public convenience and necessity.

CONCLUSIONS OF LAW

1. The above described project benefits outweigh the significant cumulative impacts identified above.

2. It is appropriate to approve the GSEP despite its remaining significant cumulative environmental impacts.

3. Therefore, this decision overrides the remaining significant unavoidable cumulative impacts that may result from this project, even with the implementation of the required mitigation measures described in this decision.

Appendix A: *Laws, Ordinances, Regulations, and Standards*

Appendix B: *Exhibit List*

Appendix C: *Proof of Service List*

APPENDICES

AIR QUALITY

Applicable LORS	*Description*
Federal	
40 Code of Federal Regulations (CFR) Part 52	Nonattainment New Source Review (NSR) requires a permit and requires Best Available Control Technology (BACT) and Offsets. Permitting and enforcement delegated to MDAQMD. Prevention of Significant Deterioration (PSD) requires major sources or major modifications to major sources to obtain permits for attainment pollutants. GSEP 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, SO_2, 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 compressions ignition internal combustion engines, including emergency generator and fire water pump engines.
40 CFR Part 93 General Conformity	Requires determination of conformity with State Implementation Plan for Projects requiring federal approvals if project annual emissions are above specified levels.
State	
Health and Safety Code (HSC) Section 40910-40930	Permitting of source needs to be consistent with Air Resource Board (ARB) approved Clean Air Plans.
HSC Section 41700	Restricts emissions that would cause nuisance or injury.
California Code of Regulations (CCR) Section 93115	Airborne Toxics Control Measure for Stationary Compression Ignition Engines. Limits the types of fuels allowed, established maximum emission rates, establishes recordkeeping requirements on stationary compression ignition engines, including emergency generator and fire water pump engines.
Local (Mojave Desert Air Quality Management District)	
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 air pollutant without first obtaining a permit to operate.
Rules 401, 402, and 403 Nuisance, Visible Emissions, Fugitive Dust	Limits the 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	The rule prohibits sulfur compound emissions in excess of 500 ppmv.
Rule 407 Liquid and Gaseous Air Contaminants	The rule prohibits carbon monoxide emissions in excess of 2,000 ppmv.
Rule 409 Combustion Contaminants	Limits the emissions from fossil fuel combustion.

Applicable LORS	***Description***
Rule 431 Sulfur Content of Fuels	Limits the sulfur content of liquid fuels to no more than 0.5 percent 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 Energy Commission.

ALTERNATIVES

California Environmental Quality Act (CEQA)

Energy Commission staff is required by agency regulations to examine the "feasibility of available site and facility alternatives to the Applicant's proposal which substantially lessen the significant adverse impacts of the proposal on the environment." (Cal. Code Regs., tit. 20, § 1765.)

The "Guidelines for Implementation of the California Environmental Quality Act," Title 14, California Code of Regulations, Section 15126.6(a), requires an evaluation of the comparative merits of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project."

In addition, the analysis must address the No Project Alternative. (Cal. Code Regs., tit. 14, § 15126.6[e].) The analysis should identify and compare the impacts of the various alternatives, but analysis of alternatives need not be in as much detail as the analysis of the proposed project.

The range of alternatives is governed by the "rule of reason," which requires consideration only of those alternatives necessary to permit informed decision making and public participation. CEQA states that an environmental document does not have to consider an alternative if its effect cannot be reasonably ascertained and if its implementation is remote and speculative. (Cal. Code Regs., tit. 14, §15126.6[f][3].) However, if the range of alternatives is defined too narrowly, the analysis may be inadequate (*City of Santee v. County of San Diego* [4th District, 1989] 214 Cal. App. 3d 1438).

BIOLOGICAL RESOURCES

Applicable LORS	***Description***
Federal	
Federal Endangered Species Act (Title 16, United States Code, section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq.)	Designates and protects federally threatened and endangered plants and animals and their critical habitats.
Clean Water Act (Title 33, United States Code, sections 1251 through 1376, and Code of Federal Regulations, part 30, section 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 a permit from a regional water quality control board (RWQCB) for the discharge of pollutants. By federal law, every applicant for a federal permit or license for an activity that may result in a discharge into a California water body, including wetlands, must request state certification that the proposed activity will not violate state and federal water quality standards.
Eagle Act (Title 50, Code of Federal Regulations, section 22.26)	Would authorize limited take of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) under the Eagle Act, where the taking is associated with, but not the purpose of activity, and cannot practicably be avoided.
Eagle Act (Title 50, Code of Federal Regulations, section 22.27)	Would provide for the intentional take of eagle nests where necessary to alleviate a safety hazard to people or eagles; necessary to ensure public health and safety; the nest prevents the use of a human – engineered structure, or; the activity, or mitigation for the activity, will provide a net benefit to eagles. Only inactive nests would be allowed to be taken except in the case of safety emergencies.
Bald and Golden Eagle Protection Act (Title 16, United States Code section 668)	This law provides for the protection of the bald eagle and the golden eagle 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.
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.
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.

Applicable LORS	*Description*
Migratory Bird Treaty (Title 16, United States Code, sections 703 through 711)	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	Prevent and control invasive species.
California Desert Conservation Area Plan	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 and Policy Management Act (FLPMA) in 1976. The FLPMA 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.
Desert Tortoise (Mojave Population) Recovery Plan (USFWS 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, sections 2050 through 2098)	Protects California's rare, threatened, and endangered species.
Protected furbearing mammals (California Code of Regulations, Title 14, section 460)	Fisher, marten, river otter, desert kit fox and red fox may not be taken at any time.
California Code of Regulations (Title 14, sections 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, sections 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 California Code of Regulations Title 14, section 670.7).
Nest or Eggs (Fish and Game Code section 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 section 3503.5	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 section 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	Makes it unlawful to take or possess any non-game mammal or parts

Applicable LORS	***Description***
(Fish and Game Code section 4150)	thereof except as provided in the Fish and Game Code or in accordance with regulations adopted by the commission.
Significant Natural Areas (Fish and Game Code section 1930 and following)	Designates certain areas such as refuges, natural sloughs, riparian areas, and vernal pools as significant wildlife habitat.
California Environmental Quality Act (CEQA), CEQA Guidelines section 15380	CEQA defines rare species more broadly than the definitions for species listed under the state and federal Endangered Species Acts. Under section 15830, species not protected through state or federal listing but nonetheless demonstrable as “endangered” or “rare” under CEQA should also 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 sections 1600 and following)	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 and following)	Designates state rare, threatened, and endangered plants.
California Desert Native Plants Act of 1981 (Food and Agricultural Code section 80001 and following and 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	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

Applicable LORS	*Description*
Federal	
Antiquities Act of 1906 16 United States Code (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 collecting on public and Indian lands.
State	
Public Resources Code (PRC), Section 5097.98(b) and (e)	Requires a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until he/she confers with the Native American Heritage Commission-identified Most Likely Descendents (MLDs) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to re-inter the remains elsewhere on the property in a location not subject to further disturbance.
PRC, Sections 5097.99 and 5097.991	5097.99 establishes as a felony the acquisition, possession, sale, or dissection with malice or wantonness Native American remains or funerary artifacts. 5097.991 establishes as state policy the repatriation of Native American remains and funerary artifacts.
Health and Safety Code (HSC), Section 7050.5	Makes it a misdemeanor to mutilate, disinter, wantonly disturb, or willfully remove human remains found outside a cemetery; Requires a project owner to halt construction if human remains are discovered and to contact the county coroner.
Local	

Applicable LORS	***Description***
Riverside County General Plan, Multipurpose Open Space Element (Chapter 5), Open Space Policies OS 19.2–19.4	OS 19.2 requires the review of all proposed development for archaeological sensitivity; OS 19.3 Employs procedures to protect the confidentiality and prevent inappropriate public exposure of sensitive archaeological resources when soliciting the assistance of public and volunteer organizations. OS 19.4 Require a Native American Statement as part of the environmental review process on development projects with identified cultural resources.
Riverside County General Plan, Multipurpose Open Space Element (Chapter 5), Open Space Policies OS 19.5–19.7	OS 19.5 allows the History Division of the Riverside County Regional Park and Open-Space District to evaluate large project proposals for their potential preservation or destruction of historic sites; requires projects to provide feasible mitigation for impacts to historic sites prior to county approval. OS 19.6 enforces the California State Historic Building Code so that historic buildings can be preserved and used without posing a hazard to public safety. OS 19.7 endorses the allocation of resources and/or tax credits to prioritize retrofit of historic structures.
Riverside County General Plan, Exhibit A, CEQA Findings of Fact and Statement of Overriding Considerations, Mitigation Monitoring Program,	Measures 4.7.1A, 4.7.1B, and 4.7.1C outline mitigation measures for cultural resources monitoring programs.

FACILITY DESIGN

Applicable LORS	*Description*
Federal	Title 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health standards
State	2007 California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations)
Local	Riverside County regulations and ordinances
General	American National Standards Institute (ANSI) American Society of Mechanical Engineers (ASME) American Welding Society (AWS) American Society for Testing and Materials (ASTM)

GEOLOGY AND PALEONTOLOGY

Applicable LORS	***Description***
Federal	
Antiquities Act of 1906 (16 United States Code [USC], 431-433)	The proposed GSEP facility site is located entirely on land currently administered by the Bureau of Land Management (BLM). Although there is no specific mention of natural or paleontological resources in the Act itself, or in the Act's uniform rules and regulations (Title 43 Part 3, Code of Federal Regulations [43 CFR Part 3], 'objects of antiquity' has been interpreted to include fossils by the Federal Highways Act of 1956, the National Park Service (NPS), the BLM, the Forest Service (USFS), and other Federal agencies.
National Environmental Policy Act (NEPA) of 1970 (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 (FLPMA) of 1976 (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'. Also charged with the protection of 'life and safety from natural hazards'.
Paleontological Resources Preservation Act (PRPA) (Public Law [PL] 111-011)	Authorizes Departments of Interior and Agriculture Secretaries to manage the protection of paleontological 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', under the direction of the Secretary of the Interior and the BLM.
State	
California Building Code (CBC), 2007	The 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 (APEFZ) Act, Public Resources Code (PRC), section 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. Portions of the site and proposed ancillary facilities are located within designated Alquist-Priolo Fault Zones. The proposed site layout places occupied structures outside of the 50-foot setback zone.

Applicable LORS	***Description***
The Seismic Hazards Mapping Act, PRC Section 2690–2699	Areas are identified that are subject to the effects of strong ground shaking, such as liquefaction, landslides, tsunamis, and seiches.
PRC, Chapter 1.7, sections 5097.5 and 30244	Regulates removal of paleontological resources from state lands, defines unauthorized removal of fossil resources as a misdemeanor, and requires mitigation of disturbed sites.
Warren-Alquist Act, PRC, sections 25527 and 25550.5(i)	The Warren-Alquist Act requires the Energy Commission 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 paleontological resources, the Energy Commission relies on guidelines from the Society for Vertebrate Paleontology, indicated below.
California Environmental Quality Act (CEQA), PRC sections 15000 et seq., Appendix G	Mandates that public and private entities identify the potential impacts on the environment during proposed activities. Appendix G outlines the requirements for compliance with CEQA and provides a definition of significant impacts on a fossil site.
Society for Vertebrate Paleontology (SVP), 1995	The "Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontological Resources: Standard Procedures" is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. The measures were adopted in October 1995 by the SVP, a national organization of professional scientists.
Local	
Riverside County General Plan, 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 geological hazards, including seismic shaking, surface rupture (adopts APEFZ Act), liquefaction, unstable soils and slopes, and flooding.
Riverside County General Plan, Multipurpose Open Space Element	Provides for 'preservation of cultural, historical, archaeological, paleontological, geological and educational resources'. Also provides a map showing paleontological sensitivity in the county.

HAZARDOUS MATERIALS MANAGEMENT

Applicable LORS	***Description***
Federal	
The 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).
The Clean Air Act (CAA) of 1990 (42 USC 7401 et seq. as amended)	Established a nationwide emergency planning and response program and imposed reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials.
The CAA section on risk management plans (42 USC §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 172.800	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.
The Clean Water Act (CWA) (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.
Title 49, Code of Federal Regulations, Part 190	Outlines gas pipeline safety program procedures.
Title 49, Code of Federal Regulations, 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.

Applicable LORS	***Description***
Title 49, Code of Federal Regulations, 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.
Federal Register (6 CFR Part 27) interim final rule	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	
Title 8, California Code of Regulations, section 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.
California Health and Safety Code, section 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 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 (Proposition 65)	Prevents certain chemicals that cause cancer and reproductive toxicity from being discharged into sources of drinking water.
Hazardous Material Business Plan, Cal HSC Sections 25500 to 25541; 19 CCR Sections 2720 to 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 Section 339; Section 3200 et seq., 5139 et seq.,	Requires listing and implementation of specified control measures for management of hazardous substances.

Applicable LORS	***Description***
and 5160 et seq.	
California HSC Sections 25270 through 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 above 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: Title 8 CCR Section 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.

LAND USE

Applicable LORS	*Description*
Federal	
Federal Land Policy and Management Act (FLPMA), 1976 – 43 CFR 1600	Establishes public land policy; guidelines for administration; and provides for the management, protection, development, and enhancement of public lands. FLPMA mandates that public lands be managed on the basis of multiple use and sustained yield unless otherwise specified by law. In particular, the FLPMA's relevance to the proposed project is that Title V, Section 501 establishes BLM's authority to grant rights-of-way for generation, transmission, and distribution of electrical energy (FLPMA 2001).
Farmland Protection Policy Act, Subtitle I of Title XV, Section 1539-1549 of the Agriculture and Food Act of 1981(NRCS 2009)	The FPPA is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that—to the extent possible—federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.
Bureau of Land Management - California Desert Conservation Area (CDCA) Plan, 1980 as Amended (BLM 1980)	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 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, and 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 of the plan elements provides both a desert-wide perspective of the planning decisions for one major resource or issue of public concern as well as more specific interpretation of multiple-use class guidelines for a given resource and its associated activities.
Northern and Eastern Colorado Desert Coordinated Management Plan (BLM 2002)	The BLM's Northern and Eastern Colorado Desert Coordinated Management Plan establishes goals and planned actions that are designed to meet the goals of the CDCA Plan. They emphasize the protection of wildlife and cultural resource values while permitting a compatible level of motorized vehicle use.

Applicable LORS	*Description*
Public Rangelands Improvement Act (1978) (PRIA 1978)	Establishes and reaffirms the national policy and commitment to inventory and identify current public rangeland conditions and trends; manage, maintain and improve the condition of public rangelands so that they become as productive as feasible for all rangeland values in accordance with management objectives and the land use planning process; and continue the policy of protecting wild free-roaming horses and burros from capture, branding, harassment, or death, while at the same time facilitating the removal and disposal of excess wild free-roaming horses and burros which pose a threat to themselves and their habitat and to other rangeland values.
The Wild Free-Roaming Horses and Burros Act of 1971 (BLM 2009h)	The BLM protects, manages, and controls wild horses and burros under the authority of the Wild Free-Roaming Horses and Burros Act of 1971 (Act) to ensure that healthy herds thrive on healthy rangelands. The BLM manages these animals as part of its multiple-use mission under the 1976 Federal Land Policy and Management Act. One of the BLM's key responsibilities under the Act is to determine the "appropriate management level" (AML) of wild horses and burros on the public rangelands.
State	
None	
Local	
None	

NOISE AND VIBRATION

Applicable Law	*Description*
Federal	
(OSHA): 29 U.S.C. § 651 et seq.	Protects workers from the effects of occupational noise exposure. Under the Occupational Safety and Health Act of 1970 (29 USC § 651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations designed to protect workers against the effects of occupational noise exposure (29 CFR § 1910.95). These regulations list permissible noise exposure levels as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, assuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation. There are no federal laws governing off-site (community) noise.
State	
(Cal/OSHA): Cal. Code Regs., tit. 8, §§ 5095–5099	Protects workers from the effects of occupational noise exposure. California Government Code section 65302(f) encourages each local governmental entity to perform noise studies and implement a noise element as part of its General Plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure.
Local	
Riverside County General Plan - Noise Element Riverside County Noise Ordinance	Establishes acceptable noise levels. The Noise Element of the Riverside County General Plan contains standards, policies and procedures that are intended to minimize noise impacts to the community (Riverside 2008). The noise level standards for new projects, including non-transportation noise sources, employ the Community Noise Equivalent Level (CNEL) or Day-Night Level (L_{dn}). Specifically, the County Noise Element standards for residential land uses are: Normally Acceptable: CNEL or L_{dn} up to 60

Applicable Law	*Description*
	dB; Conditionally Acceptable: up to 70 dB CNEL or Ldn. **Riverside County Code** Riverside County has adopted restrictions affecting construction noise sources in Ordinance 847 of the Riverside County Code. Construction within one-quarter mile of an occupied residence is prohibited between the hours of 6 p.m. and 6 a.m., except as allowed with the written consent of the building official (Riverside 2007). Limits hours of noisy construction

POWER PLANT EFFICIENCY

No federal, state, local, or county laws, ordinances, regulations and standards (LORS) apply to the efficiency of this project.

POWER PLANT RELIABILITY

No federal, state, local, or county laws, ordinances, regulations and standards (LORS) pertain to the reliability of this project.

PUBLIC HEALTH

Applicable LORS	*Description*
Federal	
Clean Air Act section 112 (Title 42, U.S. Code section 7412)	This act requires new sources 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 Health and Safety Code section 25249.5 et seq. (Proposition 65)	These sections establish thresholds of exposure to carcinogenic substances above which Prop 65 exposure warnings are required.
California Health and Safety Code section 41700	This section 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.”
California Health and Safety Code Sections 44300 et seq.	Air Toxics Hot Spots Program requires participation in the inventory and reporting program at the District level.
California Health and Safety Code Sections 44360 - 44366	Air Toxics Hot Spots Information and Assessment Act requires that based on results of an HRA conducted per CARB/OEHHA guidelines, toxic contaminants do not exceed acceptable levels.
California Public Resource Code section 25523(a); Title 20 California Code of Regulations (CCR) section 1752.5, 2300–2309 and Division 2 Chapter 5, Article 1, Appendix B, Part (1); California Clean Air Act, Health and Safety Code section 39650, et seq.	These regulations require a quantitative health risk assessment 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 1320	Requires the use of BACT and T-BACT at certain projects and the preparation of an HRA.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Applicable LORS	***Description***
State	
California Education Code, Section 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.
California Government Code, Sections 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.

SOIL & WATER RESOURCES

Applicable LORs	***Description***
Federal LORS	
Clean Water Act (33 USC Section 1257 et seq.)	The Clean Water Act (CWA) (33 USC § 1257 et seq.) requires states to set standards to protect water quality, which includes regulation of storm water and wastewater discharges during construction and operation of a facility. California established its regulations to comply with the CWA under the Porter-Cologne Water Quality Control Act of 1967. The CWA also establishes protection of navigable waters. Activities that result in the dredging or filling of jurisdictional waters of the United States require authorization under a Section 404 permit issued by the Army Corps of Engineers (USACE). The USACE may grant authorization under either an individual permit or a nationwide permit to address operations that may affect the ephemeral washes. Section 404 permits are also subject to CWA Section 401 water quality certification through the Regional Water Quality Control Board (RWQCB). Section 401 certification through the RWQCB is required if there are potential impacts to surface waters of the State and/or Waters of the United States, such as perennial and ephemeral drainages, streams, washes, ponds, pools, and wetlands. The RWQCB can require impacts to these waters to be quantified and mitigated.
Resource Conservation and Recovery Act, 42 USC 6901 *et seq.*; 40 CFR Part 260 et seq.	The Resource Conservation Recovery Act (RCRA) is a comprehensive body of regulations that give U.S. EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also sets forth a framework for the management of non-hazardous solid wastes.
State LORS	
California Constitution, Article 10, Section 2	This section requires that the water resources of the State be put to beneficial use to the fullest extent possible and states that the waste, unreasonable use, or unreasonable method of use of water is prohibited.
The Porter-Cologne Water Quality Control Act of 1967, Water Code Sec 13000 et seq.	Requires the State Water Resources Control Board (SWRCB) and the nine RWQCBs to adopt water quality criteria to protect state waters. Those regulations require that the RWQCBs issue Waste Discharge Requirements specifying conditions for protection of water quality as applicable. Section 13000 also states that the State must be prepared to exercise its full power and jurisdiction to protect the quality of the waters of the State from degradation.

Applicable LORs	***Description***
California Water Code Section 13050	Defines “waters of the State.”
California Water Code Section 13240, 13241, 13242, 13243, & Water Quality Control Plan for the Lahontan Region (Basin Plan)	The Basin Plan establishes water quality objectives that protect the beneficial uses of surface water and groundwater in the Region. The Basin Plan describes implementation plans and other control measures designed to ensure compliance with statewide plans and policies and provides comprehensive water quality planning. The following chapters are applicable to determining appropriate control measures and cleanup levels to protect beneficial uses and to meet the water quality objectives: Chapter 2, Present and Potential Beneficial Uses; Chapter 3, Water Quality Objectives, and the sections of Chapter 4, Implementation, entitled “Requirements for Site Investigation and Remediation,” “Cleanup Levels,” “Risk Assessment,” “Stormwater Problems and Control Measures,” Erosion and Sedimentation,” “Solid and Liquid Waste Disposal to Land,” and “Groundwater Protection and Management.”
California Water Code Section 13260	Requires filing, with the appropriate RWQCB, a report of waste discharge that could affect the water quality of the state unless the requirement is waived pursuant to Water Code section 13269.
California Code of Regulations, Title 23, Division 3, Chapter 30	This chapter requires the submission of analytical test results and other monitoring information electronically over the internet to the SWRCB’s Geotracker database.
State Water Resources Control Board General Permit CAS000002.	The SWRCB regulates storm water discharges associated with construction projects affecting areas greater than or equal to 1 acre to protect state waters. Under General Permit CAS000002, the SWRCB has issued a National Pollutant Discharge Elimination System (NPDES) General Permit for storm water discharges associated with construction activity. Projects can qualify under this permit if specific criteria are met and an acceptable Storm Water Pollution Prevention Plan (SWPPP) is prepared and implemented after notifying the SWRCB with a Notice of Intent.
State Water Resources Control Board 2003-003-DWQ	This general permit applies to the discharge of water to land that has a low threat to water quality. Categories of low threat discharges include piping hydrostatic test water.
California Code of Regulations, Title 22	Title 22, Division 4, Chapter 15 specifies Primary and Secondary Drinking Water Standards in terms of Maximum Contaminant Levels (MCLs). These MCLs include total dissolved solids (TDS) ranging from a recommended level of 500 milligrams per liter (mg/l), an upper level of 1,000 mg/l and a short term level of 1,500 mg/l. Other water quality MCLs are also specified, in addition to MCLS specified for heavy metals and chemical compounds.

Applicable LORs	***Description***
California Code of Regulations, Title 23	Title 23, Division 3, Chapter 15 applies to waste discharges to land and requires the Regional Board issue Waste Discharge Requirements specifying conditions for protection of water quality as applicable.
Warren-Alquist Act, Section 25008	Requires that the Commission promote “all feasible means” of water conservation and “all feasible uses” of alternative water supply sources.
The California Safe Drinking Water and Toxic Enforcement Act	The California Health & Safety Code Section 25249.5 et seq. prohibits actions contaminating drinking water with chemicals known to cause cancer or possessing reproductive toxicity. The RWQCB administers the requirements of the Act.
Local	
Riverside County Ordinance Code, Title 13, Chapter 13.20 – Water Wells	*Section 13-.20.160 Well Logs.* This section requires that a report of well excavation for all wells dug or bored for which a permit has been issued be submitted to the Riverside County Department of Environmental Health within sixty (60) days after completion of drilling. DWR Form 188 shall satisfy this requirement as stipulated under California Water Code Section 13571. *Section 13.20.190 Water Quality Standards.* This section requires that water from wells that provide water for beneficial use shall be tested radiologically, bacteriologically and chemically as indicated by the Riverside County Department of Environmental Health. Laboratory testing must be performed by a State of California-certified laboratory. The results of the testing shall be provided to the County Department of Environmental Health within ninety (90) days of pump installation. *Section 13.20.220 Well Abandonment.* This section provides that all abandoned wells shall be destroyed in such a way that they will not produce water or act as a channel for the interchange of water, and will not present a hazard to the safety and well-being of people or animals. Destruction of any well shall follow requirements stipulated in DWR Bulletin No.74-81, provided that at a minimum the top 50 feet shall be sealed with concrete, or other approved sealing material. Applications for well destruction must be submitted ninety (90) days following abandonment of the well and in accordance with Section 14.08.170. *Section 13.20.240 Declaration of Proposed Reuse.* Requires that any well that has not been used for a period of one (1) year shall be properly destroyed unless the owner has filled a “Notice of Intent” with the health officer declaring the well out of service and declaring his intention to use the well again.

Applicable LORs	***Description***
Riverside County Ordinance Code, Title 8, Chapter 8.124 - Sewage Discharge	*Section 8.124.030, General Requirements for an Approval and Construction Permit.* The type, capacity, location, and layout of each private system shall comply with the rules and regulations of the health officer, and the WDRs of the CRBRWQCB. A private system shall be constructed and maintained on the lot which is the site of the building it serves, unless the health officer in his discretion authorizes a different location. *Section 8.124.050 Operation Permits.* Each private system shall be managed, cleaned, regulated, repaired, modified and replaced from time to time by the owner or owner's representatives, in accordance with the rules, regulations and other reasonable requirements of the health officer in conformity with the WDR issued by the regional board and in a manner which will safeguard against and prevent pollution, contamination or nuisance.
Riverside County Title 15 Chapter 15, 24 Uniform Plumbing Code	*Section 15.24.010. Adopted by Reference,, Appendix K, Section K1 amended – Private Sewage Disposal – General*. In certain areas of the County which have poor soils or other problems relative to sewage disposal, the sewage disposal system shall be installed and inspected before the building foundation inspection is made. *Section 15.24.010. Adopted by Reference, Appendix K, Section K6(i) amended – Disposal fields*. Disposal fields, trenches, and leaching beds shall not be paved over or covered by concrete or any material that can reduce or inhibit any possible evaporation of the sewer effluent unless the area of the disposal fields, trenches, and leaching beds is increased by a minimum of 25 percent.

Applicable LORs	*Description*
Riverside County Title 15 Chapter 15.80 Regulating Flood Hazard Areas and Implementing the National Flood Insurance Program	This ordinance was developed to comply with Title 44 CFR Part 65 regarding requirements for the identification and mapping of areas identified as Federal Emergency Management Agency (FEMA) Special Flood Hazard Areas. The ordinance is applicable to development within unincorporated areas of Riverside County and is integrated into the process of application for development permits under other county ordinances including, but not limited to, Ordinance Nos. 348, 369, 457, 460, and 555. When the information required, or procedures involved, in the processing of such applications is not sufficient to assure compliance with the requirements of Chapter 15.80, a separate application must be filed. Flood insurance rate maps for the Project site or surrounding areas have not been prepared by FEMA. According to the Riverside County General Plan (Riverside County, 2000) the Project site and surrounding lands do not lie within a 100-year or 500-year flood plain.
State Policies and Guidance	
Integrated Energy Policy Report (Public Resources Code, Div. 15, Section 25300 et seq.)	In the 2003 Integrated Energy Policy Report (IEPR), consistent with SWRCB Policy 75-58 and the Warren-Alquist Act, the Energy Commission adopted a policy stating they will approve the use of fresh water for cooling purposes by power plants only where alternative water supply sources and alternative cooling technologies are shown to be “environmentally undesirable” or “economically unsound.”
State Water Resources Control Board Res. No. 68-16	The “Antidegradation Policy” mandates that: 1) existing high quality waters of the State are maintained until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonable affect present and anticipated beneficial uses, and will not result in waste quality less than adopted policies; and 2) requires that any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters, must meet WDRs which will result in the best practicable treatment or control of the discharge necessary to assure that: a) a pollution or nuisance will not occur and b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.
State Water Resources Control Board Res. 75-58	The principal policy of the SWRCB that addresses the specific siting of energy facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (adopted by the Board on June 19, 1976, by Resolution 75-58). This policy states that use of fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or

Applicable LORs	***Description***
	economically unsound. In a letter dated January 20, 20100, the SWRCB clarified that this policy applies in most cases to surface water, not groundwater.
State Water Resources Control Board Res. No. 88-63	States that all groundwater and surface water of the State are considered to be suitable for municipal or domestic water supply with the exception of those waters that meet specified conditions.
State Water Resources Control Board Res. 2005-0006	Adopts the concept of sustainability as a core value for State Water Board programs and directs its incorporation in all future policies, guidelines, and regulatory actions.
State Water Resources Control Board Res. 2008-0030	Requires sustainable water resources management such as low impact development (LID) and climate change considerations, in all future policies, guidelines, and regulatory actions. Directs Regional Water Boards to “aggressively promote measures such as recycled water, conservation and LID Best Management Practices where appropriate and work with Dischargers to ensure proposed compliance documents include appropriate, sustainable water management strategies.”

TRAFFIC AND TRANSPORTATION

Applicable LORS	***Description***
Federal	
Title 49 Code of Federal Regulations (CFR) Subtitle B, Parts 171-173, 177-178, 350-359, 397.9 and Appendices A-G	Addresses safety considerations for the transport of goods, materials, and substances. Governs the transportation of hazardous materials including types of materials and marking of the transportation vehicles.
State	
California Vehicle Code (VC) Sections 353; 2500-2505; 31303-31309; 32000-32053; 32100-32109; 31600-31620; California Health and Safety Code Section 25160 et seq.	Regulates the highway transport of hazardous materials.
VC Sections 13369; 15275 and 15278	Addresses the licensing of drivers and the classification of licenses required for the operation of particular types of vehicles; also requires certificates permitting operation of vehicles transporting hazardous materials.
VC Sections 35100 et seq.; 35250 et seq.; 35400 et seq.	Specifies limits for vehicle width, height, and length.
VC Section 35780	Requires permits for any load exceeding the Department of Transportation (Caltrans) weight, length, or width standards on public roadways.
California Streets and Highways Code Section 117, 660-672	Requires permits for any load exceeding Department of Transportation (Caltrans) weight, length, or width standards on County roads.
California Streets and Highways Code Sections 117, 660-670, 1450, 1460 et seq., and 1480 et seq.	Regulates permits from Department of Transportation (Caltrans) for any roadway encroachment from facilities that require construction, maintenance, or repairs on or across State highways and County roads.
Local	
Riverside County General Plan Circulation Element	Specifies long-term planning goals and procedures for transportation infrastructure system quality and specifies LOS standards used to assess the performance of a street or highway system and the capacity of a roadway.

Riverside County Municipal Code Title 10, Chapter 10.08, Sections 10.08.010-10.08.180	Specifies limits and permit requirements for oversize loads.
Riverside County Municipal Code Title 12, Chapter 12.08, Sections 12.08.010-12.08.100	Specifies requirements for encroachment permits.

TRANSMISSION LINE SAFETY AND NUISANCE

Applicable LORS	*Description*
Aviation Safety	
Federal	
Title 14, Part 77 of the Code of Federal Regulations (CFR),"Objects Affecting the Navigable Air Space"	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.
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.
Interference with Radio Frequency Communication	
Federal	
Title 47, CFR, section 15.2524, Federal Communications Commission (FCC)	Prohibits operation of devices that can interfere with radio-frequency communication.
State	
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.
Audible Noise	
Local	
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 residential or other noise-sensitive land uses.
Hazardous and Nuisance Shocks	
State	
CPUC GO-95, "Rules for Overhead Electric Line Construction"	Governs clearance requirements to prevent hazardous shocks, grounding techniques to minimize nuisance shocks, and maintenance and inspection requirements.
Title 8, California Code of Regulations (CCR) section 2700 et seq. "High Voltage Safety Orders"	Specifies requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment.
National Electrical Safety Code	Specifies grounding procedures to limit nuisance shocks. Also specifies minimum conductor ground clearances.

Applicable LORS	*Description*
Industry Standards	
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.
Electric and Magnetic Fields	
State	
GO-131-D, CPUC ”Rules for Planning and Construction of Electric Generation Line and Substation Facilities in California”	Specifies application and noticing requirements for new line construction including EMF reduction.
CPUC Decision 93-11-013	Specifies CPUC requirements for reducing power frequency electric and magnetic fields.
Industry Standards	
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 electric and magnetic fields from an operating electric line.
Fire Hazards	
State	
14 CCR sections 1250-1258, “Fire Prevention Standards for Electric Utilities”	Provides specific exemptions from electric pole and tower firebreak and conductor clearance standards and specifies when and where standards apply.
Hazardous and Nuisance Shocks	
State	
CPUC GO-95, “Rules for Overhead Electric Line Construction”	Governs clearance requirements to prevent hazardous shocks, grounding techniques to minimize nuisance shocks, and maintenance and inspection requirements.
Title 8, California Code of Regulations (CCR) Section 2700 et seq. “High Voltage Safety Orders”	Specifies requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment.
National Electrical Safety Code	Specifies grounding procedures to limit nuisance shocks. Also specifies minimum conductor ground clearances.
Industry Standards	
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.

Applicable LORS	*Description*
Electric and Magnetic Fields	
State	
GO-131-D, CPUC ”Rules for Planning and Construction of Electric Generation Line and Substation Facilities in California”	Specifies application and noticing requirements for new line construction including EMF reduction.
CPUC Decision 93-11-013	Specifies CPUC requirements for reducing power frequency electric and magnetic fields.
Industry Standards	
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 electric and magnetic fields from an operating electric line.
Fire Hazards	
State	
14 CCR Sections 1250-1258, “Fire Prevention Standards for Electric Utilities”	Provides specific exemptions from electric pole and tower firebreak and conductor clearance standards and specifies when and where standards apply.

TRANSMISSION SYSTEM ENGINEERING

Applicable LORS	***Description***
The North American Electric Reliability Corporation (NERC)	North American Reliability Council (NERC) Reliability Standards for the Bulk Electric Systems of North America provide national policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system. The NERC Reliability Standards provide for system performance levels under normal and contingency conditions. With regard to power flow and stability simulations, while these Reliability Standards are similar to NERC/WECC Standards, certain aspects of the NERC/WECC Standards are either more stringent or more specific than the NERC Standards for Transmission System Contingency Performance. The NERC Reliability Standards apply not only to interconnected system operation but also to individual service areas (NERC 2006).
Western Electricity Coordinating Council's (WECC)	The Western Electricity Coordinating Council (WECC) Planning Standards are merged with the North American Electric Reliability Council (NERC) Planning Standards and provide the system performance standards used in assessing the reliability of the interconnected system. These standards require the continuity of service to loads as the first priority and preservation of interconnected operation as a secondary priority. Certain aspects of the NERC/WECC standards are either more stringent or more specific than the NERC standards alone. These standards provide planning for electric systems so as to withstand the more probable forced and maintenance outage system contingencies at projected customer demand and anticipated electricity transfer levels, while continuing to operate reliably within equipment and electric system thermal, voltage and stability limits. These standards include the reliability criteria for system adequacy and security, system modeling data requirements, system protection and control, and system restoration. Analysis of the WECC system is based to a large degree on Section I.A of the standards, "NERC and WECC Planning Standards with Table I and WECC Disturbance-Performance Table" and on Section I.D, "NERC and WECC Standards for Voltage Support and Reactive Power". These standards require that the results of power flow and stability simulations verify defined performance

	levels. Performance levels are defined by specifying the allowable variations in thermal loading, voltage and frequency, and loss of load that may occur on systems during various disturbances. Performance levels range from no significant adverse effects inside and outside a system area during a minor disturbance (loss of load or a single transmission element out of service) to a level that seeks to prevent system cascading and the subsequent blackout of islanded areas during a major disturbance (such as loss of multiple 500 kV lines along a common right of way, and/or multiple generators). While controlled loss of generation or load or system separation is permitted in certain circumstances, their uncontrolled loss is not permitted (WECC 2006).
California Public Utilities Commission (CPUC) General Order 95 (GO-95*), Rules for Overhead Electric Line Construction*	Specifies uniform requirements for the construction of overhead electric lines. Compliance with this order ensures both reliable service and a safe working environment for those working in the construction, maintenance, operation, or use of overhead electric lines, and for the safety of the general public.
CPUC General Order 128 (GO-128), *Rules for Underground Electric Line Construction*	Establishes uniform requirements for the construction of underground electric lines. Compliance with this order also ensures both reliable service and a safe working environment for those working in the construction, maintenance, operation, or use of underground electric lines, and for the safety of the general public.
National Electric Safety Code 1999	Provides electrical, mechanical, civil, and structural requirements for overhead electric line construction and operation.
California Independent System Operator (CAISO)	California ISO Planning Standards also provide standards, and guidelines to assure the adequacy, security and reliability in the planning of the California ISO transmission grid facilities. The California ISO Grid Planning Standards incorporate the NERC/WECC and NERC Reliability Planning Standards. With regard to power flow and stability simulations, these Planning Standards are similar to the NERC/WECC or NERC Reliability Planning

	Standards for Transmission System Contingency Performance. However, the California ISO Standards also provide some additional requirements that are not found in the WECC/NERC or NERC Standards. The California ISO Standards apply to all participating transmission owners interconnecting to the California ISO controlled grid. They also apply when there are any impacts to the California ISO grid due to facilities interconnecting to adjacent controlled grids not operated by the California ISO (California ISO 2002a). California ISO/FERC Electric Tariff provides guidelines for construction of all transmission additions/upgrades (projects) within the California ISO controlled grid. The California ISO determines the “Need” for the proposed project where it will promote economic efficiency or maintain system reliability. The California ISO also determines the Cost Responsibility of the proposed project and provides an Operational Review of all facilities that are to be connected to the California ISO grid (California ISO 2007a).

VISUAL RESOURCES

Applicable LORS	***Description***
FEDERAL	
National Environmental Policy Act (NEPA)	As discussed above, the analysis conducted in this assessment is considered by staff to be consistent with BLM environmental review requirements under NEPA as well as CEQA.
Federal Land Policy and Management Act of 1976 (FLPMA)	Section 102 (a) of the Federal Land Policy and Management Act of 1976 (FLPMA) states that " . . . . the 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 …. " Section 103 (c) identifies "scenic values" as one of the resources for which public land should be managed. Section 201 (a) states that "The Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resources and other values (including ... scenic values) ...." Section 505 (a) requires that "Each right-of-way shall contain terms and conditions which will... minimize damage to the scenic and esthetic values...."
California Desert Conservation Area Plan (CDCA Plan)	The CDCA Plan represents the Resource Management Plan (RMP) for the area required under FLPMA. The CDCA Plan did not contain VRM mapping as in most RMPs. However, VR Inventory mapping and Interim VRM Classes were assigned to the study area prior to this project by BLM. In staff's opinion, the analysis in this assessment is consistent with the VRI mapping and IVRM Class mapping previously conducted, although the VRM methodology was not utilized. The Genesis Solar Project site is classified in the CDCA Plan as Multiple-Use Class (MUC) M (Moderate Use). Multiple-Use Class M calls for "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, livestockgrazing, 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." "The goal of the(CDCA) 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." Under the CDCA Plan Electrical Power Generation Facilities, including Wind/Solar facilities, may be allowed within MUC Class M if NEPA requirements are met.
STATE	
State Scenic Highway Program (CA. Streets and Highways Code, Section 260 et seq.)	The State Scenic Highway Program promotes protection of designated State scenic highways through certification and adoption of local scenic corridor protection programs that conform with requirements of the State program.
LOCAL	
Riverside County General Plan (2003) Related Multipurpose Open Space Element	**Multipurpose Open Space Element** Scenic Resources Policies:OS 21.1 Identify and conserve the skylines, view corridors, and outstanding scenic vistas within Riverside County. (AI 79) Scenic Corridors Policies: OS 22.1 Design developments within designated scenic highway corridors to balance the objectives of maintaining scenic resources with accommodating compatible land uses. (AI 3) OS 22.2 Study potential scenic highway corridors for possible inclusion in the Caltrans Scenic Highways Plan. OS 22.3 Encourage joint efforts among federal, state, and County agencies, and citizen groups to ensure compatible development within scenic corridors

WASTE MANAGEMENT

Applicable LORS	*Description*
Federal	
Title 42, United States Code, §§ 6901, et seq. Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act of 1976, et al.)	The Solid Waste Disposal Act, as amended and revised by the Resource Conservation and Recovery Act (RCRA) et al., 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.
Title 42, United States Code, §§ 9601, et seq. Comprehensive Environmental Response, Compensation and Liability Act	The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), also known as Superfund, 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

Applicable LORS	Description
	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.
Title 40, Code of Federal Regulations (CFR), Subchapter I – Solid Wastes	These regulations were established by U.S. EPA to implement 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 246 addresses source separation for materials recovery guidelines. • 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 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.
Title 49, CFR, Parts 172 and 173 Hazardous Materials Regulations	U.S. Department of Transportation 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 Title 40, CFR, Section 262.20.
Clean Water Act (CWA)	Controls discharge of wastewater to the surface waters of the U.S. Genesis Solar Energy Project will discharge sanitary wastewater to one onsite septic tank and leach field wastewater treatment system that will comply with CWA requirements.
State	
California Health and Safety Code, Chapter 6.5, §§ 25100, et seq. Hazardous Waste Control Act of 1972, as amended	This California law creates the framework under which hazardous wastes must be 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.

Applicable LORS	Description
	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.
Title 22, California Code of Regulations (CCR), Division 4.5 Environmental Health Standards for the Management of Hazardous Waste	These regulations 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 Title 22, CCR include: • Identification and Listing of Hazardous Waste (Chapter 11, §§ 66261.1, et seq.) • Standards Applicable to Generators of Hazardous Waste (Chapter 12, §§ 66262.10, et seq.) • Standards Applicable to Transporters of Hazardous Waste (Chapter 13, §§ 66263.10, et seq.) • Standards for Universal Waste Management (Chapter 23, §§ 66273.1, et seq.) • Standards for the Management of Used Oil (Chapter 29, §§ 66279.1, et seq.) • Requirements for Units and Facilities Deemed to Have a Permit by Rule (Chapter 45, §§ 67450.1, et seq.) The Title 22 regulations are established and enforced at the state level by DTSC. Some generator standards are also enforced at the local level by CUPAs.
California Health and Safety Code, Chapter 6.11 §§ 25404– 25404.9 Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program)	The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the six environmental and emergency response programs listed below. • Aboveground Storage Tank Program • Business Plan Program • California Accidental Release Prevention (CalARP) Program • Hazardous Material Management Plan / Hazardous Material Inventory Statement Program • Hazardous Waste Generator / Tiered Permitting Program • Underground Storage Tank Program

Applicable LORS	Description
	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 Certified Unified Program Agencies (CUPAs). Riverside County Department of Environmental Health is the area CUPA. Note: The Waste Management analysis only considers application of the Hazardous Waste Generator/Tiered Permitting element of the Unified Program. Other elements of the Unified Program may be addressed in the **Hazardous Materials** and/or **Worker Health and Safety** analysis sections.
Title 27, CCR, Division 1, Subdivision 4, Chapter 1, §§ 15100, et seq. Unified Hazardous Waste and Hazardous Materials Management Regulatory Program	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 (§§ 15400–15410). • Article 10 – Business Reporting to CUPAs (§§ 15600–15620).
Public Resources Code, Division 30, §§ 40000, et seq. California Integrated Waste Management Act of 1989	The California Integrated Waste Management Act of 1989 (CIWMA) (as amended) establishes mandates and standards for management of solid waste. Among other things, the law includes provisions addressing solid waste source reduction and recycling, standards for design and construction of municipal landfills, and programs for county waste management plans and local implementation of solid waste requirements.
Title 14, CCR, Division 7, § 17200, et seq. California Integrated Waste Management Board	These regulations further implement the provisions of the California Integrated Waste Management Act 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.

Applicable LORS	Description
	•
California Health and Safety Code, Division 20, Chapter 6.5, Article 11.9, §25244.12, et seq. Hazardous Waste Source Reduction and Management Review Act of 1989 (also known as SB 14).	This law was enacted to expand 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 (~ 26,400 pounds) of hazardous waste in a designated reporting year. The review and planning elements are required to be done on a 4-year cycle, with a summary progress report due to DTSC every 4th year.
Title 22, CCR, §67100.1 et seq. Hazardous Waste Source Reduction and Management Review.	These regulations further clarify and implement the provisions of the Hazardous Waste Source Reduction and Management Review Act of 1989 (noted above). The regulations establish the specific review elements and reporting requirements to be completed by generators subject to the act.
Title 23, CCR Division 3, Chapters 16 and 18	These regulations relate to hazardous material storage and petroleum UST cleanup, as well as hazardous waste generator permitting, handling, and storage. The DTSC Riverside County CUPA is responsible for local enforcement.
California Fire Code	Controls storage of hazardous materials and wastes and the use and storage of flammable/combustible liquids. Waste will be accumulated and stored in accordance with Fire Code requirements. Permits for storage containers will be obtained, as needed, from the Riverside County Fire Department.
Local	
County of Riverside General Plan	The General Plan ensures all new development complies with applicable provisions of the County Integrated Solid Waste Management Plan. In addition, 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.

Applicable LORS	***Description***
Riverside County, Countywide Integrated Waste Management Plan	This document sets forth the county's goals, policies, and programs for reducing dependence on landfilling solid wastes and increasing source reduction, recycling, and reuse of products and waste, in compliance with the CIWMA. The plan also addresses the siting and development of recycling and disposal facilities and programs within the county.

WORKER SAFETY AND FIRE PROTECTION

Applicable LORS	Description
Federal	
Title 29 U.S. Code (USC) section 651 et seq (Occupational Safety and Health Act of 1970)	This act 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 § 651).
Title 29 Code of Federal Regulation (CFR) sections 1910.1 to 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations)	These sections 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.
29 CFR sections 1952.170 to 1952.175	These sections 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	
Title 8 California Code of Regulations (Cal Code Regs.) all applicable sections (Cal/OSHA regulations)	These sections require that all employers follow these regulations as they pertain to the work involved. This includes 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 Cal Code Regs. section 3, et seq.	This section incorporates the current addition of the Uniform Building Code.
Health and Safety Code section 25500, et seq.	This section presents Risk Management Plan requirements for threshold quantity of listed acutely hazardous materials at a facility.
Health and Safety Code sections 25500 to 25541	These sections require a Hazardous Material Business Plan detailing emergency response plans for hazardous materials emergency at a facility.
Local (or locally enforced)	
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.

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 ***GENESIS SOLAR ENERGY PROJECT*** **GENESIS SOLAR, LLC**	**DOCKET NO. 09-AFC-8**

EXHIBIT LIST

APPLICANT'S EXHIBIT'S

EXHIBIT 1 Application for Certification Vol I & II, dated August 2009, and docketed on August 31, 2009. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 2 Air Quality Modeling Files, docketed on September 17, 2009. Air Quality. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 3 Data Adequacy Supplement, dated October 2009, and docketed on October 12, 2009. Sponsored by Applicant; received into evidence on July 12, 2010.

Air Quality
Biological Resources
Cultural Resources
Geology & Paleontology
Soil & Water
Transmission System Engineering
Visual Resources

EXHIBIT 4 Data Adequacy Supplement 1A, dated October 26, 2009, and docketed on October 27, 2009. Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 5 Tetra Tech Inc. Informational Letter to Mojave Desert Air Quality Management District regarding Additional Permit Applications, dated October 27, 2009, and docketed on November 18, 2009. Air Quality. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 6 BLM Notice of Intent - Federal Register, dated November 23, 2009, and docketed on December 3, 2009. Project Description. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 7 Three Option Approach Letter (New Alternate Approach to Staff Review for Cultural Resources on Genesis Solar Energy Project), dated December 3, 2009, and docketed December 3, 2009. Cultural Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 8 Selection of Cultural Resources Evaluation Approach, dated December 8, 2009, and docketed on December 8, 2009. Cultural Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 9 Joint CEC - BLM 12-10-09 Hearing and Scoping Presentation, dated December 10, 2009 and docketed on December 14, 2009. Project Description. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 10 Groundwater Model Sensitivity Analysis, dated December 9, 2009, and docketed on December 15, 2009. Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 11 Data Requests Set 1A Responses (1 through 227), dated December 14, 2009, and docketed on December 15, 2009. Sponsored by Applicant; received into evidence on July 12, 2010.

Air Quality (1-38)
Alternatives (39-52)
Biological Res. (53-121)
Geo & Paleo (122-123)
Land Use (124-136)
Health & Safety (137-142)
Soil & Water (143-214)
Waste Mngmt.(215-225)
Worker Safety & Fire Protection (226-227)

EXHIBIT 12 Genesis Solar, LLC's Informational Hearing & Site Visit Presentation, dated December 10, 2009, and docketed on December 18, 2009. Sponsored by Applicant; received into evidence on July 12, 2010.

Alternatives
Hazardous Materials
Noise & Vibration
Power Plant Efficiency

Power Plant Reliability
Project Description
Soil & Water
Visual Resources
Waste Management

EXHIBIT 13 Test Well #2 Ford Dry Lake Supplemental Investigation, dated December 18, 2009, and docketed on December 21, 2009. Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 14 Low Resolution Scan of the Borehole Logs for OBS-1, OBS-2, TW-1, and TW-2, docketed on December 23, 2009. Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 15 Report of Conversation Regarding Clarification of Land Use Data Responses (Between Tricia Bernhardt, Mike Monasmith, Negar Vahidi & Jacob Hawkins), dated December 28, 2009, and docketed on December 30, 2009. Land Use. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 16 Notification of Lake of Streambed Alteration, dated December 30, 2009, and docketed on December 31, 2009. Biological Resources, Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 17 Application for Incidental Take of Threatened and Endangered Species, dated December 31, 2009, and docketed on January 4, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 18 Genesis Solar, LLC's Cumulative Impact Analysis, dated December 31, 2010, and docketed on January 4, 2010. Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 19 Draft Desert Tortoise Translocation Plan, dated January 4, 2010, and docketed on January 6, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 20 Supplement to the Genesis Surface Drainage Data Requests, dated January 4, 2010, and docketed on January 11, 2010. Sponsored by Applicant; received into evidence on July 12, 2010.

Biological Resources
Project Description
Soil & Water

EXHIBIT 21 Data Request Responses to Set 1B, (228 through 293), dated January 11, 2010, and docketed on January 11, 2010. Cultural Resources (228-282); Visual Resources (283-293)Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 22 Report of Conversation Regarding Surface Drainage Data Requests (Between Mike Daly and Bob Anders), dated January 6, 2010, and docketed on January 12, 2010. Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 23 Revised Notification of Lake or Streambed Alteration with Revised Survey for Jurisdictional Waters and Wetlands at the Genesis Solar Energy Project, dated January 11, 2010 and January 2010, respectively, and docketed on January 14, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 24 Draft Common Raven Monitoring, Management, & Control Plan, dated January 2010, and docketed on January 15, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 25 Storm Water Flood Routing Calculation Report, dated January 15, 2010, and docketed on January 15, 2010. Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 26 Interim Preliminary Aeolian Sand Source - Migration and Deposition Letter Report, dated January 11, 2010, and docketed on January 19, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 27 AFC Supplemental Information Re: Groundwater Resources Investigation, dated January 13, 2010 and docketed on January 19, 2010.
Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 28 FLO -2D Model Run, dated January 2010, and docketed on January 20, 2010. Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 29 Preliminary Report of Ancient Shorelines in Ford Dry Lake, dated January 19, 2010, and docketed on January 25, 2010. Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 30 Applicant Addenda to DR Requests 64, 65 & 120 of Set 1A dated January 27, 2010 and docketed on January 26, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 31 Draft Weed Management Plan, dated January 2010, and docketed on February 1, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 32 Applicant's Revised Air Quality Responses to the CEC Data Requests, date dated February 1, 2010, and docketed on February 2, 2010. Air Quality. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 33 Applicant's Draft Channel Maintenance Plan, dated January 2, 2010, and docketed on February 4, 2010. Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 34 Applicant's Draft Revegetation Plan, dated February 2010, and docketed on February 4, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 35 Aeolian Transport Evaluation & Ancient Shoreline Delineation Report , dated February 5, 2010, and docketed on February 10, 2010. Biological Resources; Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 36 Report of Conversation Regarding Genesis Surface Drainage DR (Between Mike Daly, Bob Anders & Dipti Sheth), dated February 9, 2010, and docketed on February 11, 2010. Biological Resources; Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 37 Responses to the MDAQMD Inquiries, dated February 11, 2010, and docketed on February 16, 2010. Air Quality. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 38 Map of Class II & III Archeological Surveyed Areas, dated February 22, 2010, and docketed on February 23, 2010. Cultural Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 39 Applicant's Draft Decommissioning & Closure Plan, dated February 22, 2010, and docketed on February 24, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 40 Report of Conversation Regarding Anticipated Direct and Indirect Impacts to Vegetation Communities (Between Mike Monasmith & Tricia Bernhardt), dated February 22, 2010, and docketed on February 24, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 41 Report of Conversation Regarding Caltrans Traffic Counts for Interstate I-10 for 2004. 2008, 2012, AFC Table 5.11-2 (Between Mike Monasmith and Tricia Bernhardt), dated February 25, 2010, and docketed on February 26, 2010. Traffic & Transportation. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 42 Genesis Solar LLC's Alternative Proposal for Desert Tortoise Mitigation: A Habitat-Based Approach, dated February 2010, and docketed on February 26, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 43 Genesis Solar LLC's Supplemental Groundwater Resources Investigation, dated March 10, 2010, and docketed on March 16, 2010.
Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 44 Genesis Solar LLC's Revisions to the Jurisdictional Waters, dated March 13, 2010, and docketed on March 17, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 45 Consultant's 2009 Winter Avian Point Count & Burrowing Owl Survey Results, dated April 2010, and docketed on April 7, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 46 Genesis Solar LLC's Data Responses to CURE's Data Request Set 1, (1 through 66), dated April 12, 2010, and docketed on April 12, 2010. Biological Resources (1-66). Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 47 Letter from the US Fish & Wildlife Service regarding the Genesis Solar Energy Project proceeding (Comments on the Draft Desert Tortoise Relocation/Translocation Plan), dated April 15, 2010, and docketed on April 20, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 48 Genesis Solar LLC's Data Responses to CURE's Data Request Set 2 (1 through 9), dated April 28, 2010, and docketed on April 28, 2010. Soil & Water (1-9). Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 49 Genesis Solar LLC's Proposed Soil & Water Conditions of Certification, dated March 2010, and docketed on April 29, 2010. Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 50 Genesis Solar LLC's Proposed Biology Conditions of Certification, dated _____**,** and docketed on April 29, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 51 Genesis Solar LLC's Proposed Conditions of Certification for Other Resource Areas, dated April 30, 2010, and docketed on May 3, 2010. Sponsored by Applicant; received into evidence on July 12, 2010.

Air Quality
Hazardous Materials
Health & Safety
Noise & Vibration
Traffic and Transportation
Visual Resources
Waste Management
Worker Safety

EXHIBIT 52 Genesis Solar LLC's Data Responses to CURE's Data Request Set 3, (1 through 2), dated May 2010, and docketed on May 3, 2010. Alternatives; Project Description; Soil & Water. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 53 Genesis Solar LLC's Responses to Mojave Desert Air Quality Management District's Request for Additional Information, dated May 14, 2010, and docketed on May 18, 2010. Air Quality. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 54 Reasonably Foreseeable Development Scenario: Southern California Edison River Substation, dated May 19, 2010, and docketed on May 19, 2010. Transmission System Engineering. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 55 Genesis Solar LLC's Minor Changes to the Genesis Solar Energy Project Description, dated May 21, 2010 and docketed on May 21, 2010. Project Description. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 56 Genesis Solar LLC's Spring Survey Biological Data, dated May 28, 2010, and docketed on May 28, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 57 Genesis Solar, LLC's Opening Testimony Package, dated May 20, 2010, and docketed on May 20, 2010. All. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 58 Genesis Solar LLC's Fall 2009 and Spring 2010 Biological Resources Technical Report, dated June 2010, and docketed on June 11, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 59 Golden Eagle Risk Assessment, dated June 2010, and docketed on June 18, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 60 Genesis Solar, LLC's Revised Opening Testimony Package, dated June 18, 2010, and docketed on June 18, 2010. Sponsored by Applicant; received into evidence on July 12, 2010.

Air Quality
Alternatives
Biological Resources
Facility Design
Geology & Paleontology
Hazardous Materials
Health & Safety
Land Use
Noise & Vibration
Power Plant Efficiency
Power Plant Reliability
Project Description
Soil & Water
Traffic & Transportation
Transmission Line Safety & Nuisance
Transmission System Engineering
Visual Resources
Waste Management
Worker Safety

EXHIBIT 61 Responses to Mojave Desert Air Quality Management District (MDAQMD) Requests for Additional Information Item #9, dated June 18, 2010, and docketed on June 18, 2010. Air Quality. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 62 Supplemental Information, dated June 18, 2010, originally Docketed June 18; revision with Figure 4 submitted June 19. Sponsored by Applicant; received into evidence on July 12, 2010.

Biological Resources
Cultural Resources
Transmission Line Safety & Nuisance
Transmission System Engineering
Worker Safety

EXHIBIT 63 Genesis Solar, LLC's Rebuttal Testimony Package, dated June 25, 2010, and docketed on June 25, 2010. Sponsored by Applicant; received into evidence on July 12, 2010.

Biological Resources
Hazardous Materials
Soil & Water
Waste Management

EXHIBIT 64 Genesis Solar, LLC's Revised Opening Testimony: Cultural Resources, dated June 25, 2010, and docketed on June 25, 2010. Cultural Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 65 Golden Eagle Surveys Surrounding Four Proposed Energy Developments in the Mojave Desert Region, California, dated June 22, 2010 and docketed on June 24, 2010. Biological Resources. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 66 Revised Opening Testimony changes to Condition of Certifications per the 7/1/10 and 7/7/10 workshops. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 67 Genesis Solar Energy Project – Spring 2010 Field Survey Temperature Data. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 68 Sand Dunes Mojave Fringe-toed Lizard Mitigation with Condition of Certification BIO-20 Discussions. Sponsored by Applicant; received into evidence on July 12, 2010.

EXHIBIT 69 Genesis Solar, LLC's Rebuttal Testimony: Transmission System Engineering, dated July 9, 2010. Sponsored by Applicant; received into evidence on July 13, 2010.

EXHIBIT 70 Genesis Solar, LLC's Revised Opening Testimony: Socioeconomics, dated July 9, 2010. Sponsored by Applicant; received into evidence on July 13, 2010.

STAFF'S EXHIBITS

EXHIBIT 400 Revised Staff Assessment for the Genesis Solar Energy Project, dated June 11, 2010 and docketed on June 11, 2010. (Opening Testimony). Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 401 Cultural Resources Assessment for the Genesis Solar Energy Project, dated June 17, 2010 and docketed on June 22, 2010. (Opening Testimony). Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 402 Rebuttal Testimony for the Genesis Solar Energy Project, dated June 25, 2010, and docketed on June 28, 2010. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 403 Supplemental Staff Assessment, for the Genesis Solar Energy Project, July 2, 2010, docketed on July 9,2010.. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 404 Air Quality-- Mojave Air Quality District Final Determination of Compliance (expected July 16, 2010) Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 405 Transmission Systems and Engineering--CAISO Phase II Interconnection Study (expected July 12, 2010) Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 406 Biological Resources-BLM CDD 2002. Bureau of Land Management California Desert District and California Department of Fish and Game Inland, Desert, and Eastern Sierra Region. Proposed Northern and Eastern Colorado Desert Coordinated Management Plan and Final EIS, July 2002. (selected portions, including Chapter 2, Alternatives, and Appendix D, Desert Tortoise Mitigation Measures, and Appendix A, Maps). Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 407 Biological Resources--BLM 2009 (tn# 57197). Survey Protocols for Special-status Plant Species. Information Bulletin No. 2010-. US Bureau of Land Management. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 408 Biological Resources--CDFG 2009. Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities. California Natural Resources Agency, Department of Fish and Game, November 24 2009. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 409 Biological Resources--Dimmitt M.A. 1977. Distribution of Couch's spadefoot toad in California (preliminary report). Unpublished report filed with the United States Bureau of Land Management, Riverside District Office, California, Under C-062, 6500, and 1792 Sundesert, May 10, 1977, Riverside, California. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 410 Biological Resources--USFWS 2008. U.S. Fish and Wildlife Service, 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, California. 209 pp. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 411 Biological Resources--USFWS 2009. Desert Tortoise Field Manual. U.S. Fish and Wildlife Service, Pacific Southwest Region, Ventura Fish and Wildlife Office. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 412 Biological Resources--USFWS 2009. Final Environmental Assessment – Proposal to Permit Take Provided Under the Bald and Golden Eagle Protection Act. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 413 Biological Resources--CBOC 1993. California Burrowing Owl Consortium. Burrowing Owl Survey Protocol and Mitigation Guidelines. April 1993. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 414 Biological Resources--CDFG 1995 – California Department of Fish and Game, 1995. Memorandum: Staff Report on Burrowing Owl Mitigation_. DFG, Sacramento California. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 415 Biological Resources--Mayhew 1965. Adaptations of the amphibian, *Scaphiopus couchi*, to desert conditions. American Midland Naturalist. 74: 95-109. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 416 Soil & Water Resources--AECOM, 2010. Hydrogeologic Investigation Report. Application for Certification Blythe Solar Power Project Riverside, California. Appendix J3 Data Response in Technical Area: Soil and Water Resources (AFC Sections 5.12 and 5.17) Dated August 24, 2009, docketed August 25, 2009. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 417 Soil & Water Resources--California Energy Commission, 2005. Blythe Energy Project Phase II, Commission Decision, December 2005, docketed December 14, 2005. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 418 Soil & Water Resources--Metzger, D.G. and others. 1973 Geohydrology of the Parker-Blythe-Cibola Area, Arizona and California. U.S. Geological Survey Professional Paper 486-G. 130 pages. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 419 Soil & Water Resources--U.S. Bureau of Reclamation, 2008. Accounting Surface Rule to Eliminate the Unlawful Use of Colorado River. July 16, 2008 in the Federal Register (73 Federal Regulation 40,916). Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 420 Soil & Water Resources--U.S. Supreme Court, 2006. Consolidated Decree, State of Arizona v. State of California.547 U.S. 150 (2006). Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 421 Soil & Water Resources--Whitt, Allen, and Jonker, Kevin, 1998. *Groundwater survey of the Joshua Tree and Copper Mountain subbasins, Joshua Tree, California*. Western Water Surveys report prepared for the Joshua Basin Water District. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 422 Soil & Water Resources--Wiele, S.M., Leake, S.A., Owen-Joyce, S.J., McGuire, E.H., 2008. Update of the Accounting Surface along the Colorado River. Scientific Investigations Report 2008-5113. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 423 Biological Resources--USFWS 2010. Preparing For Any Action Than May Occur Within The Range Of The Mojave Desert Tortoise (Gopherus agassizii). 2010 Field Season Protocol. U.S. Fish and Wildlife Service, Pacific Southwest Region, Ventura Fish and Wildlife Office. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 424 Biological Resources--USFWS 2009. Preparing For Any Action Than May Occur Within The Range Of The Mojave Desert Tortoise (Gopherus agassizii). 2009 Field Season Protocol. U.S. Fish and Wildlife Service, Pacific Southwest Region, Ventura Fish and Wildlife Office. Sponsored by Staff; received into evidence on July 12, 2010.

EXHIBIT 425 Biological Resources—Tetratech. Map of Mojave Fringe-Toed Lizard habitat, May 13, 2010; Google Earth Figure of sand shadow, November 5, 2005-May 25, 2009. Sponsored by Staff; received into evidence on July 12, 2010.

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INTERVENOR CURE'S EXHIBITS

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EXHIBIT 522 WW-II era map of the CAMA. Hazardous Materials and Waste Management. Sponsored by Intervenor; received into evidence on July 12, 2010.

EXHIBIT 523 Withdrawn

EXHIBIT 524 Withdrawn

EXHIBIT 525 Withdrawn

EXHIBIT 526 Withdrawn

EXHIBIT 527 Withdrawn

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APPLICATION FOR CERTIFICATION FOR THE
GENESIS SOLAR ENERGY PROJECT

Docket No. 09-AFC-8

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DECLARATION OF SERVICE

I, _____, declare that on _____, 2010, I served and filed copies of the attached _____, dated _____, 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://ww.energy.ca.gov/sitingcases/genesis_solar].

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:

_____ sent electronically to all email addresses on the Proof of Service list;

_____ by personal delivery;

_____ 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:

_____ 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-8
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.

_____